Korean Medicine: Current Status and Future Prospects

MINISTRY OF HEALTH & WELFARE

Pusan National University School of Korean Medicine

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Published on October 12, 2015 by

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Designed and printed by

Shinjin Communications
2F, 74-21, Taejeon-ro, Dong-gu, Daejeon, Korea
Tel.+82-42-638-7889 Fax.+82-638-7889

This book is sponsored by Ministry of Health and Welfare, and Korea Institute of Oriental Medicine
(Project for Globalization of Korean Medicine 2015).

ISBN 978-89-969318-7-4

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Foreword

Over the long history of Korean Medicine, it has contributed greatly to the promotion of health and treatment of disease throughout Korea. With the increase of chronic diseases that come along with an aging population, interest in Korean Medicine has seen a lot of growth in recent times. In keeping pace with this development, Korean Medicine is faced with an opportunity to contribute to the overall health of the human race.

Despite its potential benefits, Korean Medicine is not as well known as it should be. That is why our government has invited you here as professionals from diverse countries in traditional, complementary, and alternative medicine. Through this workshop on traditional Korean Medicine in Modern Health Care we hope to support the improvement of health throughout the world. It is my personal hope that this conference can further the mutual understanding and progress in the fields of traditional medicine and modern health care in all of our countries.

We have published this book in the interest of optimizing the understanding of participants in this program and its future iterations. It will be improved upon and updated continuously in the years to come in concert with this workshop.

If this book helps the workshop participants, or anyone else who is interested in Korean Medicine, then I will be happy. I could ask for nothing more than that this book serve as a basis for continuous exchange and cooperation with the participants of our program, and see active use in the advancement of traditional medicine the world over.

To all of you participants who have given your limited time and earnest effort to this workshop I extend my deepest thanks.

Sincerely,

Deukyung Ko

Director General of Traditional Medicine Bureau,
Ministry of Health and Welfare, Republic of Korea

Preface

Korea's efforts to integrate its traditional medicine into its modern healthcare system have been some of the most successful in the world. Thanks to well-designed systems of education and licensing, Korean traditional medicine continues to treat disease and promote health throughout the country.

According to the national survey from 2014, 27% of Koreans had visited doctors of Korean medicine within the past three months, and 68% felt that the treatment received had been effective. 2013 saw 103 million visits to clinics or hospitals of Korean medicine, resulting in 1.9 billion US dollars' worth of medical expenditures covered by national health insurance, which amounts to 5% of the national health insurance's total expenditures.

Korean medicine today is legally equivalent to Western medicine and contributes to addressing health problems through both the public and private health sectors. Having doctors of Korean medicine meet standards equivalent to those of Western Medical doctors ensures their quality is on par with the best the world has to offer.

Korea provides an excellent model to other Eastern countries which hope to bring their traditional medicine into practice in the modern world. We hope that Korea can serve as an example for countries at all levels of development to bring their indigenous medicines to the rest of the world. By cataloguing the progress that Korean medicine has made in this regard, we hope that this book can serve as a tool in the effort to integrate the world's medical traditions.

We begin with an introduction to the history and nature of Korean medicine. The first chapter covers the development of Korean medicine from its infancy to the present, summarizing how it has taken shape as a branch of Eastern medicine and offering an overview of its basic theories. In chapter two, a brief introduction is made of its techniques of treatment such as

acupuncture, moxibustion, cupping and herbal medicines, along with their indications and contraindications. This chapter also describes more modern techniques, such as Chuna (Tuina) and pharmacopuncture. The third chapter introduces Sasang constitutional medicine, the idea most unique to Korea among the forms of Oriental medicine. Sasang is an approach to categorizing human constitution codified by Lee Jema in the late 1800s. This section will cover the basic principles, the clinical use and the everyday application of Sasang medicine.

Following this, the discussion turns to the systemic structures surrounding Korean medicine. Chapter four discusses the laws and regulations that have governed Korean medicine since the nation's liberation from the Japanese. It focuses on Korean medicine's position within Korea's modern healthcare system. The fifth chapter moves the subject of focus to the education system for Korean medicine, the most developed of its type in the world. It explains the undergraduate programs that produce clinicians and interns while providing resident training, as well as the routes available for the continuing education of graduate students. Chapter six goes on to describe the regulation of herbal medicine in Korea, the requirements in production and distribution that must be met for approval by the Ministry of Food and Drug Safety.

The final third of the book deals with the process of integrating Korean medicine with modern technology, with chapter seven introducing the development of new clinical skills and fields within Korean medicine and illustrating major breakthroughs in diagnostics and treatment which have been produced by combining modern technology with traditional theories. Chapter eight defines the system of co-practice and outlines its goals, successes and failures, and the shape that it is currently taking. The last chapter deals with the standardization of Korean medicine, its principal agents and mechanisms, as well as useful information regarding ISO, the results of standardization, and the trends developing in other countries.

This book is intended to provide a clear picture of the present state of traditional medicine in Korea, and the direction in which its practitioners are working to steer it. I would like to take a moment to thank all of those who have contributed to this project in spite of their busy schedules, and especially the staff members who took great pains to design, edit and proofread this final product.

October 2015

On behalf of the authors,

Byungmook Lim

Korean Medicine: CURRENT STATUS AND FUTURE PROSPECTS

2015

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Glossary

ABI	Ankle Brachial Index
AKOM	Association of Korean Medicine
ANDA	Abbreviated New Drug Application
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CKM	College of Korean Medicine
CME	Continuing Medical Education
CMM	Classic of Materia Medica
COPD	Chronic Obstructive Pulmonary Disease
CPX	Clinical Performance Examination
CPX	Clinical Practice Examination
CSF	Cerebrospinal Fluid
DHP	Department of Herbal Pharmacy
DITI	Digital Infrared Thermographic Imaging
DNDP	Division of Natural Drug Products
ECG	Electrocardiogram
EMRs	Electronic Medical Records
FET	Five Elements Theory
FFS	Fee for Service
FMA	Full marketing authorization
GACP	Good Agricultural and Collection Practices
GAP	Good Agricultural Product
GHM	Good Herbal Medicine
GMP	Good Manufacturing Practice
GSP	Good Storage Practice
HP	Herbal Pharmacist
ICCMR	International Congress on Complementary Medicine Research
ICT	Interferential Current Therapy
ICTPA	Internal Classic the Twelve Prohibitions of Acupuncture
IKMEE	Institute of Korean Medicine Education and Evaluation
IMS	Intra-muscular Stimulation
JSOM	Japan Society for Oriental Medicine
KFDA	Korea Food and Drug Administration
KHP	Korean Herbal Pharmacopoeia

KIOM	Korea Institute of Oriental Medicine
KM	Korean Medicine
KMC	Korean Medicine Clinic
KMD	Korean Medicine Doctor
KMH	Korean Medicine Hospital
LLI	Leg Length Insufficiency
MHW	Ministry of Health and Welfare
MOU	Memorandum of Understanding
NCCAM	National Center for Complementary and Alternative Medicine
NCCAOM	National Certification Commission for Acupuncture and Oriental Medicine
NDA	New Drug Application
NESA	New England School of Acupuncture
OAM	Office of Alternative Medicine
OECD	Organisation for Economic Co-operation and Development
OPD	Outpatient Department
OSCE	Objective Structured Clinical Examination
OSP	Office of Superior Physicians
OTC	Over the Counter
PBL	Problem-based learning
PNU	Pusan National University
PPG	Photoplethysmograph
PWV	Pulse Wave Velocity
QSCC	Questionnaire for the Sasang Consitiution Classification
RBRVS	Resource-Based Relative Value Scale
SCM	Sasang Constitutional Medicine
SKM	School of Korean Medicine
SOP	Standard Operating Procedure
TENS	Transcutaneous Electrical Nerve Stimulation
TKM	Traditional Korean Medicine
TM	Traditional Medicine
TM/CAM	Traditional Medicine / the Complementary and Alternative Medicine
UNESCO	United Nations Educational, Scientific and Cultural Organization
WHO	World Health Organization

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Pusan National University
School of Korean Medicine

Foundations of Korean Medicine

written by Wungseok Cha

2015

CHAPTER 01

chapter 01

Foundations of Korean Medicine

Korean Medicine, an East Asian Medicine

1) New Light on East Asian Traditional Medicine

Any form of medicine that began developing prior to modern biomedicine is considered to be a form of traditional medicine. Biomedicine has grown rapidly since the establishment of clinical medicine in France and the implementation of scientific equipment such as the microscope, the specialized laboratory, and pharmaceutical medicine. With the advent of antibiotics and sanitized surgical treatment in the early 20th century, the use of biomedicine has resulted in the ability to conquer infections and epidemics that had plagued mankind for centuries. Encouraged by its apparent effectiveness, biomedicine has replaced almost every kind of traditional medicine worldwide.

However, since the 1960s, humans have increasingly developed chronic diseases and diseases associated with lifestyle choices, such as cancer and diabetes. Biomedicine, which was once called the "Magic bullet" because it appeared to result in the eradication of human diseases, was less effective for the treatment of chronic diseases, lifestyle diseases, and emerging epidemics. Because of these unmet expectations, people began to doubt the effectiveness of biomedicine. As the limitations of Western medicine were elucidated, people began to search for alternatives. One was Indian meditation, which was introduced by counter-cultural activists in the United States. Holistic approaches to human health and traditional methods of healing, such as Indian or Tibetan meditation, gained attention. In addition, interest increased in East Asian medicine, which adhered to traditional methods. Around this time a single accident in China brought traditional medicine to the attention of the entire world.

In 1971, New York Times reporter James Reston visited China to report on the political situation surrounding US president Nixon's visit to China. As so often happens, however, things did not go as planned. Having undergone surgery in Beijing for acute appendicitis, and hard-pressed to write any article at all, Reston wrote about his experience undergoing surgery and the acupuncture treatment he received to ameliorate his post-surgical symptoms. Although he had not personally experienced acupuncture anesthesia, his article included information that he had heard about it, which helped publicize the excellence of Chinese acupuncture and acupuncture anesthesia. Subsequently, global attention on East Asian medicine grew rapidly. At that time in China, successful surgeries under anesthesia through acupuncture alone had been performed, and the delegates from Nixon's visit in 1972 had themselves observed acupuncture anesthesia. The knowledge that anesthesia, one of the state-of-the-art technologies in Western medicine, could be achieved by simple needling provided sufficient support for the idea that acupuncture could be applied in other therapeutic areas.

One report states that when an acupuncture clinic opened in Manhattan, New York, the reaction was so enthusiastic that eight thousand people were placed on the waiting list. However, These professional acupuncturists were not as effective as people had hoped. Additionally, local mainstream doctors resisted the trend and, as a result, the sudden public fervor for acupuncture that had arisen largely faded in just a few short years. However, that time represented a turning point for East Asian medicine, including acupuncture.

In 1973, a new bill for acupuncturists was introduced in Nevada, and many people visited East Asia to learn about acupuncture. Some of the visits were to receive treatment. In 1975, the New England School of Acupuncture, the first American institution to professionally educate and foster acupuncturists, was established in the United States. Similar educational institutions followed all over the country, and NCCAOM, the national certification commission for acupuncture and oriental medicine, was founded in 1982. In addition, to manage and support non-mainstream medicine, the American government established an alternative medicine research center in 1991 called the Office of Alternative Medicine, which was made a center of the National institute of health and renamed the National Center for Complementary and Alternative Medicine in 1998.

In Europe, although there were variations by country, people were studying acupuncture as early as the beginning of the 17th century. The term 'acupuncture' was even coined in Europe. The fact that 'Acupunctura, Acupuncture' was registered in the Oxford medical dictionary as early as 1743 reveals a long history of the study of acupuncture in Europe. During the process of modernization, acupuncture was marginalized, but when acupuncture gained worldwide attention in the 1970s, Europe approached acupuncture with a refreshed interest. In the U.K.,

interest in acupuncture had been increasing since the 1960s, and by the 1980s, multiple schools of acupuncture had been established. In The Netherlands, an acupuncture school was established in 1972. In the former Communist bloc, Germany and the Soviet Union were introduced to the study of acupuncture through exchanges with China. Germany in particular has recently received greater exposure to acupuncture through modern exchanges with Japan.

Increasing interest in acupuncture among developed countries in Europe and the Americas has provided an opportunity to shed new light on the traditionally East Asian medicine. Public interest grew in China and Japan, where traditional medicine was still an important part of national healthcare. Consequently, sales in the industry grew, more schools were established, and the government began to provide strategic support. In Japan, where traditional medicine was removed from the national medical system in the late 19th century, some physicians began to reinvestigate traditional medicine.

Coming out of this history, East Asian medicine has received global attention to reached its current state. Subsequently, East Asian medicine in Korea, China, Japan, and Vietnam has been labeled Korean Medicine, Traditional Chinese Medicine, Kampo Medicine, Hannam Medicine or Sino-Vietnames Medicine, and earned a role in the national healthcare system of their respective countries.

2) The Characteristics of Traditional East Asian Medicine

According to the World Health Organization's definition, 'traditional medicine' is a "comprehensive term used to refer to TM systems such as traditional Chinese medicine, Indian Ayurvedic and Arabic Unani medicine, and to various forms of indigenous medicine." Thus, the current definition of 'traditional medicine' involves medicine that remains useful today and can contribute to global health and medical services, rather than to every kind of medicine that was established in the past. The definition primarily involves traditional medicine in Asian cultures, specifically traditional Chinese medicine in China, Korean medicine in Korea, Kampo medicine in Japan, Hannam medicine in Vietnam, Ayurveda in India, and a combination of the former with Arabic traditions to become Unani medicine. Ayurvedic medicine was combined with Tibetan traditions in the north to form Tibetan medicine, and Tibetan medicine spread to the plains of Mongolia to play an essential role in shaping Mongolian medicine. East Asian medicine represents a large portion of traditional Asian medicine, a branch of ancient traditional medicine that has maintained local healthcare since its origin in northeast Asia. Specifically, the East Asian countries of China, Korea, Japan, and Vietnam have had strong ties since they

started to share Chinese characters. Medical knowledge increased under this mutually influential relationship, with the relationship giving birth to the current method of classifying traditional forms of medicine according to the local features of each region.

Traditional Asian medicine developed diverse therapeutic technologies that maintain the balance of body structures and functions under the premise restoring harmony between man and nature. Natural therapies such as herbal therapies, meditation, and various manual practices are the main tools for treatment. Through the meridian system East Asian medicine managed to develop the techniques of acupuncture and moxibustion, which are uniquely its own. East Asia, with its variety of nations and cultures, through centuries of war, trade, and immigration has formed a common tradition in the pursuit of shared values in the fields of religion, philosophy, academics and technology. Through this relationship, each nation has proven its commitment to sharing advances in medical knowledge while forming regional differences in the localized implementation of that knowledge.

3) The Foundations of Korean Medicine

Korean medicine, a branch of East Asian medicine, comprises a range of traditions that have been handed down and developed in the region occupied by the ethnic groups of modern day Korea. This branch of medicine is a combination of local medicine originating from the Korean peninsula and Liaodong China and the medical technologies that are shared in East Asian countries. Through continuous interaction with Chinese nations, which have been central to East Asian medicine, the content and level of medicine in Korea steadily improved and contributed to medical development in Japan with the eastward transmission of knowledge.

Korean medicine is comprised mainly of herbal therapy based on the theory of essence, qi, and spirit, as well as acupuncture and moxibustion based on meridian theory. In addition, various natural remedies have been developed, such as meditation and qigong, massage, and bone setting. Such developments have also influenced culture in terms of food and lifestyle. The accumulation of information regarding both health and nutrition helped establish a healthy lifestyle and provided various cultural devices that efficiently utilized the energy of life. Actualization of the value of medicine in food, living, and culture is an important characteristic of Korean medicine.

In the 12th century, information was distributed with the development of printing technology, and many East Asian countries endeavored to improve their medical traditions through the exchange of knowledge. At that time, Goryeo, the kingdom which became Korea, embraced

the large-scale medical database published In China. Around the 14th century, Goryeo succeeded in forming an infrastructure of local people versed in herbal drugs and medical techniques that could absorb Chinese medical knowledge, the leading system of the time, without importing Chinese drugs or doctors. The newly established Joseon Dynasty, which was founded in 1392, strategically nurtured this progressive medical system and established the system as a basis for the national medical service of the dynasty. In 1477, the Classified Collection of Medical Formulas, the *Euibang Yoochui* (醫方類聚), was published, which is the most extensive database on East Asian medicine to date. In 1613, the Joseon government published the Treasured Mirror of Eastern Medicine, the *Dongui Bogam* (東醫寶鑑), which contributed to the medical development of the neighboring countries of China and Japan. The *Dongui Bogam* was registered as the UNESCO Memory of the World in 2009.

It is characteristic of Korean medicine to focus on the basic features of the body that generate diseases rather than on the disease itself. Hence, the particular pathologic responses of individuals were emphasized, which provides the background on the birth of Lee Jema's Sasang Constitutional Medicine in the late 19th century. Sasang constitutional medicine categorizes humans into four constitutions and discusses the relevant pathogenesis and treatment. This system is currently a major feature of Korean medicine.

4) Medical Traditions of the East

Korean medicine, traditional Chinese medicine, Kampo medicine, and Hannam medicine are the names of East Asian medicine in Korea, China, Japan and Vietnam, respectively. With the development of printing and the diversification of international relations in the 10th century, Korea, Japan and Vietnam, which had been peripheral to China, started to import the most advanced Chinese medicine available. By the 16th and 17th century, they were able to practice medicine with an infrastructure similar to that of China and without importing Chinese drugs or doctors. Since this period, Korea has influenced Japan and China, while Japan has also influenced Korea and China.

The contents and forms of medicine were specialized in reflection of the local culture. Constitutional medicine was specialized in Korea, and a new application of the Treatise on Cold Damage and Miscellaneous Diseases, the *Shanghan Lun* (傷寒論), based on an abdominal examination technique, was developed in Japan. With the advent of Western medicine in the late 19th century, traditional medicine was removed from the mainstream of these nations.

During the modernization process of the 20th century, a state-governed modern medical system was established, and a licensing system was introduced and established in various forms. China developed a state-led medical system comprised of three types of licenses: doctor of Western medicine, doctor of traditional Chinese medicine, and doctor of integrated medicine. The dualized Korean license system consists of the Korean Medicine doctor and doctor of medicine, and healthcare is maintained by the principle of market competition. Japan has no separate device to accommodate traditional medicine within the established institutions, and traditional medicine remains a specialized major under the doctor license. There are remnants of East Asian medicine in Vietnam that are being nurtured by the government, but the infrastructure is very weak compared to the other three countries.

In summary, Korean medicine, traditional Chinese medicine, Kampo medicine, and Hannam medicine developed together in East Asia and now coexist with Western medicine under the healthcare system of each nation. They are similar in that they share basic theories and techniques, but each type of medicine reflects its own peculiarities as a result of centuries of localization. Since the establishment of the modern state, each form of traditional medicine has established itself locally while coexisting with modern national institutions, culture, and Western medicine, which has taken over as the default system of medicine.

The History of Korean Medicine

1) Korean Medicine During the Gojoseon and Three Kingdoms Eras

Gojoseon is said to have been established in 2333 B.C. The existing records indicate that Gojoseon was declining by 400 B.C., and in the late 2nd century B.C., various ethnic states were forming across the Korean peninsula. There are no specific details about medicine during that era. However, according to the most authoritative medical text on East Asian medicine and contemporary Chinese records, the Yellow Emperor's Inner Classic, *Huangdi Neijing* (黃帝內經)'s Discourse on different patterns of suitable cardinal points the Korean peninsula is referred to as the Eastern border of China.

After the fall of Gojoseon, the peninsula split into numerous ethnic states. However, order was regained when a triarchy was formed by the three Korean kingdoms of Goguryeo in the north, Baekje in the southwest and Silla in the southeast. These three regions established a

centralized state while forming international relationships with China and Japan. The triarchy came to an end when Silla destroyed Baekje and Goguryeo. Subsequently, Silla dominated the southern peninsula and Balhae, a coalition formed by migrants from Goguryeo and Khitan, and ruled the northern peninsula for a period of time. The former period is called the Three Kingdoms Period, and the latter period is called the North-South States Period.

Medical professions were established under the central governments of the Three Kingdoms Period, including the classifications of royal doctor, royal pharmacy, medical professor, herb collector, and shaman is the proper term. According to the book The Heritage of the Three Kingdoms, the three kingdoms implemented relief measures such as distributing food, tax concession, and medical aid during times of famine and epidemics. It was also during this period that Buddhism came to Korea through China, which also resulted in the introduction of Buddhist medicine. There are few records from this time, and thus a detailed understanding is difficult. However, many of the remedies remaining from this era have a Buddhist mantra attached.

In the year 561 of the Three Kingdoms era, a prince in Wu China called Zhicong is known to have arrived in Goguryeo with 164 volumes of medical textbooks. In 692, the first medical school was established in Silla. Two residing professors taught seven subjects, including the Classic of Materia Medica, *Bencaojing* (本草經). Additionally, a medical organization called the Yakjeon (藥典) Medical Office was established by the central government.

One of the herbs that Korea is most famous for is its ginseng (人蔘). Korean ginseng is called Goryeo Ginseng, and it was well known in China as early as the 4th – 5th centuries. The Chinese physician Tao Hongjing wrote in his Compiled Annotation of Materia Medica, *Bencaojing Jizhu* (本草經集註) that ginseng originating in Korea is second only to that of Chinese Shangtang ginseng in China. However, the quality of Shangtang ginseng that was distributed in the market did not live up to its reputation, and until the early 20th century, Korean ginseng was an expensive trade item in East Asia, representing one of the gifts that would be sent to noble foreign diplomats. Other herbs such as Asarum (細辛), Schizandra (五味子), Coltsfoot (款冬花), Laminaria (昆布) and Typhonium (白附子) were famous in China and were major exports from Korea to China.

2) Medical Policies of the United Goryeo State

The kingdom that united the Korean peninsula after the North-South States Period was Goryeo. During the Goryeo dynasty, the Korean border was established along the Amnokgang (Yalu River) and Dumangang (Tumen River). While inheriting the political and

sociocultural conventions of the prior Silla, Goryeo incorporated new social structures through its active interchange with China. The medical system included a medical policy hub called the Taeuigam (太醫監), and the Office of Superior Physicians was established to manage overall state healthcare. In addition, the Sangyakguk (尙藥局), which corresponds to the National Medical Center of today, was established, and policies installed medical education institutions in the capital and provinces. In the royal court there were who treated the king, prince, and high level bureaucrats exclusively. There were also positions for military doctors, veterinarians, and prison doctors. Doctors were also put in charge of the food within the royal court.

The most important medical policy in Goryeo was the introduction of an official exam system to evaluate practitioners. Examination was divided into two sections, one for the general physicians and one for surgeons. General physician candidates were judged in terms of overall medicine while surgeons were assessed by their skill in acupuncture and the treatment of sores.

3) Chinese Influence and the Formation of Korean Medicine

An important change in Korean medicine during the mid-Goryeo and early Joseon periods was the formation of Korean herbal medicine. Korean Herbs (鄕藥) is a term that was created to distinguish the medicinal herbs produced in Korea from those imported from China. The origin of the herbs became an issue as trade with China increased and Chinese medical textbooks were introduced in abundance in Korea. With its increasing centralization and the development of the printing press, China had published its national database of medical knowledge dating back to the foundation of the Song dynasty. The Great Peace and Sagely Benevolence Formulas published in 992 represents this achievement and contains approximately 16,000 remedies in 100 volumes. In addition, China concomitantly organized and distributed information on 1000 herbs. During that era, Chinese medicine was the best in East Asia. To introduce and import this medical technology, the Goryeo government brought in Chinese doctors and imported medical books and herbs. The high cost of importing herbs stimulated the development of domestic herbs. Domestic herb development was popular in the public sector, and most of the medical books published between the 12th and 14th century focused on the development and application of domestic herbs.

4) The Foundation of Joseon Dynasty and the National Healthcare System

The 474th year of the Goryeo dynasty ended with Lee Seong-Kye's coup in

1392 and the Joseon Dynasty was founded. The Joseon Dynasty ceased the Buddhist social conventions established by Goryeo and sought to replace them with national institutions based on Confucian ideals, which was the new trend in East Asia at that time. The medical policy of the dynasty was directed toward fostering a workforce trained to maintain national healthcare services and to build a medical Database that would be used in clinical practice and education. Medical professors were sent to the central and provincial governments to nurture and develop the country's medical infrastructure and build a medical database. The state began to support Korean herbal medicine, which was gaining popularity.

A reduced reliance on the importation of herbs and the management of most national healthcare through domestic herbs was an effective policy that gained support from the general public for the newly founded government. Because of these efforts, the Joseon government was able to publish the Compendium of Formulas Using Korean Herbs, *Hyangyak Jipsungbang* (鄕藥集成方), a medical textbook that contained 10,706 prescriptions for 959 disease patterns using 703 kinds of domestic herbs. To publish this book, the government dispatched envoys to China in 1423 to compare the efficacy of domestic and Chinese herbs and manufactured a national report on the natural growth and cultivation of herbs in 1424. In 1428, a manual regarding the harvest season and processing methods for herbs was produced to maximize the efficacy of the drugs. Aided by such multidirectional efforts, the Joseon government succeeded in constructing this state sponsored medical database in 1433.

Following the publication of the Compendium of Formulas Using Korean Herbs in 1433, the development of domestic herbs was no longer an issue in Korean medicine. It appeared that 700 kinds of domestic herbs were sufficient to fully utilize contemporary East Asian medicine. However, the Joseon government did not stop its efforts in developing domestic herbs, and it started to build a database regarding Chinese medicine as well. In 1445, a draft of the Classified Collection of Medical Formulas, the *Euibang Youchui* (醫方類聚), was compiled, in which almost all of the medical textbooks available in East Asia were collected and reorganized. The book was not published immediately, but after 30 years of reorganization and revisions, 30 sets of the *Euibang Yoochui* were released. This book seems to have served as a reference for medical education, policy and administration, and national healthcare as opposed to having been distributed for private use. There are currently no known artifacts of this book except for one set that was plundered during the war with Japan in 1592 and remains in Japan's Kunaicho (宮內廳) library. Intact in this book is the system of Eastern medicine contemporary to that era and thus it is significant even now in China, Japan, and Taiwan. It has seen publication in several times in recent years.

5) Publication of the *Dongui Bogam* and Identity of Korean Medicine

One of the greatest achievements of Joseon Korea is the publication of the *Dongui Bogam* (東醫寶鑑, Treasured Mirror of Eastern Medicine). Registered as a UNESCO Memory of the World in 2009, this book was written by a court physician named Heo Jun (1539-1615) in 1610, and was published by the government in 1613. The *Dongui Bogam* is the most widely known textbook of traditional medicine to come out of Korea. The book was selectively edited and published for private use, giving rise to the implementation of relatively high quality medicine outside of the Joseon court. The book was renowned in both China and Japan, and saw publication twenty times in other countries. After the publication of the *Dongui Bogam*, Korean medicine was restructured around the book's contents. Since 1613, Korean medicine has concentrated on internalizing the contents of the *Dongui Bogam* and, more importantly, focusing itself on the circumstances distinct to Korea rather than looking to China for its direction. This is when Korean, Japanese, and Vietnamese traditional medicines began to develop a separate identity from the Chinese system.

6) The Tradition of the Scholar-Physician in Korea

Around the 11th century Buddhist philosophy went into decline and the Confucian philosophy, which denied the possibility of an afterlife, took its place as the mainstream school of thought. The Confucian world view explains the universe according to human logic and perception and defines the roles and relationships of humans according to that view. Confucian scholars were trained in knowledge through books and texts, and they formed a network with one another through these conduits. With such a transformation of worldviews, East Asian countries chose to select bureaucrats through the process of examination, and the number of intellectuals who were familiar with the texts and books grew rapidly. Since the 12th century, these scholars have led the changes in East Asian medicine, and the mystical medicine of former times gave rise to a more universal and logical variety of medicine. Scholar physicians in East Asia are doctors who have an academic background. Before medical licensing existed, medicine was perceived as knowledge that was fundamental for family care.

The processes of diagnosis and treatment for the king were documented in detail in the Daily Records of the Royal Secretariat of the Joseon Dynasty, an official document from the king's secretariat in the Joseon court. In ancient society, the king's health was of great political importance, and the assessment of the king's health was an essential matter of state. Illness of the king presented an issue of national security, and to eliminate the possibility of assassination the head of the cabinet was responsible for the royal medical services.

The king had a regular examination every six days regardless of his state of health, and the whole process of diagnosis and treatment was thoroughly recorded. The role of the scholar physician in this process predominated. When the professional physician who was affiliated with the Office of Royal Doctors visited the king, he explained to the king and attendants the disease, condition, choice of treatment, and medication. Any doubts regarding his explanation were raised and discussed, and only when the king and his attendants were satisfied and provided consent did the treatment begin. Of course, the courtiers were in attendance during the treatment, and the prognosis was always discussed with the king's attendants.

The 287 years of unbroken documentation in the Daily Records of the Royal Secretariat of the Joseon Dynasty prove their dedication to this process. The kings also had a profound knowledge of medicine. King Hyunjong (1641-1764) was famous for having a fervent dispute with the royal physicians regarding medicine, and King Jeongjo (1752-1800) even wrote a medical book.

There were countless cases in which provincial intellectuals devised their own prescriptions in the absence of a local physician or when the available professional was insufficient. Ordinary people visited local physicians when they fell ill, but they frequently visited respected scholars when in need of prescriptions. Community leaders would request famous doctors from near and far when there was a patient in the household. In general, multiple physicians were invited and employed after evaluating their treatment principles and methods. The difference between professional physicians and scholar physicians was the method of treatment experience in the treatment of patients and adeptness in choosing a detailed method of treatment. Outside of this, knowledge of medicine and treatment methods were common among Joseon intellectuals.

7) The Growth of Private Healthcare and the Medical Culture of Korea

Korea is fairly unique in that herbs feature prominently in its founding myth. The myth begins with a bear and a tiger begging Huanwoong (桓雄), who had come down to earth from heaven, to make them human. Huanwoong gave them garlic and mugwort, telling them that they must stay inside a cave for a hundred days to become human. The tiger ran away after a few days, but the bear endured and became a beautiful woman. Dangun Wanggeum (檀君王儉), who founded Gojoseon, is the son produced by the marriage of Huanwoong and the bear woman. It is not clear when the myth was created. The story was transmitted orally until it was printed in the Heritage of Three Kingdoms (三國遺事) in 1281. Regardless of the truth of the story, it is a famous tale that is known to all Koreans, passed down from generation to

generation. The garlic and mugwort in the tale came to be regarded as healthy foods, and even now they are considered medicinal foods and are well-rooted in Korean medical culture.

Private medical services were very important in ancient Korea when the distribution and availability of professional physicians was insufficient. When Joseon was founded in 1392 the government investigated naturally growing herbs in provinces and distributed a manual regarding their related collection periods and uses. Due to these efforts, various health tips pervade Korean culture. A considerable amount of knowledge on methods for the prevention and healing of disease has been accumulated, regarding everything from the proper food to the correct behaviors, postures, attitudes, and even thoughts. This sort of knowledge has shaped cultural conventions. This is a common phenomenon in ethnic groups or nations with ancient traditions. A good example of one of these conventions is the food culture of Korea. In Korea, food is looked at not only for its taste or safety, but also its effect on health. It is not rare for people to choose their food based on their constitution.

In the regional herb markets of the 18th century, medicinals were cultivated and traded across Korea. Gaesung (開城) and Geumsan (錦山) were the main trading centers for ginseng, while herb trading markets appeared in the key centers of Korea such as Seoul, Daegu, Youngchun and Sanchung. These markets also served to promote a wider use of medicinal herbs in the private sector.

8) Changes in the Medical Field of the Late Joseon Period

Western medicine came to Korea through China when the Joseon scholar Lee Yik (1681-1673) introduced the *Zhuzhi Qunjing* (主制群徵), which was written in Chinese by Adam Shall (1591-1666). However, mainstream East Asian medicine, including in Korea, was not in a hurry to accept Western medicine. In contrast, at that time, Western medicine began to become popular in China. Emperor Kangxi of Qing China appointed Jesuit missionary doctors as medical attendants, but they had a minor role in the Qing court. At best, the extent of their influence was the introduction of quinine, the cure for malaria. It was after the mid-19th century, when the traditional social order collapsed and the entire society sought something new, that Western medicine gained an influence in Korea similar to the way it had in China. Since this period, Western medicine has developed radically in terms of scientific technology, particularly anesthetics and disinfectants. Jeong Yakyong (1762-1836), a renowned scholar and politician of Joseon, wrote medical books, introducing Jenner's vaccination and criticizing the current medicine as being old and obsolete. Choi Hangi (1803-1879) wrote the Humble Experience on Marble Mechanism (身機踐驗), in which Benjamin Hobson's book on Western medicine that

was published in China was introduced. These texts initiated studies by Joseon scholars of the methods and origin of Western medicine. However, these efforts were sporadic, and political and social confusion during this era prevented the medical system from reconstructing itself internally. Since then, Western medicine has had the strongest influence in Korea.

9) The Influence of Western Medicine

Western medicine started to truly affect Korea in 1876, when Japan forced Korea to open its ports to trade. Japan established Western hospitals in Korea to provide medical services to Japanese people residing in Korea. By 1884 the cowpox vaccination introduced by Japan had facilitated the transmission of Western medicine to the public. After 1885, the government implemented Jenner's vaccination nationwide. At the same time, the official introduction of Western medicine is deeply related to the coup by the Reform Party in 1884. After the American missionary doctor Horace Newton Allen (1858-1932) treated Min Youngyik (1860-1914) during an armed conflict in December 1884, government officials openly modified their stance on Western medicine. In April of 1885, a modern Western hospital was established in Korea for the first time. The role of Western medicine in medical administration increased, and in the private sector, missionaries established modernized hospitals all over the country.

After the political reform which led to the modern system took place in 1894, the modern state was established in 1897. In addition to political reform, medicine was also an object of reform and, in 1899, a modern medical school based on Western medicine was established. Traditional doctors who had been marginalized by the reform requested an official educational institution, and Emperor Gojong sponsored, at his own expense, the foundation of Dongje Medical School (同濟醫學校), a professional institution for education in traditional medicine. After the political reform that occurred between 1894 and 1907, at which point Japan's interference in domestic affairs was still quite minimal, a flexible policy that added the infrastructure and knowledge of traditional medicine to Western medicine was executed. However, when Japan increased its interfere in domestic affairs, and the 1910 Japanese annexation of Korea occurred, traditional medicine completely disappeared from government policies.

This disappearance is strongly associated with the Japanese attitude toward traditional medicine. In Japan, starting with the Meiji Restoration of 1866, Western medicine took the place of traditional medicine. By the 20th century, traditional medicine was no longer functioning under modern Japanese rule. Japan directly imported its ruling system when colonizing Korea, and colony rulers appear to have judged that, regardless of the status of traditional medicine in

Joseon, traditional medicine in Korea could be eradicated gradually as it was in Japan.

However, due to a lack of sound infrastructure, medical policy based on Western medicine pursued by the Japanese colonial government did not function well. In 1913, the government had no choice but to absorb the traditional medical doctors into the official medical system as medical apprentices, Uisaeng (醫生). They were under the supervision of western doctors, which was a step below a legal doctor. At a time when the Western medical infrastructure was still very weak, traditional Korean medicine had an opportunity to accept the merits of Western medicine and develop itself internally. In the 1930s in particular, when Japanese colonialism extended itself to mainland China and the world went to war, Western medical infrastructure was pulled onto the battlefield, and a vacuum developed in domestic medical services. To fill this gap, the colonial government encouraged traditional Korean medicine and strengthened the infrastructure of traditional public healthcare.

10) Western Medical Infrastructure During Japanese Colonization

The foundation of the modern medical system in Korea was formed during the Japanese colonization. Conventional medical schools were abolished, and the Daehan hospital affiliated medical school was established to nurture the Western medicine-based infrastructure. Other government sponsored hospitals were established nationwide. In areas where hospitals could not be built, the state dispatched doctors to supervise areas outside of the hospital. These efforts were intended to build a national healthcare system. In 1913, legislation was introduced to define the legal responsibilities of healthcare providers. Traditional physicians were included in the modern licensing system in order to supplement the lack of medical infrastructure. As this was happening, the government mobilized a police force to manage epidemics through a department called the hygiene police. During the Japanese colonization, the core of government policy on medicine was national management and treatment of acute or chronic contagious diseases such as smallpox, cholera, leprosy, and tuberculosis.

11) Korean Medicine After Liberation, a Harmony of the Traditional and the Modern

After liberation from the Japanese in 1945, Korea established a modern independent state. Until 1948, the medical infrastructure that resulted from the Japanese colonization was retained under the United States military government. When the Republic of Korea was established in 1948, discussions were initiated regarding how to deal with

traditional medicine within the modern national healthcare system during the process of reforming the specifics of the constitution.

The Korean War, which broke out while these discussions were in progress, created another turning point in the Korean healthcare system. Although three years is a relatively short time for a war, all of the infrastructure in Korea, including the medical facilities, collapsed. The important medical issues of the time were the spread of new epidemics, injured war veterans, and psychiatric patients strained by tumultuous social changes of the time. While the advancement of surgery from experience with battle injuries and medical foreign aid contributed to the development of the Korean medical system, almost 70% of the medical infrastructure was destroyed by the war, and the national system of healthcare had to be rebuilt from scratch.

The National Medical Act, which led to the modern Korean healthcare system, was initiated by the government-in-exile in 1951, before the armistice. Although no country had included traditional medicine in its modern legal system previously, the Korean congress passed a bill that would acknowledge traditional medicine along with Western medicine in July of 1951. In September of that same year, a medical act guaranteeing equal status for doctors of Western medicine, Korean medicine and dentistry was declared. Following that, Western medicine gradually became the standard system for national healthcare. In addition, the family planning policy in 1961, the major workplace health plan enforcement in 1977, the nationwide farming and fishing village health plan enforcement in 1988, and the nationwide city health plan enforcement in 1989, led to the era of nationwide medical insurance. Since that time, government health insurance and private health insurance expanded, and increasingly more medical institutions included national, public hospitals and proprietary hospitals. Along with the growth of hospitals came the growth of the domestic medical industry, including pharmaceutical companies and medical device manufacturers.

The passage of the dualized medical act in 1951 provided legal protection, in the form of licenses, equivalent to that of doctors, dentists, and nurses, to practitioners of traditional medicine. Through the remarkable results of Western medicine from antibiotics and surgery, as well as the effective use of vaccines to eliminate epidemics, it quickly took the place of traditional medicine in Korean society. Where the needs of the people were focused toward healing chronic diseases and prolonging and enhancing the quality of life, however, the demand for traditional medicine persisted. Doctors of traditional medicine focused on bringing back and developing the strengths of traditional medicine while coming into harmony with Western.

The interest in traditional medicine and its role has increased since the 1970s. Once seemingly capable of eradicating all diseases on earth, Western medicine demonstrated its limitations in terms of chronic diseases, lifestyle diseases, and new infectious diseases, such as AIDS. Hence, people searched for alternatives in the form of traditional medicine, and when the acupuncture anesthesia of China began gaining worldwide attention, attention turned once again to Korean medicine. Soon after the success of China in acupuncture anesthesia, the procedure was successfully repeated in Korea in 1972. In 1973, a World Acupuncture Convention was held in Korea, where Korean medical doctors demonstrated surgery utilizing acupuncture anesthesia.

This series of events led to the explosion of traditional medicine in Korea, resulting in eleven Korean medical schools by the 1980s. Since 1983, the government has only authorized graduates of six-year courses at the College of Korean Medicine to practice traditional medicine, and banned similar practitioners from practicing traditional medicine under the pretense of the sale of herbs. Since 1987, traditional medicine was included in the national medical insurance system, and its scope of application continued to widen. In 1993, there was a large-scale conflict between Korean Medicine doctors and pharmacists regarding herbal drug prescription rights, and the conflict continued over the initiative toward a rapidly growing traditional medicine market. The government founded the Korean Institute of Oriental Medicine in 1994 and enacted the Oriental Medicine Promotion Act in 2003 to enhance the value of Korean medicine.

12) Major Medical Books and Important Figures in Korean Medicine

The oldest existing Korean medical book is the Formulas Using Korean Herbs for Emergencies, *Hyangyak Gugeupbang* (鄕藥救急方), which was printed in woodcut between 1232 and 1251. The book was written during the time of domestic herb development and is a documentation of symptoms that can be treated by herbs originating in the Korean peninsula. Regarding the use of domestic herbs in Korea, the Compendium of Formulas Using Korean Herbs (鄕藥集成方) was published in 1433 and contained 10,706 prescriptions for 959 disease patterns using 703 domestic herbs. This publication represented a compilation of the development of domestic herbs promoted by the government and the private sector, which the infrastructure to utilize leading medical technologies from China seemed to have succeeded in setting up. Following the establishment of this infrastructure, the Joseon medical community attempted to build an unprecedented large-scale medical database to internalize Chinese medical technology. The 266 volumes of the Classified Collection of Medical Formulas (醫方類聚) was completed in 1477 and encompassed the entire medical technology in China and

Joseon during that era. This database masterpiece facilitated the progress of Joseon medicine. At the same time, the treatment of abscesses was essential in ancient society, where it was difficult to address infections. Lim Eonguk (1500s), a famous surgeon in Joseon, wrote about his experience with the treatment of abscesses in the Compass for Abscesses (治腫指南) in 1559, which became widely known in China and Japan.

Heo Jun's *Dongui Bogam* (東醫寶鑑), which was written in 1610, was an important medical book that demonstrated that Joseon medicine had evolved to the point that it was equivalent to Chinese medicine at that time. Heo Jun, a self-made man and celebrated professional physician, had originally practiced among common people and later rose to chief doctor in the royal court. He performed traditional Joseon medicine and was trained by practicing among civilians. Chinese medicine had been studied systemically since the beginning of the Joseon Dynasty, and thus also contributed to the release of the closely following the trends of Chinese medicine. After the publication of the *Dongui Bogam*, the Joseon medical community was no longer closely following the trends of Chinese medicine.

Evolving independently, the Joseon medical community continued to publish specialized books on gynecology, pediatrics, acupuncture, and smallpox treatment. Numerous compact medical books were published for convenient public use. Since the introduction of Western medicine in the late 18th century, medical books that attempted to comprehend Western medicine within the framework of Joseon medicine were produced. Jeong Yakyong's Compilation of Smallpox (麻科會通) in 1798 was the first medical book to introduce Jenner's cowpox vaccination. Humble Experience on Marble Mechanism (身機踐驗), which was written in 1866, was the first medical book to interpret Western medicine itself through the perspective of Joseon.

Lee Jema's (1837-1900) Longevity & Life Preservation In Eastern Medicine (*Dongui Suse Bowon*, 東醫壽世保元) was the most recognizable medical text published around this period. Lee Jema, who is known as the founder of Korean Sasang constitutional medicine, argued for medicine based on humans rather than diseases, using the keyword constitution as a focal point. His philosophy remains influential today.

The publication of Western medical books through translation or editing began after Western medicine became genuinely influential and Western medicine-oriented medical schools were established. As Western medicine started to exert influence on Korean society after the Japanese colonial era, numerous medical books embodying interpretations of Western medicine were published. The book most representative of this trend is the Easy Version of Korean Medicine Principle (通俗漢醫學原論) by Cho Hunyoung (1901-1988), which was published in 1937.

Theories and Characteristics of Korean Medicine

1) Basic Philosophy

The basis of Korean medicine is balance with the universe following the concepts of Yin and Yang (陰陽) and the Five Elements (五行). Humans belong to the natural world and are in contact with nature on a daily basis. Thus, the universe and human beings are inseparable. Korean medicine characteristically treats the founding principles of the human body as equivalent to those of the universe. Thus, physiology, pathology, pharmacology, and treatment rules are based on the universal laws of nature. The Five Elements theory categorizes the stages of movement into five stages corresponding to the five elements 木, 火, 土, 金, 水 (Wood, Fire, Earth, Metal, Water) to emphasize the changing phases of an object. The Five Elements were a key paradigm for understanding natural phenomena to ancient East Asians. The theories of Correspondence to the Universe, the Yin-yang, and the Five Elements provided a complex worldview for understanding nature, humans, and society outside of the areas of thought that were restricted to medicine. Of course this cosmology also applied to medicine. However, with the accumulation of medical experience, these theories which belong to ancient philosophy have proven insufficient for explaining various pathologies. Therefore, dependence on them has decreased.

2) Constituents of Physiological Activity

In Korean medicine, the primary physiological components are essence, spirit, qi, blood, fluid and humor (精, 神, 氣, 血, 津液).

Essence (精) is the root of human life energy, which is generated at the very start of a human life. Essence was conceptualized by the seeds in plants and semen in animals. Essence was seen as the power that preserves both species and individuals. Essence received from parents synthesizes external energy with the information and power stored within it to aid in the development of individuals, similar to the genome of today. The original meaning of the Chinese character 精 is "most fine." If body mass and activity are all the materialization or kinematic actions of qi, then essence is at the core of qi. Essence cannot be easily supplemented by exercise or food and is, to some degree, innate. Conserving and protecting this qi essence is the most important virtue of lifestyle, which provides a medical explanation for the caution against sexual imprudence.

Spirit (神) encompasses the cognitive system that enables independent activities for humans. The spirit's action is based on the life energy of essence, and a more fulfilled essence results in an improved function of the spirit. The vitality of human physical, mental, and social activity depends on the firmness of cognition, and the root of this consciousness is related to the completeness of essence. Essence and spirit are both stored in the five viscera that represent the core system in our body.

If essence and spirit are the foundation of bodily activities, then qi (氣) and blood (血) are the entities that actually perform the internal functions of our bodies. Thus, they perform the visible and invisible human activities in accordance with cognitive activity. There are two sources of qi: one is from the digestion of food and the other is from air being absorbed by the lungs. Food is called earth qi (地氣) and air is called heaven qi (天氣). The body combines earth qi and heaven qi to produce essential qi. Fluid and humor is a generic term for the liquids within the body, which becomes either blood or qi.

3) Human Body Structure

The body structure in Korean medicine is composed of the five viscera and six bowels of the interior, as well as the five sensory organs, the five agents and meridians that deputize the viscera and bowel functions.

① The Five Viscera and Six Bowels (藏腑)

Korean medical anatomy includes the five viscera, the six bowels (五臟六腑), and the extraordinary organs (奇恒之腑). The five viscera (五臟) are the liver, heart, spleen, lung, and kidney (肝, 心, 脾, 肺, 腎), which are the most important organs in Korean medicine. The five viscera are especially important because, first, they are a reservoir of essence, qi, spirit, and blood, and are thus the basis of life activity. Second, they govern the mind, which is the largest role of the five viscera. This function, which is refered to as spirit reposition (藏神), makes up all of the mental activity that maintains our body, which is considered to be to the function of the brain in Western medicine, that is performed by the allocated roles of the five viscera.

Therefore, emotions such as anger, sorrow, joy, and thought are all explained interrelated association with the functions of the viscera. Hence, the five viscera, which are interrelated with changes in climate and the external environment, play a vital role in adaptation and homeostasis as they are the directors of bodily organs and mental activities.

The functions of the five viscera are summarized as follows. The primary functions of the heart are spirit reposition (藏神) and the governance of the blood vessels (主血脈). The heart leads the five viscera as the dominant organ (君主之官). The lung governs qi activity in the body, takes in air, combines air qi with earth qi ascending from the stomach to create human qi, and distributes qi throughout the body. The liver is the militant organ (將軍之官) which mainly stores blood. The spleen participates in the digestion and absorption of food together with the stomach, small intestine, and large intestine as the "Internal Classics." It transports fluid and humor throughout the body. The kidney is where the qi essence generated by the five viscera is finally stored. The kidney also governs reproduction.

The six bowels (六腑) are the stomach, small intestine, large intestine, bladder, gallbladder and triple energizers (胃, 小腸, 大腸, 膀胱, 膽, 三焦). They are assigned to the spleen, heart, lung, kidney, and liver, each as sibling organs to assist visceral functions. The material existence of triple energizers has been long disputed, and they control whole body functions through the triple functional zonation of the upper energizer (上焦), middle energizer (中焦) and lower energizer (下焦). In addition, there are extraordinary organs (奇恒之腑) comprising the brain, bone, marrow, blood vessels, gallbladder and uterus (腦, 髓, 骨, 脈, 膽, 女子胞) that assist with the functions of the viscera and bowels.

② Five Sensory Organs and Five Agents

The five sensory organs are the eyes, nose, mouth, ears, and tongue. The five agents are the skin, muscle, flesh, pulse, and bone. When outside information enters through sensory organs and transmits to the five viscera, the five viscera make judgments based on the activity of the spirit, and the six bowels move the five agents according to the orders of the viscera to maintain the functions of life. This is the way the body operates, according to Korean medicine. The six bowels generate energy through the digestion and absorption of food, and they direct the five agents to maintain their necessary activities.

③ Meridians

Meridians in Korean medicine not only represent the passage of blood circulation, but are a network structures that connect the interior and exterior of the body with the bodily organs. The meridian system is widely used for diagnosis and treatment. The system is divided into a 12-meridian system and an 8-meridian system. The twelve-meridian system is related to acupuncture treatment in Korean medicine and consists of the following: the lung meridian (手太陰肺經), large intestine meridian (手陽明大腸經), stomach meridian (足陽明胃經), spleen meridian (足太陰脾經), heart meridian (手少陰心經),

small intestine meridian (手太陽小腸經), bladder meridian (足太陽膀胱經), kidney meridian (足少陰腎經), pericardium meridian (手厥陰心包經), triple-warmer meridian (手少陽三焦經), gallbladder meridian (足少陽膽經), and liver meridian (足厥陰肝經). These meridians are interconnected, and the meridian qi sequentially circulates these meridians periodically. The eight meridians are an ancient system to explain body function and structure. The meridians and acupoints belonging to each meridian that are known today were determined in the 13th century. The English nomenclature currently in use was settled on by the World Health Organization in 2006.

4) Causes of Disease and Pathogenesis

In Korean medicine, the cause of disease is classified based on mental activity, lifestyle habits, and the environment or climate. Mental activity is further categorized into either five emotions (努, 喜, 思, 憂, 恐), or seven emotions (喜, 努, 憂, 思, 悲, 驚, 恐), that purportedly influence visceral activities to cause disease. Treatment methods for pathogenic habits such as the excessive intake of food, flavor predilection, drinking, sexual overindulgence, overexertion and fatigue, and abodes that cause an imbalance in life activities are explained. Disease mechanisms related to climate change are explained by climate factors such as wind, cold, summer heat, dampness, and dryness. For the actual pathogenesis, wind, cold, summer heat, and dampness were considered especially significant.

Numerous external factors are considered to be pathogenic factors in Korean medicine, but even more important is the internal condition that is responsible for disease. Based on the aphorism "Pathogenic qi enters only when healthy qi is insufficient (邪氣所湊, 其氣必虛)", if the defense capacity known as healthy qi (正氣) is sufficient to protect the body against exopathogens, then no pathogen can affect the body.

The mechanism of disease is categorized mainly into three types. The first is the insufficiency or stagnation of healthy qi, the second is invasion of the exopathogen to interrupt the circulation of healthy qi, and the third is abnormal yin-yang activity. A deficiency in healthy qi triggers deficiency (虛) pattern syndromes, and pathogen invasion results in excess (實) pattern syndromes. Exuberance or debilitation of yin and yang incur cold (寒) or heat (熱) patterns. Patterns of deficiency-excess and cold-heat in the body are the most basic pathological changes resulting in disease, and they often appear in Korean medical discourses on pathogenesis and processes.

5) Diagnosis and Treatment Methods

Korean medicine understands human physiology in terms of balance. When this balance is disrupted, external signs arise. Korean medical diagnoses determine the therapeutic target by categorizing that sign. Generally, there is a visual inspection, listening, inquiry, and palpation. The most developed examination methods are inspection, inquiry, and palpation, which are sometimes aided by modern medical diagnostic tools. Palpation is a distinctive Korean medical diagnostic method in which the intensity, velocity, and pattern of the pulse are categorized into dozens of patterns and diagnosed. The practitioner ultimately wishes to determine what the circulation of qi inside the body is, how this flow of qi induces relevant symptoms, and the therapeutic principles and methods that should be selected.

6) Korean Medical Treatment and Preventative Care

In Korean medicine, medicinal herbs that are appropriate for the patient's symptoms are selected among thousands of natural herbs and prescribed as decoctions, pills, or powders. Pharmaceutical companies are currently developing drug extracts. In addition, there are treatments using acupuncture and moxibustion. Various schools of acupuncture and moxibustion are studying the selection of acupoints. Sometimes manual treatments, such as massage and conduction exercise, are used. Various treatments based on Korean medical principles such as meditation, music, or art therapy are also being developed.

While innumerable treatment methods have been accumulated in Korean medicine, prevention is regarded as the most important goal, early and treatments focused on the root cause of illness are emphasized. Prevention is considered to be so essential because the treatment of epidemics and infections was poor in ancient society. In the presence of pestilential or infectious disease, people are often helpless. Epidemics and infections exhibit diverse individual variation depending on the prevalent disease patterns. People discovered that the difference in such variation lay in the strength of healthy qi prior to disease, and they gradually learned ways to enhance healthy qi. This knowledge has been emphasized continuously through preventative treatment and life-nurturing in Korean medicine. Although there are currently few problems associated with epidemics or infections, the need for protection against diseases remains strong. Therefore, the traditional method for improving healthy qi is a branch of traditional medicine that has recently been in the limelight.

Korean Medicine :
Current Status and Future Prospects

Pusan National University
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Sasang Constitutional Medicine

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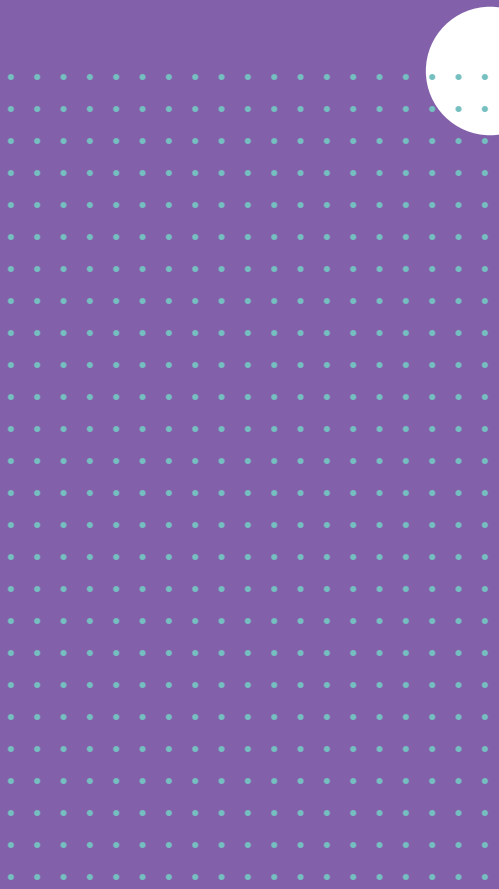

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CHAPTER 02

chapter 02

Sasang Constitutional Medicine

The Origins of Sasang Typology

Sasang Constitutional Medicine (SCM) is a medical tradition that studies the physiological and pathological traits of the four constitutional types, namely the Taeyang (TY), Soyang (SY), Taeeum (TE), and Soeum (SE). The concept that constitution can be "typed" is the most basic underlying paradigm evident in the *Dongui Suse Bowon* (Longevity & Life Preservation In Eastern Medicine, 東醫壽世保元).

Lee Jema's medical system is termed Constitutional Medicine because it is rooted in the concept of constitutional typology, a unique methodology of typing people according to their constitutional makeup. His ideas were shaped in the 19th century, a time of much sociopolitical unrest. Perhaps influenced by the great social demand for change, the underlying philosophy observed in Constitutional Medicine is also unconventional with regards to the traditional confucianist beliefs.

The *Dongui Suse Bowon* was written after the completion of the *Gyeokchigo*(格致藁). In this book, he continues to expand on his groundbreaking ideas. Constitutional Medicine does not revolve around the Yin Yang theory or the Meridian System theory as did the conventional medicine of the time, but rather concentrates on the type of constitution, explaining the physiology, pathology, treatment and methodologies for the prevention of disease particular to each constitutional type.

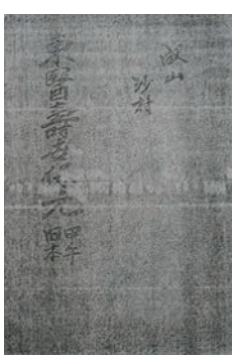

Figure 1
Donguisusebowon
Gabo edition

Figure 2
Donguisusebowon
Sinchuk edition

Lee Jema's works reveal new medical paradigms which he discovered while studying conventional medicine. They also mention the medical figures and written works that had influenced him the most.

Knowledge of the people and works that contributed to the shaping of his theories can help us to better understand Constitutional Medicine, and one of the people he had held in high esteem was *Zhang Zhongjing*.

Figure 3
Dongmu Lee Jema

Figure 4
Zhang Zhongjing

The classical Chinese work known as the *Shanghan Lun* (Treatise on Cold Damage and Miscellaneous Diseases, 傷寒論). The *Shanghan Lun* deals with the symptoms of and treatment for specific disorders. This book contains in detail very practical instructions for the treatment of patients.

Figure 5 the *Shanghan Lun*
Sinchuk edition

Lee Jema's medicine is more closely related to the Shanghan Lun theories than those of the *Huangdi Neijing* (Yellow Emperor's Inner Classic, 黃帝內經), which suggests that he was more interested in the practical application of medicine.

There is also a section introducing the respected physician Heo Jun and his ground breaking book, the *Dongui Bogam* (Treasured Mirror of Eastern Medicine, 東醫寶鑑).

Sasan Constitutional Medicine diverges from the conventions of the time in that it is an idiosyncratic form of medicine that sees human beings as individuals with different constitutional traits and asserts that the body is healed through the healing of the mind.

Methods of Differentiating Sasang Constitutions.

In SCM the three most important factors in differentiating constitutions are external appearance, mental characteristics and patterns of pathology. External appearance is viewed in terms of the shape of the body and its countenance. Since each constitution has its own particular body shape, in many cases a constitution can be determined simply by

looking at the shape of the body. The ideas of body shape discussed in this chapter will give generalities about each constitutional type. However, because there are exceptions, it is not enough to only look at the shape of the body when identifying constitutions. One must also examine a person's mental characteristics.

Identifying constitutions by examining mental characteristics includes observing a person's temperament, talents, natural mental state, personality, and personal tastes. Each constitution has its own particular characteristics; therefore observing mental characteristics plays a great role in constitutional differentiation. Just as normal, healthy physiological conditions vary across each constitution, so do disease signs and symptoms. These patterns of pathology can therefore be used to identify a particular constitution. The disease symptoms are first divided into mild and severe, but this division is not sufficient. Each constitution has a typical pattern of pathology, but some constitutions show symptoms only when a disease is severe.

As we have seen, individual constitutions cannot be accurately identified using only a single criterion. Physical appearance, mental characteristics and disease symptoms must all be analyzed. While all three factors are important, if, after initial analysis, a person's constitution is not easily identifiable, his or her mental characteristics take precedence as the supreme determinant of constitution.

Physical Appearances

According to SCM, there are differences in the development of various regions of the body. In most cases, the constitution can be distinguished by an accurate differentiation of the shape of the body. The characteristics of physical appearance in each constitution are as follows:

1) Taeyang (TY)

The TY-type people have well-developed upper bodies. The neck region is thick and strong and the head is large. However, the region below the waist tends to be weak. The hips are small and the leg muscles are thin. Thus, in a standing position the TY-type people seem unstable. Since the lower body is weak, the TY-type people have

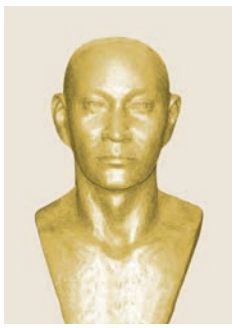

Figure 6 Plaster figure of the SY type

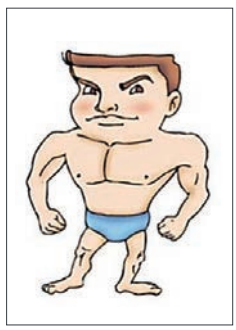

Figure 7 Caricature drawing of the SY type

difficulty walking or standing for a long time. Their facial features are clearly defined and they have thin bodies. On the whole, this constitution is the most difficult to recognize because, of the four constitutions, it covers the smallest proportion of the population, at under one-tenth of a percent.

2) Soyang (SY)

The chest and shoulder regions of the Soyang constitutions are strong and well-developed while the region below the hips is weak. On the whole, since their upper bodies are strong and their lower bodies are slight, the SY-type people's movements are quick. Since their hip region is weak, they also appear weak in a sitting position.

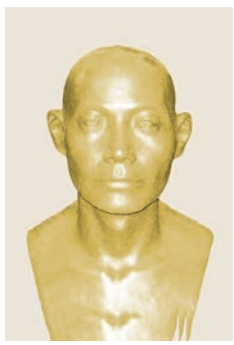

Figure 8 Plaster figure of the SY type

Figure 9 Caricature drawing of the SY type

Some SY-type people are small in stature and have a tidy appearance, resembling the SE-type people. It is therefore difficult at times to reach a conclusion about a constitution based solely on the physical appearance. In this case, mental characteristics and disease symptoms must be carefully observed in order to avoid misdiagnosis. There is a high proportion of the SY-type people in the population (30%) and they are fairly easy to distinguish.

3) Taeeum (TE)

The Taeeum constitution has a well-developed waist region so their standing posture appears stable and strong. Their neck region, however, appears weak. The TE-type people are normally tall, well-built, rarely thin and small. Usually, the TE-type people hold ample flesh and their physical frame is stout (strong and solid). Occasionally, a TE-type person may be thin but his or her frame will be stout nevertheless.

Figure 9 Plaster figure of the TE type

Figure 11 Caricature drawing of the TE type

Even though the TE-type people manifest clear traits, there are cases in which it is difficult to ascertain their constitution, and so it is not enough to rely solely on external appearances.

4) Soeum (SE)

The SE-type people's hips and buttocks are strong and their seated posture is stable, but their chest and shoulder regions appear weak and underdeveloped. The SE-type people are usually short in stature but at times a tall SE-type person can be found. Their lower bodies are more balanced and developed than their upper bodies. Many SE-type people tend to walk with their bodies bent forward. Though they have stronger lower bodies compared to their upper bodies, on the whole, they have a small frame and are thin and weak.

Figure 12 Plaster figure of the SE type

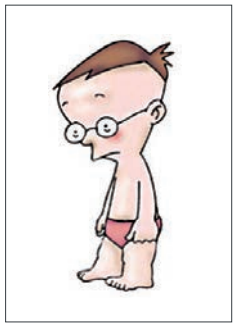

Figure 13 Caricature drawing of the SE type

Mental Characteristics

Sasang constitution is characterized by its psychosomatic methodology that views the mind and body as one. Sasang constitutional typology perceives the mind and body as inseparable, and the and physical traits as intricately related. In the same way that the physical appearances vary depending on the constitutional type, the mental characteristics also display constitutional variation. Similar to the way external appearances are expressed differently in different constitutional types, the internal mind-frame is structured differently depending on the constitutional type.

The constitution-based differences can be found in various aspects: proclivity and capacity (性質才幹: talents, natural aptitude, strengths, etc.), basic tensile state of the mind (恒心: the instinctive leaning of the mind when put under pressure), greed (心慾: covetous desires that surface when the mind is not adequately controlled), among others.

It can reasonably be assumed that observing these differences could serve as a valid and effective method of constitutional typing.

1) Taeyang (TY)

• Capacities and Proclivities

TY type excels at getting through to people and shows decisiveness, typically skillful at social networking. TY type tends to be more actively interactive and less diffident or aloof, which together contribute to the TY type's capacity for penetration in social relationships.

• Basic Tensile-state of the Mind

A sentiment of constant urgency, or fretfulness, can be observed in the typical TY mind. Excessive exertion or overstraining can stir up urgency of the mind and lead to an unfortunate turn of events or cause him to lose his health.

• Personal Strengths

Bold and active, the typical TY type tends to push onward without pulling back. A strong masculine tendency in personality is visible in the spirited manner in which they plan and conduct their affairs in life. However, many plans fall through because they overlook and neglect the importance of meticulous and detailed implementation.

• Personality Flaws

The TY mind is characterized by a lack of discipline which might also be described as indiscretion. This attribute is accentuated when the characteristic recklessness escalates and overbalances meticulousness. A person who has thus become undisciplined and heedless often knows no remorse or penitence, and this self-righteousness causes him to refuse friendly counsels, eventually leading to isolation from others.

2) Soyang (SY)

• Capacities and Proclivities

SY type person is generally hardy and nimble, naturally gifted at conceiving and developing new ideas. He is usually venturesome and takes on new tasks with readiness and ease. His general comportment is active and sprightly, and this natural agility confers his characteristic briskness.

• Basic Tensile-state of the Mind

The typical SY type person harbors a sentiment of constant dread inside his heart.

Contrary to his usual briskness in initiating new projects, he does not fare as well in tying up the loose ends. When coupled with his tendency to take on more responsibilities than he can handle and start on new projects before wrapping up the old ones, this can eventually lead to repeated failures in life. Escalation of this sentiment can develop into an uncontrollable dread and cause the SY type person to become extremely forgetful, a sign of pathological development.

• Personal Strengths

The generally quick-tempered SY type people are usually quick to launch new plans but find it difficult to follow through on them. They generally lack the tenacity to persevere in face of difficulty and give up easily. They tend try to juggle too many balls at once, venturing forth too easily without necessarily following through to the end each time. They can abandon lost causes very casually and simply start on something new.

• Personality Flaws

The SY mind is characterized by its attempts to hide its personal preferences and selfishness behind false pretenses. When the SY tendency to focus on keeping up the appearances rather than tangible self-improvement is excessive, this can cause problems in relationships with those closest to the SY person.

3) Taeeum (TE)

• Capacities and Proclivities

Owing to a steadfast and imperturbable nature, the typical TE type person usually completes the tasks he has taken on for himself. He usually finds himself settling in comfortably in any surroundings. He is a good administrator who shows perseverance and indefatigability in face of difficulties. He holds to a task with a solemn dignity and sees it through to completion, rarely letting go of anything before it is finished.

• Basic Tensile-state of the Mind

The typical TE mind tends toward extreme evasiveness. He tends to resist change, which causes him to be oblivious to what is happening outside the sheltered surroundings and he eventually loses confidence in his ability to deal with the outside world. Escalation of this sentiment can evolve into unrestrained cowardice, at which point the TE type person can experience heart palpitations, a sign of pathological development.

• Personal Strengths

A TE type person has dignified features and an imposing manner of speech. He is a born moderator with natural suaveness who conveys a sense of fairness and balance. A general air of honesty and prudence can impress on those around him dependability and trustworthiness. He is conservative and resistant to change, a stickler for decorum and civility. Pertinacity and perseverance are qualities that enable his worldly accomplishments. Characteristically, the TE type person prefers inactivity, which suits the aversion to change of his conservative nature.

• Personality Flaws

The downfall of the TE mind is its acquisitiveness. One is likely to become acquisitive when his instinct for self-preservation is in excess. Though an proper degree of protectiveness and self-preservation could prove to be beneficial, excessive compulsion and even obsession to guard one's own possessions can lead to avariciousness. Though many heroic figures and historically important personage can be found in the TE constitutional group, a TE type person can also be weak-willed, unsagacious, indolent, and dull-witted.

4) Soeum (SE)

• Capacities and Proclivities

The SE type person is usually soothing, accommodating, and calm, with a natural talent for weaving through the inner fibers of an organization. His attentive, heedful, soft-spoken, and civilized qualities blend together attract a network of friends, and his meticulousness drives him to plan ahead of projects, preparing for all setbacks. His organizational skills are rooted in these strengths.

• Basic Tensile-state of the Mind

A sentiment of constant discomfiture can be observed in the typical SE mind. This constant feeling of disconcertion and perturbation is not only hazardous to the mentality of a person but also a debilitating influence on his physical health.

• Personal Strengths

While the SE type person's inclination toward introversion and softness can have a negative impact on his personal drive, it is beneficial in that it is the cause of the SE type's characteristic scrupulousness and composure. SE type people are known for their

well-thought out, rational decisions, and emotional composure, rarely being swept into any sort of passion for very long.

- **Personality Flaws**

  The introversion and passivity that can be observed in the typical SE type person can sometimes cause him to be equivocal, vague, and stealthy on matters that should be clear-cut and open. A typical SE type person's comportment, manner of speech, and features are generally unpretentious, and unassuming. He usually has a compliant, placating, calm, and friendly personality. He shows keen judgment, meticulousness planning, and an organized thought process. However, he rarely voices his opinions actively, discouraged by his own introversion and shyness. His soft-hearted and diffident nature effectively drowns out potential forcefulness and ambitious drive.

The general mental characteristics described above could aid the constitutional typing process in those who exhibit strong constitutional tendencies, but mental attributes can show great variation depending on many factors, such as his educational background or life experiences, that can either accentuate or muffle certain personality traits. It is not helpful to assume that certain mental characteristics are seen exclusively in specific constitutional types.

Patterns of Pathology

SCM views the human body as an inherently incomplete and unbalanced system. Harmony does not arise automatically but can only be obtained through conscious effort. There are imperfections and imbalances not only in the body, but also in the mind. No one is born a sage. It is the basic view of SCM that although one may be born with an unbalanced mind, by cultivating one's mind it is possible to become a sage. Since the body is not innately balanced either, health can only be obtained by controlling one's physical imbalances. Although external factors do, in fact, cause diseases, they do not bring about illness until they affect the internal body. From this perspective, intrinsic factors are considered to be the root cause of diseases.

One symptom can represent either a disease state or a healthy condition depending upon a person's constitution. In addition, each constitution exhibits particular signs of disease as well as particular disease progressions. There are also certain diseases that only afflict particular constitutions. In other words, there exist constitutional syndromes. Once these factors are

recognized, a natural and effective treatment method can be instituted. Inversely, constitutions can be differentiated through the particular characteristics of diseases.

The state of health, aptly referred to as the healthy state, varies across each constitution. In the same way, the signs of disease vary according to each constitution. An initial or mild imbalance is known as a mild disease and is viewed not only in contrast to a healthy state, but to a severe disease as well, where the term severe indicate that the disease is either critical or extremely difficult to treat.

In this way, there are differing signs of health as well as symptoms and progressions of disease according to a person's constitution. Therefore, the constitution should be identified by careful examination of these factors.

1) Taeyang (TY)

- **Healthy State**

  TY-type people are in a healthy state if they urinate a large amount without any difficulty.

- **Mild Disease**

  TY-type people have a mild disease if they have a great deal of saliva or foam in their mouths. This merits immediate treatment.

- **Severe Disease**

  Yul Gyuk or dysphagia is the constitutional disease of the TY-type people. When this disease worsens, a person will find it difficult to swallow food. Even if he or she is able to swallow the food, it will not descend to the stomach, but instead will be vomited up immediately. These symptoms will distinguish a TY-type person and are considered critical symptoms.

Yul Gyuk (dysphagia), Ban Wyi (vomiting) and Hae Yuk (lower body weakness) are all important symptoms in differentiating the TY but they do not appear until the situation is serious. Thus TY-type people generally appear to be healthy. Ban Wyi appears as epigastric bloating and fullness after eating with vomiting afterwards. Hae Yuk appears as fatigue of the whole body that results in lethargy, weakness of the legs, thinning of the body, and no desire to talk. At times, Yul Gyuk can occur in an elderly SE-type person, so they must not be misdiagnosed as TY-type people.

2) Soyang (SY)

• Healthy State

For the SY type, good bowel movements indicate a healthy state. When the healthy bowel movements turn into constipation as the body becomes ill, the person can be considered to be of the SY-type.

• Mild Disease

Constipation indicates a mild disease. If a SY-type person has constipation, it should be considered to be an unhealthy condition and a treatment plan should be devised immediately. Disease progression in the SY-type person is quick and so constipation should not be taken lightly.

• Severe Disease

When the SY-type person has constipation for two or three consecutive days with heat and a stifling sensation in the chest, he or she has a severe disease.

3) Taeeum (TE)

• Healthy State

The TE-type people are in a healthy state if they sweat frequently. If a person sweats easily even though they only move slightly or if they sweat profusely during the wintertime after eating warm foods, they are of the TE type. In contrast to the SE-type people who would feel sick and exhausted after sweating profusely, the TE-type people do not feel even the slightest discomfort; they may actually feel refreshed.

• Mild Disease

For the TE-type people, having firm skin and an inability to sweat indicates a disease state. If there is an absence of sweating, other symptoms will soon follow and the disease will worsen. A person in this state should, therefore, be treated immediately.

• Severe Disease

If the small intestine, which is situated in the Lower Middle Burner, feels blocked as though a fog is clogging up that region, then the disease is considered to be severe.

Usually, profuse sweating is a sign of deficiency or disease. However, in the case of the TE-type people, it is a sign of health. The ideal sweat beads of a TE-type people are thick and stay on the skin for a long time.

4) Soeum (SE)

• Healthy State

The SE-type people feel healthy when their digestion is good. They generally have weak Spleen Qi, and so once the Spleen Qi is revived and digestion is improved, they are in a healthy state. If the SE-type people have no appetite and develop fullness in the chest after eating, they will feel bodily discomfort.

• Mild Disease

Profuse sweating indicates a mild disease. Unlike the TE-type people, spontaneous sweating in the SE-type people indicate that a disease has already progressed and it must be treated quickly.

• Severe Disease

SE-type person with continuous diarrhea and a cold abdomen has a severe disease. This constitution has a weak Spleen and Stomach and so they tend to develop many diseases associated with that weakness. People with chronic digestive problems are usually the SE-type and although they may manifest other diseases, these diseases are not of great concern as long as the digestive system is healthy.

Health Maintenance According to Sasang Constitution

1) Beneficial and Harmful Foods

Foods that are appropriate for the constitution are the best tonic, but those that are inappropriate will become toxins that gradually accumulate in the body and cause disease.

Eating foods that are appropriate for the constitution will suppress the strength of organs that have excessive energy and will strengthen organs that are deficient. This will result in

harmonious balance. Yang types will be moved toward Yin tendencies and Yin types will be moved toward Yang tendencies so that both types can achieve balance.

This does not mean that you cannot have foods that are not appropriate for your constitution. It only means that you should eat more foods that are appropriate for your constitution. Your diet should also be regulated if you habitually eat too many foods that are inappropriate to your constitution.

SCM does not deal with specific diseases per se, instead it discusses the proper method for regulating and balancing one's constitution.

When preparing foods, SE-type people are advised to use stimulating condiments to help increase the appetite and digestion and to avoid using large amounts of oil or eating bland food. SE-type people should develop a habit of enjoying warm drinks or foods. Even in summer, it is better to drink warm water than to drink ice cold water.

The SY-type people have a good digestive system, so they digest all kinds of food easily. Even in winter, they have no problem with cold foods like cold buckwheat noodles or cold drinks.

SY-type people do not usually have trouble selecting foods. They are not fussy eaters and have a good appetite and good digestion. But since they have a great deal of heat in their constitution, they must carefully avoid foods that induce heat in the body. Foods that are appropriate for the SE-type people, such as chicken and honey, are actually harmful for SY-type people.

Because SY-type people easily develop a deficiency of Yin, foods that have the ability to nourish Yin are recommended. As far as grains and legumes are concerned, barley, aduki beans and mung beans are best for them.

Like SY type and, TY-type people are also advised to ingest fresh, cold foods. The difference is that SY-type people have a vigorous digestive system that can handle fatty foods, whereas TY-type people are better suited by plain foods. Foods that are low in fat and bland foods without added spices are appropriate for TY type people.

Since TY-type people have a weak liver function, if they regularly ingest foods high in calories and high in protein, which can overburden the liver, they can develop liver problems.

TE-type people have a weak Upper Burner and so are susceptible to respiratory and

circulatory system disorders. They are usually overweight and thus should avoid foods that are known to cause heart disease or stroke. Furthermore, they are encouraged to ingest foods which can strengthen their weak lung function.

For them, foods that are rich in protein are recommended instead of fatty foods. But as they have the habit of overeating, TE-type people are susceptible to obesity, hypertension and constipation. Thus, they must avoid foods that are too stimulating or fatty. Moreover, they should avoid overeating even foods appropriate to their constitution and exercise regularly or take saunas to promote sweating and prevent obesity.

2) Preserving Health by Exercising Adequate Mental Control

According to Sasang medicine, the weak digestive system or the weak circulatory/respiratory system are not merely related to only the physical organs of an individual. Sasang emphasizes the intricate association between the organs of the Four Affiliations (Lung, Spleen, Liver, and Kidney) and the Emotional Deviations (Sorrow, Anger, Joy, and Pleasure). The structural scheme and balance of the Four Organ Systems are affected by the variations and deviations of the Four Emotions, and vice versa.

Naturally, it is equally important to control the Seong-Jeong, or the dichotomous mental deviations, in addition to controlling the energy of the physical organs in order to treat the diseases of the body.

Taeyang (TY) type people tend to anger easily in response to perceived slights. It may be helpful for them to learn to breathe in and out and calm down as they feel the rush of anger flare up, until the anger passes away. It they can train themselves to do this every time and restrain from bursting out over trivialities, they could remain unscathed from the toll that anger takes on the physical body. They can be very bold and enterprising, prone to underestimate the setbacks involved in a task. It must be remembered that it is important to pre-examine and premeditate, planning things carefully before taking on a challenge. Also, it should be understood that nothing can be rushed, especially if the task is beyond one's capacity or qualifications. Though charismatic and able to socialize with ease with strangers, a typical TY type person also enjoys having the upper hand in relationships and tends to insist on having his own way. It is important to treat others with respect and to show kindnessand attentiveness. It would benefit him to consider carefully whom to put trust in and whom to socialize with.

The Soyang (SY) type people usually have a strong sense of justice and are direct and straightforward in their dealings with others. When they realize that they had been deceived and betrayed, they become depressed and dejected, a state which when prolongued when prolonged can lead to lethargy and inertia. As a way of overcoming this, rearranging their home or making minor changes to their routines can allow them to start off again renewed and refreshed.

Though not shy to delve into new adventures and new projects, they often lack the tenacity to hold on to anything at length and tend to give up in the middle. It is important to check before starting out whether they are capable of the task and whether they have the determination to finish the job. Developing one's assets and improving the self should take place before one rushes into action.

Taeeum (TE) type people are known to lean toward inactivity, anticipating aid from the outside without making active efforts for themselves. Their conservative nature resists changes, wanting to settle into the present state of things and the comforts of familiar surroundings. It is important to expand oneself beyond the fences of the small world and experience the larger world, accumulate more knowledge, and broaden one's field of view. Personally, exploring the world would be the most effective method, but if the opportunity is unavailable, second-hand experiences through reading, watching TV, movies, or other forms of art that introduce new images and ideas can also serve as a gateway to the outside world.

Though they find themselves feeling apprehensive or exhausted at the thought of venturing out on a new project and formulating new plans, having once taken on a task for themselves, being the strong, silent type with a patient nature, they are able to put continuous energy into it until its final completion. They are steadfast and reliable, generally taking good care of their homes and families. However, because they can be less perceptive of the changes or new events in the outside world, they can be easily deceived or often find themselves placed in a difficult situation. It is advisable to always keep an eye open for what is really happening in the unfamiliar but nevertheless very real beyond one's regular experience.

Soeum (SE) type people are known for their genial, gentle, and tender personalities, with soft and warm hearts, usually attentive and considerate of others, and these qualities attract a wide circle of friends. However, they secretly anticipate protection from this tight network of people, and their reliance on the system they have constructed or worked their way into should be discouraged, by always striving for self-sufficiency through actual, authentic efforts and actions.

Excessive diffidence and cautiousness are factors that bring the typical SE type person to opt for the safest choices that lead only to certain success. He ought to be reminded that boldness can sometimes be the perfect solution. Because of his introverted and shy personality, he tends to associate with familiar people and flock together with friends, usually uncertain about making new acquaintances. However, socializing with new groups of people can be beneficial and contribute to personal growth, and it is advisable to let go of their apprehensions and open up to new folks. He can also have small-hearted, jealous streak, bear grudges and carrying around age-old grievances, and because this can affect the body and cause illnesses, it should be overcome by learning to openly express their inner thoughts and emotions.

The ability to control the mind is not complete at the moment of birth, but is acquired through constant vigilance and introspection of the joy, anger, sorrow, and pleasure in the mind. Disharmony of the body will rectify itself when the mind is successfully controlled.

3) Appropriate Exercises

TE-type people should select a high-intensity exercise. They need to consume and eliminate what they voraciously eat through dynamic activities. Because TE-type people tend to pay attention not only to their own personal matters but also to their physical bodies, they have a gluttonous desire for food, which leads to the danger of becoming obese. Their obesity can be prevented through the profuse sweating that comes from sufficient exercise. It is a sign of health when TE-type people sweat profusely in daily life and it would be beneficial to their health if they could exercise regularly so as to ensure that they are sweating enough.

It is recommended, therefore, to practice a high-intensity exercise such as weight training or jogging for an extended period of time at a high speed to get a sufficient amount of exercise.

Just the opposite, SE-type people should be careful not to choose too intense of an exercise. It is important for the SE-type people to think of performing exercises that cover the entire body while maintaining only a moderate amount of muscle tension, and developing their flexibility, rather than developing a steel-like body and big muscles through an exercise such as weight training. Exercises like calisthenics and jogging which do not overburden their bodies are recommended, as well as, quick and high intensity exercise such as tennis for a short time on a regular basis. Even if it is not an exercise, the health cultivating activities that require much consumption of bodily energy, like saunas for example, are likely to be only harmful for the SE-type people.

The exercise intensity for both the TY and SY type lie the happy median. That is, though they are not so weak in physical strength as the SE-type person, they need not sweat heavily all the the time like TE-type people.

Globalization of Sasang Constitutional Medicine

We have been holding a biennial international seminar for the globalization of Sasang constitutional medicine since 1994.

In 1994, we held the first international seminar in Yanji, China, and following that, the seminars were held in Los Angeles and New York in the USA, Ulaanbaatar in Mongolia, Chengdu in China, Tokyo in Japan, Geumgangsan in North Korea, and most recently, as a collaborative effort with the International Congress on Complementary Medicine Research (ICCMR), a conference was held on Jeju Island in South Korea.

In 1999, Professor Byunghee Koh carried out a research project on the distribution of Sasang constitutional types within the American population. In 2007, investigation was done on the facial characteristics of Mongolians, and the result was reported at the seminar held in Ulaanbaatar in Mongolia. Also, we constructed a bank of information of Sasang constitutional medicine through collaborative research with China, Japan, the USA, Vietnam, Mongolia and the Korean Institute of Oriental Medicine (KIOM). Kyung Hee University and KIOM have provided education related to clinical procedure and research to foreign researchers, health care providers, public health specialists. and The number of people receiving this education is about 70~100 annually.

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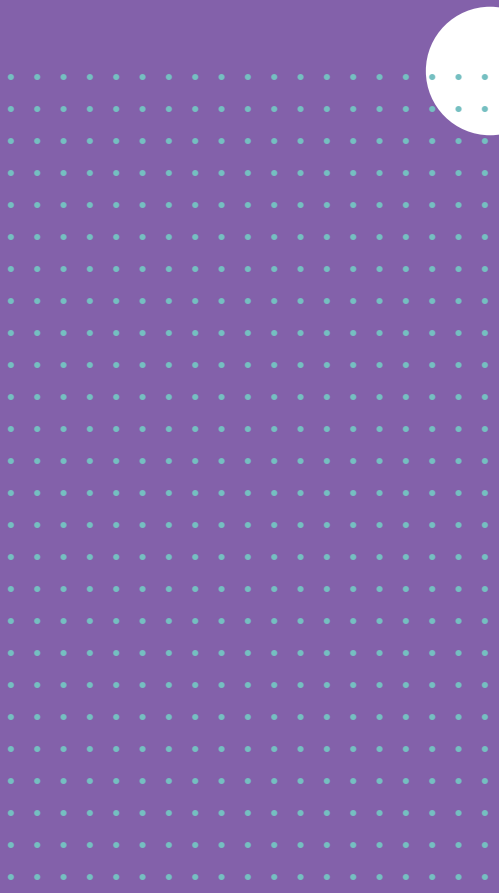
Korean Medicine :
Current Status and Future Prospects

Pusan National University
School of Korean Medicine

Therapeutic Technologies in Korean Medicine

written by Yongsuk Kim



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CHAPTER 03

chapter 03

Therapeutic Technologies in Korean Medicine

Acupuncture

1) Introduction

Acupuncture treatment, which is based on the basic theories of Korean medicine, is a preventive, alleviative, or therapeutic act against disease in which a needle is inserted into one of many specific points on the exterior of the body known as an acupoint. Practiced in East Asian regions for 2500 years, acupuncture is a remedial method representative of Korean medicine. Acupuncture treatment is believed to have originated from early human experiences in which disease was ameliorated after instinctively stimulating particular regions of the skin with sharp stones or other simple implements. After centuries of practical experience and the development of the East Asian system of thought, methods of acupuncture based on the principles and theories of Korean medicine.

The principle of traditional acupuncture treatment is founded on theories such as Qi and Blood (氣血), Yin-yang and the Five Elements (陰陽五行), Meridians and Collaterals (經絡), and the Viscera and Bowels (臟腑). According to Korean medicine, the activities of life take place in response to the flow of Qi and Blood which follows the structure of the Viscera and Bowels (臟腑), and the Meridian and Collateral (經絡). Disease is a manifestation of an imbalance between yin and yang (陰陽) arising from an abnormality in Qi and Blood flow. Qi (氣) circulates throughout the body following the meridians and collaterals (經絡) or other pathways, and hence, acupuncture treatment aims to recover the circulation of qi and yin-yang imbalance and cure disease by stimulating the meridian or acupoint (經穴) related to the diseased part (體表) or viscera and bowels. An acupoint is a reactive point and diagnostic point that reflects the pathological state

of the body surface and internal organs, and a treatment point into which the acupuncture needle is inserted based on its relationship with the viscera and meridians. Methods for combining and stimulating the acupoints vary depending on the disease and the condition of the patient. Sometimes unconventional acupoints located to the local areas such as the head, ears, hands, fingers or feet are used for treatment. This strategy is based on the the condition of a specific area reflects the condition of the body reflects the condition of the body as a whole.

In this chapter, we will examine general acupuncture treatment processes, indications and contraindications, and then address the acupuncture methods that best represent Korean medicine, Sa-am acupuncture therapy and constitutional acupuncture (Taegeuk acupuncture).

2) Procedures

① Treatment Tools

The instrument that is most often used in the practice of acupuncture is the filiform needle (毫鍼). The filiform needle structurally consists of five parts: the needle tip (鍼尖), the needle shaft (鍼體), the needle root (鍼根), the needle handle (鍼柄), and the needle tail (鍼尾). The practitioner holds the needle handle and penetrates the skin with the sharp needle tip while being careful to avoid touching the needle shaft below the needle root. This prevents infection during procedure. The needle standard is determined based on the length and diameter of the needle shaft. At present, stainless steel is popularly used to manufacture filiform needles because it is protected against rust and heat while possessing the appropriate intensity and elasticity. Most needles are disposable, and they are sterilized, individually packaged and disposed of after a single use.

② Patient Posture

Patients should be positioned such that the Korean medical doctor can precisely locate acupoints, easily manipulate the needle, and such that he or she may maintain posture comfortably during needling and needle retention. If the patient is weak or very nervous, he or she may easily faint during acupuncture treatment while sitting down. In circumstances in which the patient moves during needle retention due to discomfort, the needle shaft may bend. The patient may feel local pain, reducing the treatment effect except when the movement is intended by physicians.

③ Insertion

The practitioner checks that the therapeutic instruments are sterilized, washes his or her hands and disinfects the needling site with an alcohol swab. After locating the acupoint by palpating with one hand, the other hand is used to insert the needle into the acupoint.

④ Angle and Depth

Needling the identical acupoint may result in different types of tissue stimulation, patient sensation and treatment effects, depending on the needling angle, direction and depth.

Acupuncture methods may be classified as perpendicular insertion (直刺), oblique insertion (斜刺), and transverse insertion (橫刺) according to the angle of the needle insertion.

The depth of the needle insertion varies according to the location of the acupoint, patient condition or nature of disease. Typically, deep needling (深刺) is performed when the insertion site is large with profuse muscle. It can also be applied for strong stimulation or in the case of chronic disease.

⑤ Stimulation Method

Needle manipulation is the core of acupuncture treatment and includes various methods such as twirling, lifting-thrusting, and respiration control during needling.

For example, in the supplementation method (補法) the needle is inserted in the direction of the meridian course and twirled clockwise nine times after insertion. The patient exhales during needle insertion and inhales during needle extraction, and the acupoint is pressed with the hand right after needle extraction.

The needle is directed against the meridian course in the draining method (寫法), twirled counterclockwise six times after insertion, the patient inhales while needle is inserted and exhales while needle is extracted, and the acupoint is left without pressing after needle extraction.

⑥ Needle Sensation (鍼感)

Needle sensation (鍼感) is also known as obtaining qi (得氣), and includes the sensation of sinking (沈), heaviness (重), tenseness (緊) and roughness (澁) felt below the needle by the practitioner, as well as the sensation of soreness (酸), numbness (麻), distension (脹) and heaviness (重) felt by the patient. The patient sometimes feels linear conduction-diffusion around one point, which is called movement of qi (行氣).

⑦ Needle Retention

Needle retention is the term for allowing the needle shaft to remain at the acupoint after inserting and stimulating the needle through manipulation. The needle retention time varies depending on the literature and intention of the practitioner and patient's condition. Based on the experimental study demonstrating that it took approximately 20 minutes to reach

the highest CSF endorphin level after acupuncture stimulation, the needle may be retained for 20 minutes. In addition, the needle may be retained for 28-30 minutes, which is the time given in Huangdi's Internal Classic for defensive qi to arise. The needle may be extracted without retention following a short, strong stimulation or may be retained for a prolonged duration such as 1-2 hours in a person with obesity or acute pulse according to the practitioner.

⑧ Treatment Frequency and Duration

The treatment frequency and duration differ with the condition of the patient and severity of the disease. Considering that the therapeutic effect of acupuncture progresses with the accumulation of treatments, acupuncture should be performed at least twice a week or daily in the case of hospital admission and concentrated care. Recent occurrences such as acute indigestion or acute lumbago may require only one to four sessions, but persistent diseases such as stroke sequela, requiring prolonged care may demand more than several months of treatment.

3) Indication

Acupuncture is an accredited medical procedure that is performed by a licensed Korean Medicine doctor under the national medical system in Korea. Therefore, there is no need for the distinct labelling of acupuncture treatment indications. However, outside of East Asia and mostly in the West, acupuncture has been only been introduced recently and is outside of the official medical system with research considering its efficacy still ongoing. To date, acupuncture has been shown to be effective for diseases such as chronic pain, postoperative nausea and vomiting, radiotherapy-induced nausea, acute pain including dental pain, headache, hypertension, COPD, and seasonal allergic rhinitis. The study of the efficacy of acupuncture for stroke, depression, fibromyalgia, functional dyspepsia, schizophrenia and smoking is underway.

4) Contraindications and Side Effects

① Contraindications

For safe and effective treatment, it is important to identify when to avoid acupuncture. In the Internal Classic the Twelve Prohibitions of Acupuncture (十二禁刺), the 12 cases in which acupuncture should be avoided are mentioned. When the patient has just arrived for treatment, before or after coitus, extremely drunk or angry, extremely hungry or overfull, the qi and blood are disorderly and acupuncture should not be performed. In short, the time sequence, climate change and patient condition should be considered when

determining whether to perform acupuncture treatment. In an emergency situation or when there is a need for surgery, emergency measures should be considered first. The use of acupuncture for cancer may be considered to treat the side effects of chemotherapy or radiotherapy, but direct needling of the tumor site should be avoided. If the patient is receiving an anticoagulant for a blood coagulation disorder, acupuncture is not contraindicated, but deep needling should be applied carefully in patients who bruise easily or have a high risk of hemorrhage.

Additionally, the site of acupuncture should be considered. Direct needling at sites of edema may worsen the condition, and acupuncture in the abdominal region or at particular acupoints may affect pregnancy. The *Hapgok* (LI04), the *Sameumgyo* (SP06), the *Seongmun* (CV05), the *Gwanwon* (CV04), the *Sosang* (LU11), the *Jieum* (BL67), and the *Gollyun* (BL60) are some of the needling points that are prohibited (禁鍼穴) during pregnancy in the literature on acupuncture. However, unless one performs a strong stimulation such as electro-acupuncture or manipulation, acupuncture is is an option during the entire pregnancy period. In the first trimester of pregnancy, acupuncture in the lower abdomen or lumbosacral area is undesirable, and after more than three months, the needling of regions with a strong stimulus, such as the upper abdomen or lumbosacral area, should be performed with caution.

If the patient has a phobia of acupuncture, other modes of treatment should be considered.

② Adverse Effects

Adverse effects or complications rarely occur from acupuncture, but indiscretions of the practitioner, such as the violation of sanitary procedures or excessively strong stimulation, may be problematic. Adverse effects and complications resulting from acupuncture treatment are described below.

- Internal Organ Damage : Excessively deep needling (深刺) may cause injury of the spleen, liver, spinal cord or other internal organs. Needling acupoints such as the *Gyeonjeong* (GB21) should be cautioned due to the possibility of a pneumothorax if the patient is thin.
- Infection : There are reports of hepatitis B and HIV after using unsterilized needles. Bacterial infection rarely occurs but may arise from intradermal acupuncture on addiction therapy when the needle is retained for a few days.
- Dizziness : The patient should be treated in the supine position, minimally when receiving treatment for the first time.
- Hemorrhage : Microhemmorhage is frequently observed but causes very little adversity because it tends to be stanched after disinfection and the application of pressure for a period. Arterial hemorrhage is uncommon.

Other possible adverse effects include abortion, convulsion, dermatitis from metal allergy and needle breakage.

6) Acupuncture Therapy Indigenous to Korea

① Sa-am Acupuncture Therapy

Sa-am acupuncture therapy (舍岩鍼法) is an original acupuncture technique that is widely used in Korean clinical practice. Founded by the ascetic Sa-am (舍岩道人), a monk who lived four centuries ago, Sa-am acupuncture has a theoretical background in the Five Elements Theory and the supplementation-draining method of acupuncture. The five transport points (well point, brook point, stream point, river point, sea point) in the 12 meridians at the end of limbs such as hands and feet are arranged into five phases (五行配屬) in the order of wood (木), fire (火), earth (土), metal (金), and water (水) for yin meridians (陰經) and in the order of metal, water, wood, fire, and earth for yang meridians(陽經). Combinations of these 60 acupoints result in a maximum efficacy with minimum needling.

Table 1 The Five Transport Points inThe 12 Meridians

Yin meridian (陰經)	Well (wood)	Brook (fire)	Stream (earth)	River (metal)	Sea (water)
Lung Meridian	Sosang (LU11)	Eoje (LU10)	Taeyeon (LU09)	Gyeonggeo (LU08)	Cheoktaek (LU05)
Spleen Meridian	Eunbaek (SP01)	Daedo (SP02)	Taebaek (SP03)	Sanggu (SP05)	Eumneungcheon (SP09)
Heart Meridian	Sochung (HT09)	Sobu (HT08)	Sinmun (HT07)	Yeongdo (HT04)	Sohae (HT03)
Kidney Meridian	Yongcheon (KI01)	Yeongok (KI02)	Taegye (KI03)	Buryu (KI07)	Eumgok (KI10)
Pericardium Meridian	Jungchung (PC09)	Nogung (PC08)	Daereimg (PC07)	Gansa (PC05)	Goktaek (PC03)
Liver Meridian	Daedon (LR01)	Haeggan (LR02)	Taechung (LR03)	Jungbong (LR04)	Gokcheon (LR08)
Yang meridian (陽經)	**Well (metal)**	**Brook (water)**	**Stream (wood)**	**River (fire)**	**Sea (earth)**
Large Intestine Meridian	Sangyang (LI01)	Igan (LI02)	Samgan (LI03)	Yanggye (LI05)	Gokji (LI11)
Stomach meridian	Yeotae (ST45)	Naejeong (ST44)	Hamgok (ST43)	Haegye (ST41)	Joksamni (ST36)
Small Intestine Meridian	Sotaek (SI01)	Jeongok (SI02)	Hugye (SI03)	Yanggok (SI05)	Sohae (SI08)
Bladder Meridian	Jieum (BL67)	Joktonggok (BL66)	Sokgol (BL65)	Gollyun (BL60)	Wijung (BL40)
Triple Energizers Meridian	Gwangchung0 (TE01)	Aengmun (TE02)	Jungjeo (TE03)	Jigu (TE06)	Cheonjeong (TE10)
Gallbladder Meridian	Jokgyueum (GB44)	Hyeopgye (GB43)	Jogimeup (GB41)	Yangbo (GB38)	Yangneungcheon (GB34)

After pattern identification (辨證) of the state of the patient by the viscera-bowels, the meridians and five elements (臟腑經絡五行) and deficiency-excess and cold-heat (虛實寒熱), the acupoints are selected under the principle of "Supplement the mother if deficient (虛卽補其母) and drain the child if excessive (實卽死其子)" for self-meridian supplementation-draining (自經補瀉) and other-meridian supplementation-draining (他經補寫). The mother-child (母子) is determined by the engendering and restraining (相生相克) the five elements. (Figure 1)

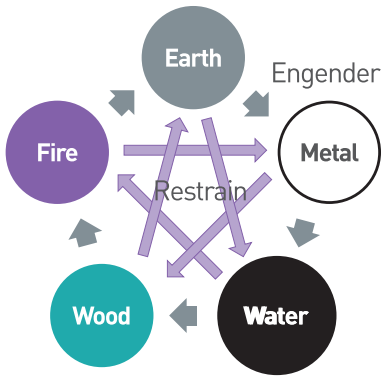

Figure 1 Engendering and Restraining (相生相剋) the Five Elements (五行)

The deficiency-excess supplementation-draining method (虛實補瀉法) is as follows. In the deficiency syndrome of yin-wood (陰木), water, which is the mother of wood, should be reinforced, and metal, which restrains wood, should be reduced. Thus, the *Gokcheon* (LR08) of the liver meridian, the water point of the relevant meridian, and the *Eumgok* (KD10) of the kidney meridian, the water point of the water meridian, should be supplemented. The *Jungbong* (LR04) in the liver meridian, the metal point of the pertinent channel, and the *Gyeonggeo* (LU08) in the lung meridian, the metal point of the metal meridian, should be drained. In the excess syndrome of yin wood, fire, which is the child of wood, should be drained, and the metal point of the metal meridian that restrains wood should be supplemented. This indicates that the *Haenggan* (LR02) in the liver meridian, the fire point of the pertinent meridian, and the *Sobu* (HT08) in the heart meridian, the fire point of the fire meridian, are drained. The *Jungbong* (LR04) in the liver meridian, which is the metal point of the self-meridian, and the *Gyeonggeo* (LU08) in the lung meridian, which is the metal point of the metal meridian, are supplemented.

In the cold-heat supplementation-draining method, fire is reinforced, and water is reduced in the cold pattern. In addition, water is reinforced and fire is reduced in the heat pattern. For example, in the lung cold pattern, the *Eoje* (LU10) in the lung meridian and the *Sobu* (HT08) in the heart meridian are supplemented, and the *Gyeonggeo* (LU08) in the lung meridian and the *Eumgok* (KD10) in the kidney meridian are drained.

The above-mentioned items are the most basic acupoint combinations for deficiency, excess, cold, and heat syndrome. In clinical practice, acupoint selections are not limited to combinations of eight acupoints but are modified diversely.

② Constitutional Acupuncture Therapy

Constitution (體質) is first mentioned in Huangdi's Internal Classic (黃帝內經), while Lee Jema developed the concept into Sasang constitutional medicine, which is a system original to Korea. There is a distinctive physiology and pathology for each constitution, and people are categorized as a *Taeyangin* (太陽人, greater yang person), a *Taeumin* (太陰人, greater yin person), a *Soyangin* (少陽人, lesser yang person), or a *Soeumin* (少陰人, lesser yin person).

Constitutional acupuncture is an acupuncture therapy that complies with the theory of the visceral five elements created by Lee Byeonghaeng based on Lee Jema's Sasang constitutional medicine. This form of acupuncture is also called Taegeuk acupuncture (太極鍼法), with *Taegeuk* refering to the heart. Among the five viscera, the heart is excluded from the four constitutions and governs the other viscera and bowels. The heart is the basis for the differentiation of constitution.

Table 2 The Diagnosis of Constitution by Taegeuk Acupuncture

	Organ Functionality	Excessive	Constitution diagnosis	Basis for constitution diagnosis
Taeyangin	Greater Lung Lesser Liver	Metal	Supplement Sobu (HT08)	Fire restrains Metal
Taeumin	Greater Liver Lesser Lung	Wood	Supplement Yeongdo (HT04)	Metal restrains Wood
Soyangin	Greater Spleen Lesser Kidney	Fire	Supplement Sohae (HT03)	Water restrains Fire
Soeumin	Greater Kidney Lesser Spleen	Water	Supplement Sinmun (HT07)	Earth restrains Water

Constitution is differentiated by acupoints of the heart meridian based on the differences in excessive qi in each constitution. For example, a *taeyangin* exhibits greater lung and less liver, and it has an excessive metal qi. Following the principle that fire restrains metal, which supplements *Sobu* (HT08), the fire point of the heart meridian controls the excessive metal qi, and this instantaneous effect aids in identifying the patient as taeyangin.

After the diagnosis of constitution, constitution-appropriate acupoints from the source points of the 12 meridians are selected for treatment. For example, if the patient is diagnosed as a *taeyangin*, to reinforce the recessive qi and reduce the dominant qi, *Taechung* (LR03), the source point of the liver meridian, is supplemented, and *Taeyeon* (LU09), the source point of the lung meridian, is drained.

Moxibustion

1) Introduction

Moxibustion therapy is a preventive, remedial, and curative technique that is based on acupuncture theory and uses moxa, which are various medicinal items or instruments that target specific areas on the body surface to exert burning, scorching, fuming, ironing, and stimulation. Using fire, the experience of disease alleviation after receiving a thermostimulus, such as the warming or searing of particular body parts, seems to aid in the establishment of moxibustion therapy.

Moxibustion shares its roots with acupuncture, but whereas the acupoint is physically stimulated by needle insertion in acupuncture therapy, thermostimuli are applied at acupoints in moxibustion therapy. According to the Introduction to Medicine, 虛者灸之 使火氣以助元陽也 實者灸之 使實邪隨火氣而發散也 寒者灸之 使其氣之復溫也 熱者灸之 引鬱熱之氣外發 火就燥之義也, moxibustion will boost the source qi through the addition of fire qi in a deficiency syndrome, disperse excessive pathogens along with the excessive fire qi, recover warmth in centralized heat syndromes, and centralize and disperse the amassed heat in heat syndrome. Ancient moxibustion typically involves direct moxibustion (*myeongddeum* in Korean (明灸)), in which the moxa cone is directly burnt over the acupoint on the skin. In later generations, indirect moxibustion was developed utilizing medicinals or instruments between the acupoint of the skin and moxa cone. We shall examine procedures, indications and adverse effects regarding direct and indirect moxibustion.

2) Procedure

① Instruments

Moxa is the most frequently used material in moxibustion therapy. Moxa is appropriate for clinical practice because it can be easily shaped into a moxa cone and applied in treatment. Combustion of moxa provides aromatic therapy and moderate heat therapy while burning and transferring heat into the deeper layers of the skin. Moxa is made of the leaf or caulicle of Artemisia argyi Lev. et Sav., Atemisia princeps pamp. or Artemisia montana pampan., a perennial herb in the chrysanthemum family. It is found everywhere in Korea and very cheap. Older leaf is preferred because fresh artemisia folium contains a large amount of volatile oil and is not easily extinguished following combustion, potentially aggravating pain.

After collecting and drying the artemisiaeargyi folium, soft moxa floss is generated from the repeated process of grinding and sifting to remove stems or soil. When moxa floss is hand-rubbed and firmly kneaded into a cone-shaped mass that can be neatly positioned on the skin, it is called a moxa cone. Burning one moxa cone is counted as one zhang (壯), which is the basic unit in moxibustion therapy.

② Patient Posture and Pre-procedure Preparation

The patient should assume a position that he or she may feel comfortable in for a long time and in which the moxa can be placed stably. The posture used for acupoint selection and moxibustion therapy must be identical. After disinfecting the acupoint, the moxa cone is positioned. One may apply Vaseline or another ointment to fix the moxa cone and prevent burns. The choice of the appropriate acupoint method for the procedure and stimuli level should take the age and constitution of the patient into consideration, based on the diagnosis and identification of patterns.

③ Direct Moxibustion

The direct application of the moxa cone on the acupoint can be divided into scarring moxibustion and non-scarring moxibustion based on whether suppuration occurs. Scarring moxibustion positions the moxa directly on the acupoint and allows skin blisters and suppurate from moxa combustion. A moxa cone the size of a bean or jujube seed is placed on the acupoint and ignited with incense. After approximately half of the cone's height burns, it is extinguished by pressing it into the skin. On the second zhang, the cone is doused when half of it has combusted and the patient experiences a sensation of heat. In the third zhang, the cone is extinguished immediately after almost complete burning and the experience of pain in the patient. A few days later, the treatment site will show aseptic suppuration, and one should perform sanitation to prevent secondary infection. The pus is clear white and does not cause problems during normal aseptic suppuration. After a month, the crust falls off, and only a local scar remains.

Non-scarring moxibustion does not cause blisters. After placing a small moxa cone on the acupoint, the cone is ignited and is removed with a pincette when the patient feels heat and before the moxa fire burns the skin. Three to seven consecutive zhangs are performed, and the procedure is terminated when the skin exhibits a local flare.

④ Indirect Moxibustion

Ginger, garlic, salt, aconiti radix or piper nigrum paste, and yellow terra, among others, can be applied between the moxa cone and skin. In addition, various moxibustion

instruments can be used to transmit the thermostimulus through the moxa-burnt smoke and resin. The characteristics and healing properties of the applied medium are dependent on the therapeutic effects of moxibustion therapy and thus must be chosen accordingly.

⑤ Stimulation Intensity

The level of stimulation is determined by the size and number of moxa cones. As the size of the cone increases so does maximum temperature and the length of heating time and heat retention. As the number of zhang increases so does the amount of stimulus proportionally to the calories that penetrate the skin of the patient.

3) Indications

Moxibustion is mostly used for syndromes of cold, chronic disease, and diseases caused by prolonged yang-deficiency and may also be used in some syndromes of excess heat under the principles mentioned in Introduction to Medicine. A warm nurturing property is fundamental for the efficacy of moxibustion, and thus, moxibustion may also be indicated for yang collapse-yin collapse, cold reversal in the extremities, hidden pulse, stupor and skin diseases such as abscesses, carbuncles and pruritus.

Scarring moxibustion is applied for chronic and prolonged diseases as well as gynecologic diseases such as wheezing and dyspnea, chronic stomach disease, innate weakness, underdevelopment, hypertension, arteriosclerosis, chronic bronchitis, tuberculosis, impotence, seminal emission, menstrual irregularities, vaginal discharge, and fetal instability. Non-scarring moxibustion is utilized for light-deficient cold syndromes. Moxibustion is applicable for pain, paralysis and various diseases.

4) Contraindications and Adverse Effects

① Contraindications

Moxibustion is not advisable for senile people or for children who do not respond well to moxa stimulation, or in cases of faint-rapid pulse, high fever with a floating pulse, and excess heat syndrome.

Caution must be taken when performing moxibustion in patients with diminished consciousness, sensory disorders, mental disorders, diabetes, purulent dermatitis, or circulatory disorders.

Burns may occur after moxibustion if the patient is insensitive to heat stimuli, and idiosyncratic necrosis or decreased recovery of injury at the time of moxibustion treatment may occur.

One should avoid applying direct moxibustion to facial areas, ligaments, and areas containing large blood vessels. Suppuration near joints may heal slowly due to the joint motion.

② Adverse Effects

Inflammation and scarring due to burn injury are the most common adverse effects of moxibustion. The resin and smoke caused by moxa combustion may induce allergic dermatitis or respiratory diseases. If adequate care is not given upon the worsening of burn injuries that may caused by moxibustion being administered by a non-practitioner, the patient may suffer sepsis.

Drug and Herbal Therapy

1) Introduction

Herbal medicine (韓藥) is defined as that is processed and prepared from a crude drug under the principles of Korean medicine. Herbal medicine is a drug therapy that is prescribed under the principle of the sovereign, minister, assistant and courier (君臣佐使), and it is based on Qi and Flavor Theory (氣味論) as well a meridian tropism (歸經) of the crude drugs (生藥) that make up the materia medica. Herbal medicine therapy is a medical practice performed by Korean Medicine doctors and officially sanctioned by the Korean medical system, and its indications are not limited to predetermination.

Herbal medicine prescriptions are highly diverse, and it is impossible to mention all of them. Therefore, in this chapter, we will provide a brief overview of the four categories of prescriptions that are frequently used in Korean clinical practice and classify them according to the era and school. Subsequently, we shall elucidate the general contraindications and adverse effects of herbal medicine.

2) Drug Therapy by Era and School

There are largely four types of frequently used clinical prescriptions that are

categorized by the classic textbooks to form the theoretical basis of Korean medicine. There are antiquity prescriptions (Koho prescription) founded by *Zhang Zhongjing*'s Treatise on Cold Damage Diseases (傷寒論) and Synopsis of Prescriptions of the Golden Chamber (金匱要略), latter-day prescription based on the Korean developed Treasured Mirror of Eastern Medicine (東醫寶鑑) and Compilation of Formulas and Medicinals (方藥合編), constitutional prescription based on Sasang constitutional medicine, and warm disease prescriptions that have been developed since the Qing dynasty.

① The Prescriptions of Antiquity : Based on the 〈Treatise on Cold Damage Diseases〉 and 〈Synopsis of Prescriptions of the Golden Chamber〉

The Treatise on Cold Damage Diseases (傷寒論) is the first specialized book regarding clinical practice and was written by *Zhang Zhongjing*, who published the book based on the clinical experience of the previous eras as well as his own experiences with references from Internal Classic (內經) and Classic of Difficult Issues (難經). The treatise covers the general outbreak of exopathic diseases, transfer mutations (轉變), pattern identification and treatment while classifying the post-external contraction symptoms and deficiency-excess of healthy qi based on yin-yang cold-heat deficiency-excess and the six meridians of three yin and three yang. The treatise is useful for not only diseases of external contraction but also overall internal diseases. Below is a brief overview of the differentiation of the six meridian syndromes.

- Greater Yang Syndrome (太陽病) : This syndrome represents the early stage of exopathic febrile disease. The symptoms of greater yang syndrome are the expression of healthy qi fighting the external contracted pathogenic qi and include a floating pulse, stiffness of the head and neck, and chills. Release of the exterior method is often used, and major prescriptions are for decoctions of Cinnamon Twig (桂枝湯) and Ephedra (麻黃湯).
- Yang Brightness Syndrome (陽明病) : Pathogenic heat is at its height during this stage, and the symptoms are fever and spontaneous sweating, lack of chills, aversion to heat, and a high pulse. The patient is differentiated as heat syndrome or excess syndrome depending on whether he has only intangible pathogenic heat or tangible dry stool inside the intestines. In heat syndrome, the patient presents symptoms of high fever, sweating, thirst, and a surging pulse. Patients with excess syndrome form dry stools inside the intestines. One must clear and release interior heat and purge exopathogens. Representative prescriptions are for decoctions of White Tiger (白虎湯) and Order Qi (承氣湯).
- Lesser Yang Syndrome (少陽病) : This syndrome is the stage at which a struggle between the healthy qi and pathogenic qi takes place between the exterior and interior of the body. The major symptoms are fullness and a choking feeling in the chest and

hypochondriac region, bitter taste in the mouth, dry throat, dizzy vision and string-like pulse. Instead of diaphoresis or purgation, a harmonizing method is recommended. The most common prescription is for a decoction of Soshiho, also known as the minor Bupuleurum Formula (少柴胡湯).

- Greater Yin Syndrome (太陰病) : A pattern of interior cold caused by a deficiency in the middle energizer and cold dampness. The major symptoms are abdominal distention and vomiting, indigestion, spontaneous diarrhea, lack of thirst, and occasional abdominal pain. Therapeutic methods such as warming the interior along with cold removal are used. The prescriptions mainly used to treat this are the Four-Counter decoction (四逆湯) and the Centering decoction (理中湯).
- Lesser Yin Syndrome (少陰病) : Yin syndrome or cold syndrome occurs after exopathogen invasion due to a deficiency in yang qi. Symptoms caused by cold syndrome are aversion to cold without fever, a faint pulse, and a desire to sleep. This stage should be treated by tonifying the healthy qi while promoting sweating to release the exterior.
- Reverting Yin Syndrome (厥陰病): This syndrome involves the last stage of the disease in which the cold-heat complex appears in place of extreme cold or extreme heat. A reversal of the cold in the limbs and fever coexist, the Warm Yang Harmonizes and Release methods should be used.

② Latter-day Prescriptions Based on the Treasured Mirror of Eastern Medicine and the Compilation of Formulas and Medicinals

The Treasured Mirror of Eastern Medicine *Dongui Bogam* (東醫寶鑑), a medical textbook that was published in mid-Joseon 1613, is a classic in Korean medicine that integrated and organized the previous medical theories into a new medical system to optimize its clinical utility. The treatise is composed of five volumes: Internal Bodily Elements (內景編), External Bodily Elements (外形編), Miscellaneous Disorders (雜病編), Herbal Medications (湯液編), and Acupuncture and Moxibustion (鍼灸編). Each volume is divided into chapters and subchapters. Divisions such as Essence, Qi, Spirit, Viscera and bowels (under the volume regarding internal bodily elements) and Head, Face, Tendon, Pulse, Bone and Flesh (under the volume of external bodily elements) are classified by the original perspective on the human body. These chapters generalize the various physical functions and diseases. Other sections such as the five circuits and six qi, four manifestations, three methods, internal damage and external contraction occur subsequently (under the volume of Miscellaneous disorders), and the book closes with the treatment method (under the volume concerning Herbal Medication and Acupuncture and moxibustion).

This composition reflects the perspective that the clear comprehension of normal bodily functions must precede the treatment of diseases. Physiology, pathology, treatment principles and methods and the use of medication and acupuncture are neatly organized in each section so that practitioners may conveniently select pertinent treatment methods for various conditions.

Essential materials from diverse textbooks were collected and rearranged in a unique structure that was unprecedented in previous Chinese textbooks. Component capacities in the quoted prescriptions were altered to match the contemporary Korean environment, and the prescriptions with the same title differed according to the amounts or compositions of the medicine. Flexible attitudes towards the application of prescriptions by period and region can be observed herein.

To be well informed regarding many prescriptions, one must read numerous textbooks, but it is not possible to carry all of the books to the bedside of the patient. The Treasured Mirror of Eastern medicine is a useful book for clinical practice, but because it is a sort of medical encyclopedia, its portability is limited. The Compilation of Formulas and Medicinals (方藥合編) enables the doctor to identify the most adequate and practical prescription for each disease pattern in such situations. The compilation is a kind of clinical handbook that was written by Hwang Doyeon in late Joseon Period year of 1885 that referenced his clinical experience and 106 medical textbooks including the Treasured Mirror of Eastern Medicine. The book contains a selection of prescriptions that are frequently used in practice. Therefore, it is difficult for a novice to fully understand the content, but the book is a good reference for practitioners who already possess knowledge of Korean medicine. Comprising mainly the Upper division (上統), Middle division (中統) and Lower division (下統), the prescriptions in the book are classified by those that tonify, those that harmonize, and those that purge.

③ Constitutional Prescription: Based on the Sasang Constitutional Medicine Established in Longevity and Life Preservation in Eastern Medicine

The Longevity & Life Preservation In Eastern Medicine, *Dongui Suse Bowon* (東醫壽世保元) was published in 1894, in the late Joseon Period (revised in 1901), by Lee Jema. Lee Jema's original theory of Sasang constitutions (a Taeyangin, a Taeumin, a Soyangin, and a Soeumin) on the establishment of visceral power according to the constitution-inherent healthy qi, its pathology and treatment is established in this book. Sasang constitutional medicine is discussed in another chapter, and further explanations will be omitted herein.

④ Warm Disease Prescription Based on the Study of Warm Disease

The study of warm disease is a study of acute epidemic febrile diseases that were found in China during the Qing Era. This study reflects a more advanced perception of exopathic

diseases compared to the Treatise on Cold Damage Diseases. Rather than focusing on pathogenic cold in cold damage, the pathology of heat damage such as fever caused by warm pathogens in warm disease or dryness that consumes bodily fluid is emphasized. Pattern identification methods such as defense, qi, nutrients, blood pattern identification and the patterns of triple energizers, as well as new treatment methods and prescriptions are presented accordingly. Invention of the release of the exterior with pungent-cool, clear heat and detoxification, clear nutrients and cool blood, and nurturing of the yin and increasing humor methods aided in the rediscovery of medicinal herbs with such properties, such as Gypsum Fibrosum, Rehmanniae Radix Crudus, Scrophulariae Radix, Lonicerae Flos, Phyllostachys Folium, and Liriopis Tuber. Approximately 130 prescriptions were created, including the Mori Chrisanthemi Drink (桑菊飮) and the Lonicerae Forsythia Powder (銀翹散), the To Increase Humor decoction (增液湯) and the Clear the Nutrient decoction (淸營湯). Below is a summary of defense, qi, nutrients, and blood pattern identification.

- Defense Aspect Pattern (衛分證) : This is an initial stage of warm disease that is marked by aversion to cold with fever wherein the diffusion capacity of the lung and defense qi are affected.
- Qi Aspect Pattern (氣分證) : The pathogenic qi invades and affects the internal organs, and symptoms occur during the conflict between the healthy qi and pathogenic qi. The patient presents fever without chills, sweats, thirst and dryness of the mouth.
- Nutrient Aspect Pattern (營分證) : The invasion of the pathogenic qi progresses to the heart and pericardium, consuming fluid and humor and disturbing the heart spirit. The patient exhibits a scorching fever pattern in which the skin is feverish and dry, the fever worsens at night, and the patient cannot sleep due to heart vexation and is delirious. Thirst is mitigated during this stage.
- Blood Aspect Pattern (血分證) : This is the most fatal stage of warm disease in which the fluid and humor is consumed, blood collaterals are damaged, and bleeding occurs as a result of exuberant heat toxins. Low fever continues while worsening during the afternoon and night, and heat in the palms and soles may be noticeable.

3) Contraindications and Adverse Effects

Herbal medicine, unlike western drugs, shows pharmaceutical activities through the activation of multiple sites of action by diverse components. Each prescription may have contraindication or precautions according to the qi and taste of ingredients and patient conditions. In this chapter, we shall cover the material medica and situations that require special attention.

① Herbal Medicinals That Require Precautions

- Herba Ephedrae (麻黃) : Urine retention, sleep disorders, palpitations and nausea may occur if this medicine is used inappropriately. The medicine should not be used with myocardial excitatory drugs such as Digoxine or antidepressants such as MAOIs (monoamine oxidase inhibitors). The dosage of Herba Ephedrae should be decreased when it is administered with bronchial asthma drugs and increased when it is administered with tannin-containing drugs. The medicine is usually prescribed at dosages of 16g/day and no more than 12g/day in patients suffering from kidney conditions.
- Aconiti Lateralis Radix (附子) : When inadequately prescribed, ordinary toxic symptoms are nausea and vomiting, palpitations and convulsions around the mouth, which are mostly relieved in one day. If severe, the patient may suffer ventricular fibrillation, general paralysis, hypotension, dyspnea or even death. Therefore, the medicinal should be boiled 1-2 hours prior to decoction, and the patient should not drink alcohol. Adverse effects may easily occur if the patient is strong, susceptible to heat, or if the disease exhibits a heat pattern and yang syndrome.
- Glycyrrhizae Radix (甘草) : If inappropriately prescribed, edema, weakening of the limbs, or changes in blood pressure and electrolytes may occur. The medicine's use should be cautioned when coadministered with steroids or diuretics, when prescribed excessively for 4-6 weeks consecutively, or when prescribed in patients older than 60 years.

② Precautions

- Coadministration with warfarin : Warfarin is a major anticoagulant that may be reinforced or inhibited due to its anticoagulative effect when coadministered with an herbal medicine. For example, research has shown that the INR is prolonged following coadministration with activated blood and the removal of stasis medicinals such as Salviae Miltiorrhizae Radix, Persicae Semen, Carthami Flos, Sparganii Rhizoma, Angelica Gigantis Radix and Cnidii Rhizoma and that it is decreased following the coadministration with Ginseng Radix.
- Coadministration with antibiotics : Antibiotics that are preferentially administered during suspicion of bacterial infection in acute inflammatory disease may have enhanced or inhibited antibacterial activity following coadministration with herbal drugs. Laboratory research has shown that Lonicerae Forsythiae powder (銀翹散) and Ephedrae Moisten the Lung decoction (麻黃潤肺湯) enhance the effect of antibiotics while Crataegi Fructus-containing prescriptions inhibit it.
- In pregnancy : Most of the internal organs are formed by the 14th week of pregnancy, and limitations of drug administration are recommended during this period. Rhei

Radix et Rhizoma and Natrii Sulfas with oxytocic action or other compounds that activate the blood and result in the removal of stasis medicinals with a risk of premature birth and miscarriage, such as Carthami Flos, Persicae Semen and Moutan Cortex, should be used with extreme caution. The drug transmission rate is less than 1% during breastfeeding, but Rhei Radix et Rhizoma may cause infantile diarrhea, and Hordei Fructus Germinatus, Oryzae Fructus Germinatus, Herba Menthae and Glycine Semen Preparatum may inhibit lactation and thus should be prescribed with caution.

Herbal Acupuncture Therapy

1) Introduction

Herbal acupuncture therapy, or pharmacopuncture, is a combination of acupuncture and herbal medicine. The pharmacopuncture is a unique therapeutic technology in Korean medicine that permits the treatment of disease by injecting a drug that has been refined and extracted from herbal medicine into an acupoint, the response point on the body surface, after pattern identification of the patient's constitution and disease. Pharmacopuncture applies physical stimulation through the meridian and an acupoint associated with the pathogenic organ or region, and it also applies chemical stimulation via the selection of an herbal drug according to the Qi and Taste theory of herbal medicine therapy. In contrast to conventional injection therapy during which the doctor injects 1 ml~tens of milliliters allopathically or according to the test results, in pharmacopuncture therapy, 0.1 ml~a few milliliters of herbal extraction are injected into an acupoint or relevant region based on the pattern of identification. Korean herbal acupuncture therapy shares its context with Chinese hand acupuncture therapy or European homeopathy, but while the latter is founded on somewhat mechanical compounds of acupuncture and the study of herbal medicine, the basis of the former lies in the unique Korean medicinal system of diagnosis and treatment.

Currently, various therapies such as bee venom acupuncture, Hominis Placenta acupuncture, Cervi Cornu Parvum acupuncture, Ginseng acupuncture and distilled herbal drugs are used in practice.

2) Procedures

① Herbal Acupuncture Drug Preparation and Storage

The preferred extraction method for each medicine, such as immersion, distillation, low temperature extraction, expression and dilution, is used for pharmacopuncture drug manufacturing purposes. The powdered drug used as an herbal acupuncture ingredient should be stored at -20°C in the freezer, while all of the herbal acupuncture drugs are stored in the refrigerator. Exposure to sunlight or a high temperature may spoil the components. Considering that the study results displayed a reduction of the active component melittine to 50% in Sweet BV stored at room temperature for six months, herbal acupuncture older than six months past the manufacture date should be discarded. Even if they are not old, one must check for signs of transmutation such as clots, flotage and precipitate.

② Pre-procedure Precautions

The patient's past history including drug allergies and present drug history should be checked prior to performing bee venom acupuncture. Questions regarding skin reactions during the past history of bee stings or mosquito bites may be useful. When receiving bee venom acupuncture for the first time, a minimal amount of 0.05 cc should be injected intradermally to check for allergic reactions.

An adequate injection site should be selected through diagnosis and syndrome identification, and disinfection processes for the area of the procedure, injections and syringes should be used carefully to prevent infection.

③ Herbal Acupuncture Drug Injection

The injection of cold solutions may cause pain, and therefore, the drug temperature must be appropriate. The muscles must be relaxed at the injection site, and air bubbles inside the syringe must be removed and the needle held in a steady direction during injection and retraction to avoid incurring pain to the patient. Blood vessels should be avoided during the injection.

The injection volume differs according to the point of injection and type of drug. Acupoints in areas with little flesh, such as the extremities, head and face or neck, may be injected with approximately 0.02-0.05 ml, and areas with abundant flesh, such as the limbs, chest, abdomen or back, may be injected with approximately 0.05-0.2 ml. The total injection volume in one session varies from 2.0 ml to 5.0 ml depending on the drug properties.

④ Response to the Procedure

It is recommended that the condition of the patient be assessed for at least 20 minutes after the procedure. Fomentation is advised during the post-procedure induration and pain, and an ice-pack may be applied temporarily for edema or pruritus. One should wait for at least a few days until the symptoms diminish or avoid the previous treatment site to resume the procedure if the patient complains of discomfort. Symptoms will generally disappear in a few hours or days.

Flare, pruritus or heat sensation and other normal local responses may be apparent around the treatment site in the case of bee venom acupuncture. The patient may apply an ice-pack or ointment for insect bites in the presence of itching.

3) Indications

The indications for herbal acupuncture are very diverse. Examples of indications for herbal acupuncture injections are presented below.

- **Bee venom**

  This venom is frequently used for various types of inflammation, pain or paralysis.

- **Musk**

  Musk promotes diaphoresis and diuresis, stimulates the central nervous system, respiratory, and circulatory functions, and is considered to have anti-inflammatory effects during the initial to middle stage, blood circulation and anticancer activity. Musk is used as a compound drug.

- **Cervi Cornu Parvum**

  This drug reinforces the deficiency in the qi, blood, yin and yang, and therefore, it may be used for kidney-deficient lumbago, vertigo, trigeminal neuralgia, otolaryngology and ophthalmic disorders, as well as musculoskeletal pain. Exposure to air causes the drug to fiberize and induce aching pain, and therefore, the drug must be carefully stored.

- **Hominis Placenta**

  Infant placenta is washed and dried after removal of the blood vessels, and then, is hydrolyzed and extracted after high pressure sterilization and filtering. Processes associated with growth facilitation, tissue regeneration, immune enhancement, hormone production and antiphlogistic activity may be used for xerophthalmia, allergies, dermal conditions, frequent contusions and neurasthesia.

Additionally, there are the Coptis Decoction to Resolve Toxicity (黃連解毒湯), neutral stasis acupuncture (*Jungsongouhyul* pharmacoacupuncture) composed of Gardeniae Fructus, Corydalis Tuber, Olibanum, Myrrha, Persicae Semen, Paeoniae Radix Rubrum, Salviae Miltiorrhizae Radix and Sappan Lignum, and sciatica no. 5 pharmacopuncture composed of Dipsaci Radix, Cibotii Rhizoma, Drynariae Rhizoma, Kalopanacis Cortex, Osterici Radix, Araliae Continentalis Radix, Gentianae Macrophyllae Radix, Cinnamomi Ramulus, Achyranthis Radix, Eucommiae Cortex, Corydalis Tuber, Olibanum and Myrrha. Depending on the Qi and Taste of its ingredients, each injection is selected for headache, neck stiffness, insomnia, heat symptoms such as febrile dermatopathy, pain due to qi stagnation and blood stasis or lower back pain and neuralgia.

4) Contraindications and Adverse Effects

① Contraindications

As in acupuncture therapy, strong stimulation in children, elders, feeble or fatigued patients or excessive injections should be avoided. Injections in the lower abdomen or lumbosacral area are prohibited during pregnancy. Caution should be exercised in the case of dermal infection, edema, cuts, blood-related diseases, such as severe coagulopathy, and drug hypersensitivity. Bee venom acupuncture is normally advised against in cardiovasculopathy, kidney disease, asthma and infectious diseases such as tuberculosis. Caution should also be exercised in pregnancy, diabetes, allergic dermopathy, and epimenorrhea.

② Adverse Effects

One to ten people in every hundred-thousand may present systemic immediate reactions within 15 minutes after bee venom acupuncture. Systemic reactions include chills, fever, aches, skin rubor, urticaria and nausea. In severe cases, dyspnea or shock may occur. Patients may require epinephrine or antihistamine treatment.

Chuna and Qigong

1) Introduction

Chuna, known as Tuina in China, and qigong are branches of traditional Korean medicine that originate from conduction exercise and massage (導引按蹻) recommended by

Huangdi's Internal Classic. People used to instinctively rub areas of affliction, and such hand contact developed into therapeutic massage and exercise therapy. Therapeutic massage indicates that the practitioner stimulates the exterior of the body with the hands, other body parts or additional instruments to harmonize the meridian system, realign abnormal skeletal structures, and thus cure and prevent disease.

Inspection, listening and smelling, inquiry and palpation (望聞問切), pattern identification and related examinations and functional anatomic assessments are used for diagnosing alterations in body structures. The structural abnormality is then corrected, and atrophy or sclerosis of the muscles is ameliorated based on the philosophy and principles of Korean medicine.

Yin or yang pattern displacement of the skeletal structures are corrected to recover the structural harmony, restore the imbalance of muscular dynamics formed by correspondence and systemicity, recuperate visceral functions by affecting internal organs through local surface meridians, replenish the qi and blood and promote qi-blood circulation. Autonomous exercise such as passive exercise and active exercise can cure and prevent diseases and also restore function. Qigong is one such exercise that trains the mind and body by regulating the mind, respiration and body. One regulates the mind (調心) through concentration, regulates respiration (調息) by learning the proper breathing, and regulates the body (調身) by correcting posture and movement. By consciously dismissing idle thoughts to relax and stabilize the mind and body, boosting qi-blood circulation, strengthening muscle and bone, and regulating the viscera and bowels to enhance source qi, resistance to exopathogens and natural healing capacity are activated.

Chuna therapy is differentiated from other massage therapies by its distinct name, and is subdivided into three types, bone correction Chuna (整骨推拏), sinew chuna (經筋推拏) and conduction chuna (導引推拏).

① Bone correction chuna (整骨推拏)

Displacement or dislocation of the vertebra or joints from a normal position is corrected to adjust dynamic structures, relieve pain and regulate organ functions related to the malpositioned area.

② Sinews chuna (經筋推拏)

Pressure applied with the hands or other body parts, waves and other stimuli are applied at acupoints to rectify the functional disturbance of the meridian sinews, which represent a system that maintains body movement, such as the muscle, ligaments and fascia. This system is similar to massage.

③ Conduction chuna (導引推拏)

Passive or active external force and autonomous exercise using a practitioner or instruments are applied to enhance the recuperative power of muscle, vertebra and joints. Functional disorders of meridian sinews and joints are recuperated, and local movement is improved by passive and active exercise.

2) Procedure

① Indications and contraindications are assessed prior to performing the procedure.

② The state of structural imbalance and disease is diagnosed and assessed.

The most basic of the four types of examination are inspection and palpation, while the anatomy-based muscle function tests, articular malposition examination, chemical tests and radiographic inspection are also performed to achieve a comprehensive diagnosis. Based on a selective examination according to the nature of disease, the precise therapeutic principle and methods are selected. Anterior-posterior, left-right, upper-lower, and left-right lateral movements of the vertebra and superior-inferior movements of the spinous processes are assessed. Anteriolisthesis and posteriolisthesis, as well as inflare and outflare of the ilium, are diagnosed by functional leg length insufficiency (LLI) analysis.

③ Chuna is applied in accordance with the diagnosis.

Track and contact the soft tissues of the malpositioned vertebral, spinous processes or joint area, determine the direction of the correction by the angle of the malposition, and push the joint to the movable point until resistance is felt.

④ Check for complications after the procedure.

Other qigong therapies include traditional conduction exercises such as Wuqinxi, an exercise devised by Huatuo from mimicking the movement of five animals, Taiqiquan, Baduanjin (8-section Brocade) or Yijinjing (ease the muscles classic) and modern conduction exercises such as Williams exercise, Mckenzie exercise and core exercise.

3) Indications

The indications are diverse, from peripheral and autonomous nervous system disorders and pain syndromes caused by spondyloarthropathy to myogelosis, vertebral disc herniation, muscle and tendon sprains, neurogenic myalgia, headache, insomnia, stomachache,

exercise rehabilitation for paralysis and body form correction. Performing conduction chuna or qigong in chronic diseases, diseases of senility, psychosomatic syndromes or at decubation may sustain the therapeutic effect by correcting the spondyloarthritis lesion. The therapy prevents aggravation in chronic disease and aids in recovering the capacity for daily activity.

4) Contraindications and Adverse Effects

Chuna therapy that contains strong passive exercise past the movable resistant point may incur adverse effects due to inadequate hand techniques or motions.

One must avoid qigong when he or she is tense, overexerted, holding his or breath too much or shaking the body involuntarily during training. If the practice is not used to exercise and qigong is suddenly performed excessively, fatigue and pantalgia may occur. Overdoing respiration without relaxing the body may cause headache. Practicing qigong in an incorrect posture may induce neck stiffness and shoulder pain. Training excessively while yang-deficient may cause coldness, chills and a cold sensation in the body.

The accumulation of qi disharmony during qigong may result in mental illness such as qigong deviation (走火入魔), foul temper (邪祟) or heart-wind syndrome (心風症).

Cupping Therapy

1) Introduction

Cupping therapy uses negative pressure from suction by a vacuumized cup or jar on the skin surface to various internal elements. The origin of the therapy is unclear, but use of the term gak (角) in the literature has been conjectured to be the equivalent of cupping.

The fundamental principle of the therapeutic effect in cupping is to relax the sinews and activate collaterals (舒筋活絡). Cupping removes stagnated bodily wastes from the skin to expedite systemic or local circulation, diffuse and communicate qi-blood by congestion from negative areas, and is useful for various paralytic syndromes and muscular diseases. In addition to applying suction, pus drainage and bloodletting are performed to cleanse the bodily

fluid around the lesion to achieve an anti-inflammatory analgesic effect and thus become beneficial to arthropathy. In addition, internal injuries, stomach disorders, hypertension and cough can be treated by cupping through the regulation of qi-blood circulation.

Cupping therapy is classified as flash cupping (閃罐法), retained cupping (留罐法), and bloodletting (刺絡法, wet cupping) according to the method employed. The cup material varies from an artificial synthetic cup to a glass cup, bamboo cup, conduit jar or copper cup.

2) Procedure

① Instrument

The plastic cup that is typically used in clinical practice is composed of a vent valve and body. The vent valve is pulled with an absorber to create a vacuum that attaches the cup, and the valve is pulled again after the procedure to detach the cup by allowing the entry of air. There is no separate vent valve in glass cups. The cup is attached as the air combusts and is detached by lightly pressing the skin around the cup opening to allow air to enter.

② Classification by Method

One can attach the cup through the pumping vent method or the fire cupping method. The pumping vent method uses utilizes a pump to create a vacuum and attach the cup. This method is used mostly with plastic cups. Fire cupping is performed through the combustion of the air within the cup to create a vacuum and attach the cup. The ignition method takes various forms, and the practitioner must always take cautions against burn injuries.

The procedural method may be categorized as flash cupping (閃罐法), retained cupping (留罐法), slide cupping (走罐法) or pricking-cupping (刺絡罐法). The flash cupping method attaches and detaches the cup instantly, and the procedure is repeated until the skin flushes. Flash cupping is used for local numbness or deficiency syndrome. The cup is attached and retained for 5~15 minutes using the retained cupping method. The retention time depends on the season, treatment site and presence of lesions. The slide cupping method lubricates body areas with a broad surface and abundant muscles, attaches the cup and allows it to slide up and down repeatedly. The items mentioned above are dry cupping methods. Wet cupping, which is also known as pricking-cupping or bloodletting cupping, is a procedure in which the small blood vessels are pricked with small needles before cup suction begins for the purpose of exsanguination.

In addition, medicated cupping (藥罐法) occurs when a cup containing medicine is attached, and acupuncture cupping (鍼罐法) consists of cup attachment while a needle is inserted.

③ Treatment Precautions and Normal Reactions

The acupoint or response point related to the lesion or organ is identified to select the treatment area. Unevenness of the skin and muscles is assessed to select the adequate cup and patient position so that the cup remains in place. The cup is ordinarily retained for 5 to 15 minutes, but the practitioner should detach the cup if the patient complains of severe pain.

The bloodletting volume during pricking-cupping varies according to the state of the lesion but should not exceed 10 ml. A sterilized cup is used to prevent infection. A sterilized disposable cup and three-pronged needle must be used for pricking-cupping.

Tenderness due to pressure during the procedure, or pigmentation, purpura or blistering after the procedure may normally occur. Resting for 2-3 days is important for patients who are very fatigued following the treatment.

3) Indications

Cupping may be applied to treat various conditions including excess syndrome, stasis, blood stasis, the common cold, wind-dampness, pain in the limbs, back pain, headache, coughing, red swollen pain in the eyes, hypertension, poisonous snake bite and early sores and ulcers.

4) Contraindications and Adverse Effects

The procedure is prohibited during high fever, convulsion, fracture or on the lower abdomen during pregnancy. Skin hypersensitivity, infection, bruising or skin ulcers should inspire caution. Discretion should be used when the patient has severe coagulopathy, heart disease or systemic edema. Excessive and repetitive wet cupping may cause anemia. If a blister forms after cupping, the exudate is drained with a sterilized three-edge needle and disinfection, ointment, dressing or other appropriate care is applied.

Korean Medicine :
Current Status and Future Prospects

Pusan National University
School of Korean Medicine

Policy and Management of Korean Medicine

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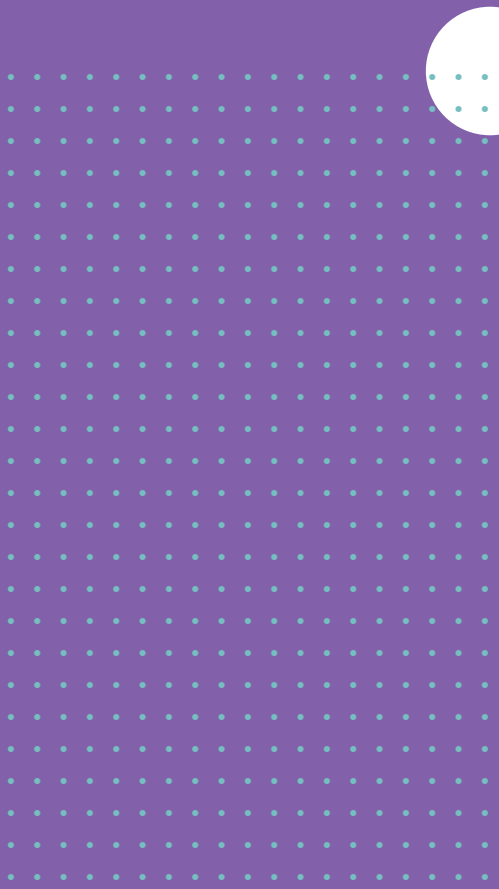

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CHAPTER 04

chapter 04

Policy and Management of Korean Medicine

A Brief History of Korean Medicine Policy Development

1) Japanese Colonial Period

When Japanese imperialists colonized the Korean Empire through the Eulsa treaty (the Japan-Korea Protectorate treaty) in 1905, the Korean healthcare system began to be reorganized to follow a system of Western medicine. This policy shift within the government and military caused the Medical School, the first modern school of Korean Medicine which had been supported by Korea's last Emperor, Gojong, to shut down, and with this the traditional system of medicine can truly be said to have been replaced.

When the Joseon general government enforced the Uisaeng (medical apprentice) Decree of 1914, Korean medicine doctors were no longer considered full doctors, but mere medical apprentice. In addition, the acupuncturist system was implemented in Joseon following the precedent of Japan, which substituted the Kampo medical system that was abolished during the Meiji Restoration in Japan. Although Korean Medicine doctors were being produced through the triennial Uisaeng license examination, their number continued to decrease. The government planned to approve practice only in rural areas for newly licensed doctors from 1921 and then cease issuing licenses to Uisaeng at all after 1940.

During this period, Korean medical education was maintained by private institutions for a few Uisaeng groups. Korean Medicine doctors who practiced during the early 1900s operated in institutes to learn the new mainstream, Western medicine alongside traditional Korean medicine. The institutes were governed by associates of Uisaeng in each region, including

Seoul and Pyongyang. The institute in Seoul held a three-year course and was approved as an official medical school in 1912 that included essential Western medical subjects in the curriculum while dealing mainly with Korean medicine. As the administrators of these institutions passed away and Uisaeng groups fell into decline, the Korean medical institutes faded, but this system managed to stay relevant until the 1940s.

2) From Liberation Throught the 1980s

For a long time after the liberation of Korea in 1945, the remnants of the old Japanese system lingered as Korea struggled to find its feet.

In Korean medicine, the organization of Korean Medicine doctors, as the Japanese Occupation had dispersed, reformed as the Association of Korean Medicine. This association played a key role in the institutional revival of Korean Medicine doctors and is still a vital organization in Korean Medicine today. The most meaningful events during this era were the legal restoration of the Korean Medicine doctor system, the founding of Korean medical schools, and the eligibility of Korean Medicine for reimbursement through health insurance.

When the Medical Act of 1951 went into place, against the opposition of Western doctors, Korean Medicine doctors became certified healthcare providers. Since then, the dual medical system has remained in place. Despite the acquisition of legal equality, this was ironically the beginning of decades of conflict, centered around attempts by Western doctors to abolish Korean Medicine in order to unify healthcare.

As part of the Korean medical educational system, a four-year course at Dongyang Medicine College was established immediately following liberation from Japan, which was continued as a six-year course when it merged with Kyunghee University in 1965. Ten more colleges of Korean Medicine had been established by the early 1990s, but they were all established by private universities, and the Korean Medicine community would not be satisfied without the establishment of a college of Korean Medicine by a national university.

In 1987, parts of Korean Medicine treatment such as acupuncture, moxibustion, and herbal medicine, began to be reimbursed by health insurance. Insurance for Korean Medicine played a crucial role in helping to popularize it by increasing its use by the average person.

Throughout this period, on top of the discord with the association of doctors regarding a

unitary medical system, there was also conflict regarding the restoration of the Acupuncturist Act, since there had been no acupuncturists licensed since Korea's independence, as well as attempts by pharmacists to prevent the prescription of herbal medicine.

3) The 1990s and Beyond

The 1990s was a meaningful period in the modern history of the Korean medical system because it was an era of "herbal conflicts" in 1993 and 1996. These conflicts were social disputes between practitioners of Korean Medicine and Western pharmacists. The conflict intensified to the point that it became impossible for the government to arbitrate. Finally, civic groups stepped forward to mediate the conflict, and separation between dispensing and prescribing was implemented in the field of Korean Medicine through the implementation of the herbal pharmacist system, which conceded to some extent the vested rights of pharmacists who used to prescribe herbal drugs through an additional license exam.

Korean Medicine policies since the 1990s have worked to solve the problems related to the herbal conflict conflict of 1993, and qualitative, quantitative, and systemic development in various fields were propelled based on those policies.

For the government organization, the Division of Korean Medicine had been expanded to the Director's office for Korean Medicine policy in 1996. In October 2005, the Office was reorganized consisting of the Korean Medicine Policy Team and Korean Medicine Industry Team to promote Korean Medicine systemically.

In the area of human resources, the herbal pharmacist system was introduced in 1994, and thus there have been licensed herbal pharmacists since 2000, and Korean Medicine has introduced eight fields for specialization, which has served to enhance the advancement of Korean Medicine.

Throughout this period, growth in the public healthcare sector was noteworthy. Starting in 1998, Korean Medicine doctors have been permitted to work as "public health doctors" in place of their 2-year compulsory military service. They provide medical and health promotional services based on Korean Medicine in public health center, such as stroke prevention, smoking cessation, and qigong among other traditonal practices. Since 2005, the Ministry of Health and Welfare has provided a large amount of funding for implementing health promotion projects based on Koream Medicine in public health centers and branches.

Herbal medicine standardization has been imposed since 1997, and the use of standardized Medicinal material has been obligatory since 2007. The real-name system for medicinal material distribution was enforced in 2005 to clarify distribution processes, and the medicinal plant supply control system has been implemented since 1998 to facilitate domestic herb production.

The Traditional Korean Medicine and Pharmaceutics Promotion Act enacted in 2004 provided a legal basis for the development of Korean medicine. Based on this act, "The First 5-year Development Plan for Korean Medicine (2006 ~ 2010)", a long-term total strategy concerning the development and nurturing of Korean medicine, was established and enforced. "The Second 5-year Development Plan for Korean Medicine (2011~2015)" was established in 2011.

In education, Pusan National University School of Korean Medicine was established in 2008, leading to the innovation of Korean medical education by instituting new educational methods such as the integrated lectures, problem-based learning, and clinical practice training.

Laws & Administration

1) Legislation Related to Korean Medicine

The primary laws related to Korean Medicine are the Medical Act, Pharmaceutical Affairs Act, and Traditional Korean Medicine and Pharmaceutics Promotion Act.

Through the Medical Act and its subsidiaries, the definition and category of Korean medical services, standards for the licensing of Korean Medicine Doctors, establishment of rules for Korean medical institutions, and the qualifications for Korean Medicine specialists were regulated. The definition and category of herbal medicine, standards concerning its production, distribution and manufacture, and the role and authority that practitioners of Korean Medicine were regulated by the Pharmaceutical Affairs Act and its subsidiary acts.

The following table is a comparison of the legal and administrative status of Korean medicine with that of Western medicine. The table shows that Korean Medicine now shares an almost equal legal status with Western medicine, having a public system of education and licensing

along with government departments, participation in the military and public health sectors, reimbursement by national health insurance, and official positions for the Presidential physician. However, there is a difference in the use of medical technology and devices in that Korean Medicine doctors are prohibited from the use of Western drugs and modern medical devices. There is currently a conflict between Korean medicine and Western medicine communities regarding the partial use of modern medical devices by Korean Medicine doctors. Legally, the use of acupuncture is authorized only to Korean Medicine doctors and not to Western doctors; however, controversy arose as IMS (Intra-muscular stimulation) was developed in North America and approved for use by Western doctors. Authority for the prescription of drugs was also mutually exclusive between Korean Medicine doctors and other doctors, and the rights to use recently developed natural drug products also created conflict between the two medical communities.

The Traditional Korean Medicine and Pharmaceutics Promotion Act was implemented in 2004 to foster the development of Korean medicine in a more systematic and stable manner. The enactment of an independent specialized law to support traditional medicine was globally unprecedented at the time. The principal framework of the act is, first, that the government ministries come together every five years to establish and enforce a mid-to-long-term plan for

Table 1 Comparison of the Institutional Authority and Role of Western medicine and Korean medicine

	Western medicine	Korean medicine
Existence of related laws and acts	O	O
Existence of formal education system	O	O
Existence of national school	O	O
Existence of licensing system	O	O
Existence of governmental body	O	O
Existence of governmental funding	O	O
Military service participation	O	O
Public health service participation	O	O
Health insurance coverage	O	O
Existence of presidential physician	O	O
Use of Modern Medical Devices	O	under conflict
Use of Western Drugs	O	X
Use of Herbal Medicine	X	O
Use of Acupuncture	X	O

the nurturing of Korean Medicine. Second, research and development of Korean medicine should be supported and promoted. Third, the Korean medical industry should be fostered. Fourth, quality control of herbal medicine should be enforced.

The Traditional Korean Medicine and Pharmaceutics Promotion Act was amended twice, once in 2008 and again in 2011. The second revision was especially significant because the legal definition of Korean medicine and pharmaceutics was altered. The phrase 'Korean Medicine and Pharmaceutics' should be defined as any medical treatment service based on Korean Medicine that was "traditionally handed down from the nation's ancestors and Korean Medicine pharmaceutical affairs," as the law had previously stated, was changed to add "scientifically applied and developed Korean medical services," emphasizing not only the traditional inheritance of Korean Medicine but that the medicine is an assembly of modern knowledge and technology.

2) Mid-to-long-term Development Plan for Korean Medicine

Based on Traditional Korean Medicine and the Pharmaceutics Promotion Act, the government is obliged to create and enforce a mid-to-long-term plan to foster Korean medicine every five years. The Korean government implemented the first plan of this type from 2006 to 2010 and the second from 2011 to 2015. The second plan was established through the participation of seven ministries, including the Ministry of Health and Welfare, Ministry of Education, Ministry of Science and Technology, and Ministry of Food and Drug Safety. The plan contains strategies and tasks to improve the quality of Korean medical services and herbal medicine and to foster the Korean medical industry by investing approximately 918 million dollars over five years.

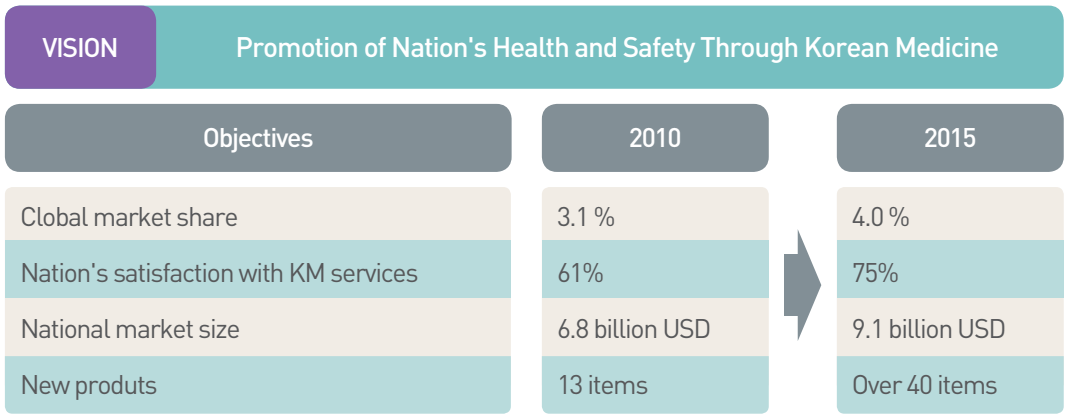

Figure 1 The Vision and Goal of the Second Mid-to-long-term Nurture Plan in Korean Medicine

The primary tasks of The Second Plan are as follows:

First, the number of long-term care beds in Korean Medicine hospitals should be increased. Convalescent beds utilizing Korean Medicine for the treatment of senility and its associated diseases should be increased due to the increasing number of senile patients with chronic conditions.

Second, specialized Korean Medicine hospitals should be introduced. Considering that most Korean Medicine hospitals are small or medium-sized, they should be specialized for specific diseases. By designating Korean Medicine hospitals within certain levels as specialized Korean Medicine hospitals, consumer confidence and preference for Korean Medicine hospitals may be enhanced. The designation of specialized Korean Medicine hospitals for stroke and spondylopathy is primarily promoted.

Third, Korean medical health promotion projects should be strengthened. The current health promotions provided in local health centers should be more diversified to benefit more local residents.

Fourth, the distribution system of herbal medicine should be improved. GAP (Good Agricultural Practice) and GMP (Good Manufacturing Practice) during the manufacture stage and GSP (Good Storage Practice) during the distribution stage must be established. In addition, the overall standardization of pharmaceutical herbal medicine should be promoted with the elimination of self-standardization that was formerly allowed in small herbal medicine farms.

Fifth, evidenced-based medicine should be established in Korean medicine. Clinical research should be extended to accumulate evidence on the safety and effectiveness of Korean medical technology, and Korean Medicine doctors should provide evidence-based practices.

Sixth, the herbal medical industry cluster should be supported regionally, and local residents should be allowed to develop and commercialize diverse new drugs and functional health foods from medicinal plants.

3) Bureau of Korean Medicine

In June 1993, the Division of Korean Medicine was installed temporarily under the Bureau of Medical Policy in the Ministry of Health and Social Affairs. The division was

subsequently elevated to the status of the Office of the Director General for Korean Medicine, with the Division of Korean Medicine Policy and the Division of Korean Medicine Industry; and so can now facilitate both the medical affairs and the Korean medicine industry.

When the Ministry of Food and Drug Safety (originally known as the KFDA) was founded in 1998, the Division of Herbal Preparation was instituted for screening herbal medicine. The Herbal Medicine Management Team established in 2006 was later reorganized into the Division for Herbal Medicine Policy in 2009, performing tasks related to policies for medicinal mterials and herbal preparations. In addition, the Division of Herbal Medicine Research was established under the National Institute of Food and Drug Safety Evaluation for technical support on the safety of herbal medicine and other products.

Table 2 Ministry of Health and Welfare internal data, Food and drug administration homepage (http://www.mfds.go.kr)*

Division		Primary Task
Office of Director General for Korean Medicine	Director General for Korean Medicine	• Oversees all decisions regarding Korean Medicine
	Division of Korean Medicine Policy	• Establishment and adjustment of policies on Korean medicine and pharmaceutics • Laws on Korean medicine and pharmaceutics • Research and development for Korean medicine-related institutions and policies • Fostering, supply and guidance of human resources in Korean medicine • Support for Korean medicine-related corporations and organizations • Management of paramedics, such as acupuncturists, moxibustionists, and bonesetters • Korean medicine health promotion and Korean medicine public health projects • International cooperation on Korean medicine • Establishment and adjustment of policies regarding Korean medicine industry promotion • R&D and support for nurturing Korean medicine • Operation of the committee for the Nurturing of the Korean Medicine Industry • Support and nurturing of the Korean medicine industry in thelocal government and private sector

	Division	Primary Task
Office of Director General for Korean Medicine	Division for Korean Medicine Industry	• Supply and distribution management of medicinal plants • Nurture and support of Good Herbal Medicine (GHM) • Other items that should be promoted in Korean medicine
Ministry of Food and Drug Safety	Division of Herbal Medicine Policy	• Establishment and adjustment of safety policies on medicinal materials and herbal preparations • Establishing and revising The Korean Pharmacopoeia and Korean Standard Directory for Herbal Medicines • Planing on safety management for herbal medicines • Permission and policy development for manufactured and imported products related to herbal medicine • Renewal of permission of herbal medicine related items • Use of herbal medicinal preparations beyond the scope of the permit • Legislation and revision of the manual and guide to herbal medicine • Pre-screening of herbal medicine related items • Registration of the raw materials of herbal medicine • Establishment and operation of standards for herbal medicine-product manufacture and quality control • Planning the domestic and overseas survey on standard of manufacture and quality control for herbal medicines and products • Supervising facility standards for manufacturers of substances related to herbal medicine as well as standardized products • Items related to the manufacture, distribution, quality control, advertisement and marked indications for standardized products in herbal medicine • Establishment and control of substances related to herbal medicine and standardized products • Planning of domestic and overseas survey for raw material registry of herbal preparations • Re-evaluation and reinspection of herbal medicinal preparations and medicinal materials • Information processing on the safety of herbal medicine • International cooperation related to herbal medicine • Management of statistics on the production and import on herbal medicine • Investigation, comparison and review of new information on the standards of herbal medicine in international organizations and leading countries

	Division	Primary Task
Ministry of Food and Drug Safety	Division of Herbal Medicine Policy	• Review of safety control alternatives and the hazard analysis of herbal medicine • Tasks on implementing the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)
	Division of Herbal Medicine Research (National Institute of Food and Drug Safety Evaluation)	• Review of the quality and safety as well as the effectiveness of herbal medicine • Review of the bioequivalence of crude drugs • Review of clinical trial plans for medicinal materials and herbal medicinal preparations • Review of registration data on raw material for herbal preparations • Pre-review system support for and herbal preparations • Review of the safety and effectiveness, and evaluation for the use of approved, registered herbal preparations for uses beyond those approved and registered • Support for the registration of and herbal preparations patents • Review of the data for the re-evaluation and reinspection of and herbal medicinal preparations • Availability of data concerning herbal medicine to the public • Support foundation and operation of standards on herbal medicine • Support foundation and revision of manuals and guides on herbal medicine
		• Appointment of quality inspection institution and support fact-finding on quality standard of herbal medicine • Technical support for hazard control and toxic substances found in herbal medicine • Technical support for research and investigation regarding the safety and effectiveness of herbal medicine • Examination and qualification of substances related to herbal medicine including sensory tests • Operation of the Herbal medicine information system • Scientific review of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and technical support for international cooperation on herbal medicine

	Division	Primary Task
Ministry of Food and Drug Safety	Division of Herbal Preparations (National Institute of Food and Drug Safety Evaluation)	• Manufacture, distribution and management of standard products and controls of herbal medicine • Supervision and operation of an Herbal Resource Center • Investigation and research on supervision of herbal medicine samples, and collection, development and preservation of herbal resources • Research and investigation regarding the approval and review of herbal medicine • Research and investigation on the manufacture and quality control of herbal medicine • Construction and operation of a database on herbal resources • Operation of a Medicinal Plants Exhibition Hall • Development of test method of herbal medicine

Resources for Korean medicine

1) Human Recources

In 2013, Korea's healthcare workforce included 21,355 Korean Medicine doctors, 109,563 Western doctors, and 27,409 dentists. There were five times as many Western doctors as there were Korean Medicine doctors.

Table 3 The numbers of health care personnels (2013)

	Korean medicine doctors	Doctors	Dentists	Nurses	Pharmacists
Number Proportion	21,355 (4.0)	109,563 (20.7)	27,409 (5.2)	307,797 (58.1)	63,292 (12.0)

Those working in Korean medicine and pharmaceutics were considered to constitute 21,287 Korean Medicine doctors and 1,920 herbal pharmacists at the end of 2013. In the past decade, the numbers revealed a steady increase in Korean Medicine doctors and pharmacists, and a decrease in herb dispensary pharmacists, herbal medicine dispenser acupuncturists,

moxibustionists, and bonesetters. Herbal pharmacists are those who graduated from the department of herbal pharmacology and professionally maintain and dispense herbal medicine. Herb dispensary pharmacists are Western pharmacists who obtained an additional license to dispense herbs. herbal medicine dispensers are not considered to be a part of healthcare and may only distribute, mix and sell herbal medicines, but conventionally, they have prescribed and dispensed herbal medicines like Korean Medicine doctors. There has been no more new herbal medicine dispenser since 1983.

Table 4 The numbers of Korean Medicine related personnels

Year	Korean medicine doctor	Herbal pharmacist	Herb dispensary pharmacist	Herbal medicine dispenser	Acupuncturist · Moxibustionist · bonesetter
2000	12,108	407	26,349	1,890	84
2005	15,271	804	26,269	1,778	73
2010	19,132	1,512	26,191	1,346	56
2011	19,912	1,643	26,631	1,346	48
2012	20,600	1,778	26,632	1,050	28
2013	21,355	1,920	25,749	979	25

Data : Ministry of Health and Welfare License Supervision System / Excludes the deceased and revoked license holders since 2004

The distribution of Korean Medicine doctors by institution shows that The distribution of Korean Medicine doctors by institution shows that of the 19,070 doctors who were active in 2013, 14,963 were working at KM clinics, 1,527 at KM hospitals, 1,481 at long-term care hospitals, and 955 at public health centers and branches.

Long-term care hospitals can be opened by Korean Medicine doctors, yet the majority, are established by Western doctors. However, many employ Korean Medicine doctors to provide a Korean-Western medicine co-practice service.

One of the unique properties of the Korean medical system is the system of the Korean Medicine specialist. The Korean Medicine specialist system was initiated in 2000 to improve and specialize the Korean medical service.

To obtain a license as a Korean Medicine specialist, with regulations identical to Western medicine, one must train for 1 year in an internship course and for 3 years as a resident in

hospitals that are designated for residency training. After residency training, licenses are authorized upon passing the qualification exam. The Association of Korean Medicine governs the qualification exam by delegation from the Ministry of Health and Welfare, and the license is authorized by the Minister of Health and Welfare.

There are eight areas for specialization in Korean Medicine, including Internal Medicine, Pediatrics, Gynecology, Psychiatry, Acupuncture & Moxibustion, Eye-ENT & Dermatology, Rehabilitation Medicine, and Sasang Constitutional Medicine. By 2014, 2,472 Korean Medicine specialists were produced. Korean Medicine Internal specialists were the largest in number, with 919 specialists, followed by 506 specialists in Acupuncture Medicine.

Table 5 The numbers of Korean Medicine specialists by specialties 2014

Korean Medicine Specialties	person
Internal Medicine	919
Gynecology	208
Pediatrics	91
Neuropsychiatry	148
Acupuncture & Moxibustion	506
Eye, ENT & Dermatology	140
Rehabilitation	326
Sasang Constitutional Medicine	134
Total	2,472

The introduction of the Korean Medicine specialist system stimulated the professional development of eight specialty studies and improvements in medical service in Korean Medicine hospitals through screening for residency training designations.

2) Hospitals, Clinics, and Pharmacies

By 2013, there were 2,833 hospitals, 162 specialty hospitals, 28,816 clinics, 203 Korean Medicine hospitals, and 12,816 Korean Medicine clinics. Over the past 10 years, there was a 50% increase in Korean Medicine hospitals and a 30% increase in Korean Medicine clinics.

Under the same codes as Western hospitals, Korean Medicine hospitals with more than 30 beds are granted permission to be established. Korean Medicine hospitals usually care for both inpatients and outpatients, with the majority of inpatients consisting of musculoskeletal,

cerebrovascular and neurological patients. To manage inpatients, the use of Western medical diagnostic tools and drugs in addition to the Korean medical diagnosis and treatment methods was an inevitability. For this reason, most Korean Medicine hospitals have additionally included Western clinics or employed doctors. Due to legal restrictions, Korean Medicine hospitals had previously installed separate Western clinics while actually performing internal co-practices, but as the Medical Act was amended in 2011 to promote Korean-Western medicine co-practices, Korean Medicine hospitals were given authority to directly employ Western doctors or internally install Western clinics. Of course, (Western) hospitals can also directly employ Korean Medicine doctors or install Korean Medicine departments.

Table 6 The numbers of Korean Medicine specialists by Hospitals and Clinics

	2001	2005	2010	2011	2012	2013
Hospitals	131	146	159	178	199	203
Clinics	7,499	9,765	11,804	12,305	12,440	12,816

The number of establishments which deal in herbal medicine outside of hospitals and clinics includes 513 herbal pharmacies, 979 herbal apothecaries, and 906 herbal wholesalers. Herbal pharmacies are established by an herbal pharmacist, who sells premanufactured herbal medicine prescriptions (decoctions, pills, powders, and ointments, etc.). The herbal apothecaries are operated by the herbal medicine dispenser who are only licensed for the mixture of medicinal plants, but it has conventionally prescribed and dispensed in a manner similar to that of Korean Medicine clinics. Herbal medicine can also be purchased in pharmacies that are operated by herbal dispensary pharmacists. After separating prescribing and dispensing in 2000, the function of pharmacy has been specialized into dispensing (prior to the separation, pharmacists acted as pseudo-doctors in Korea). The number of pharmacies arbitrarily dispensing herbal medicine has greatly diminished, and at present, very few pharmacies dispense herbal medicine.

Usage of the Korean Medicine Service

The Ministry of Health and Welfare performs research on the usage of Korean Medicine and the consumption status of herbal medicine every three years. A survey conducted in 2014 (Korea Health Industry Development Institute 2014) shows the usage of Korean Medicine as described below.

In a survey of 50,000 Koreans over 20 years of age with 300 inpatients investigated separately, 92% of respondents had used a Korean medical service during their lifetime, 27.1% had used an outpatient service in Korean Medicine hospitals or clinics in the past three months, and 0.8% had been hospitalized in Korean Medicine hospitals in the past year.

For ordinary use of health care services, 78.7% of patients choose Western hospitals or clinics, 13.3% choose Korean Medicine clinics, and 4.1% Korean Medicine hospitals. Usage of Korean Medicine hospitals and clinics increased in comparison to the previous year.

Outpatient care for Korean medicine was used by more females than males, with the largest age group represented by those between 50 and 59 years of age. When examining the academic backgrounds of patients, it was found that usage by those whose highest level of education was high school was considerably lower than that by those who had completed up to middle school or college. Usage correlated positively with income. The usage of inpatient hospitalization was similar to that of the outpatient service, with a preference for females, people in their fifties, and people with a higher income. Patients whose education ended at or before middle school are receiving more treatment than those who have completed higher levels of education.

In response to questions about their out of pocket expenses, 37.2% of respondents were found to be paying between 10 and 50 USD per visit, and 28.4% to be paying between 100 and 500 USD. Out-of-pocket payment for hospitalized care exceeded 3,000 USD in 24.1% of cases, which made up the largest percentage of those who responded to the survey regarding hospitalization. Out-of-pockets payments of between 100 and 500 USD followed this in frequency at 14.0% of cases, and the least common range of expenses born by patients was between 1,000 and 2,000 USD.

Regarding the perception of the effectiveness of Korean medical services, 59.7% of the respondents thought the services were somewhat effective, and 8.0% answered that the treatment was very effective, with a total of 67.7% indicating a positive response regarding the effectiveness of Korean medicine. In contrast, 26.6% said the effect was mediocre, and only 5.6% answered that Korean medicine was not effective. In response to a similar question regarding the intention for the future usage of Korean medicine, 68.8% responded positively, while 21.6% responded negatively.

When asked about problems experienced in the use of Korean Medicine services, 40.9% of respondents noted that the fees were too expensive, 27.6% expressed worry as to the safety of the medicinal plants used, 15.5% stated that they were uncertain of the effectiveness of treatment, and 9.2% felt the need for areas of specialization.

Table 7 Trend of National Medical Expenses and Korean Medical Expenses (2005~2012) (unit : million USD,%)

Classification	2005	2006	2007	2008	2009	2010	2011	2012	Annual increase rate
Korean medical expenses (A)	2,367	2,647	2,686	2,865	3,273	4,006	4,127	4,327	9
National medical expenses (B)	48,941	55,528	62,478	68,112	76,565	86,052	91,687	97,187	103
% (A/B)	4.8	4.8	4.3	4.2	4.3	4.7	4.5	4.5	-
Korean medical expenses per person (USD)	49	55	55	59	67	81	83	87	8.5
National medical expenses per person (USD)	1,017	1,148	1,286	1,391	1,557	1,742	1,842	1,943	9.7

The medical expenses paid to Korean medical hospitals and clinics amounted to 4,327 million USD in 2012, which included public assets such as health insurance (37.8%) and private assets such as out-of-pocket payments (62.2%). The average annual rate of increase was 9.0%, which is similar to the tendency toward a total national medical cost.

Health Securities & Korean Medicine

1) [1]Korean Medicine in National Health Insurance

① Introduction to Korean Medicine Health Insurance

In December of 1984, the Ministry of Health and Social Affairs launched a 2-year pilot project for National Health Insurance coverage of Korean medical services for 26 Korean Medicine clinics in Cheongju city and Cheongwon county. In this pilot project, the benefit coverage included outpatient visits, acupuncture, moxibustion, cupping, and

[1] Byungmook Lim. Korean medicine coverage in the National Health Insurance in Korea: present situation and critical issues. Integr Med Res (2013) 81–88.

herbal medication. At that time, 98 medicinal herbs were covered, and the Korean Medicine doctors were able to prescribe 1 of 26 codified formulas that could be composed of these 98 medicinal herbs. The fee for the outpatient visit was equal to that for Western medicine, and the fees for acupuncture, herbal medicine, and other interventions were calculated based on market prices.

The outcomes of the pilot project were largely optimistic; the rate of the treatment of episodes was higher than anticipated, and there was a high demand for expansion of the prescription list. In addition, the users reported a high level of satisfaction with the project. In October of 1986, the Ministry of Health and Social Affairs decided to expand the pilot Korean medicine coverage project to implement a continuous, nationwide program, which went into effect in February of 1987. Although other services were maintained as in the pilot project, the number of insured herbal medicines in the nationwide program was reduced from 98 to 68. Furthermore, while the insured form of herbal medicines in the initial pilot project comprised packages of medicinal herbs Chŏpyak, was substituted with herbal powders that were extracted from each crude herb and mixed with starch powder.

Although a major method was excluded, Korean medicine insurance has since gradually expanded in coverage, and the number of notified formulas increased to 56 in 1990. Korean medicine test devices such as Yangdorak[2] (Ryodoraku) and the pulse detector were covered in 1994, and 3 Korean medicine physical therapies were added for coverage in 2009. With respect to the reimbursement structure, the Resource-Based Relative Value Scale (RBRVS) was introduced for Korean medicine health insurance in 2002, providing a methodical approach for the estimation of fees and adjustment of balances among Korean medical services and procedures.

② Current reimbursement scheme and NHI coverage for KM

The general procedure for Korean Medicine reimbursement through the NHI are as follows. First, outpatient care is reimbursed using the Fee for Service (FFS) system based on the Resource-Based Relative Value Scale (RBRVS), which was originally developed by Professor Hsiao at Harvard University in the 1980s and modified for the Korean NHI by Korean researchers. The FFS system was implemented for Western medicine and dental procedures in 2000 and for Korean medicine procedures in 2002. In the RBRVS

[2] Yangdorak (Ryodoraku) is the device used to detected excessive or deficient conditions of the organs by measuring electrical resistance in the skin.

system, the fee for each procedure is calculated by multiplying the relative value (RV) of each procedure or service by a conversion factor (CF) corresponding to a monetary amount per RV score. The RV scores are adjusted every 5 years based on the research data, and the CF is determined at the end of each year based on a negotiation and contract, in principle, between the NHIS and the Association of Korean Medicine (AKOM). The CF for the year 2013 was 72.5 Korean won (KW; 0.065 USD).

Second, an additional fee is applied to each claim depending on the type of medical institution because indirect costs may differ according to the size of each type of institution. For university-affiliated hospitals, the markup rate is 25%; that is, the NHI reimburses 125% of the total amount of the fee for a claim. For Korean medicine hospitals, the markup rate is 20%, whereas the markup is 15% for Korean medicine clinics.

Third, for all medical institutions, the total reimbursed amount may be partially decreased depending on the number of outpatients per day. For example, there are no reductions if 1 doctor treats 75 or fewer outpatient cases; however, if 1 doctor treats more than 75 cases, 90% of the total benefit amount is reimbursed for claims up to 100 cases, 75% is reimbursed for claims up to 150 cases, and 50% is reimbursed for claims over 150 cases.

Fourth, to prevent patients from experiencing a moral hazard, the Korean NHI applies both copayment and coinsurance. The guardians of patients under the age of 7 years have to pay 21% of the total treatment amount themselves, while for patients aged 7–64 years, the charge is 30% of the treatment fee. The fee structure is more complicated for patients aged 65 years and older: patients pay 1,500 KW (1.3 USD) up to a total treatment amount of 15,000 KW (12.7 USD), and 30% of the total fee if it is more than 15,000 KW (if there is a medication, the reference point is increased to 20,000 KW).

Finally, the benefit coverage for Korean medicine includes outpatient visits, inpatient care, acupuncture, moxibustion, cupping, medication, diagnostic tests, and other treatments. Table 1 shows the current benefit coverage for Korean medicine and RV scores in the NHI.

Table 8 KM insurance benefits and RV scores (as of 2012)[a]

Benefit item			RV score
Outpatient visit	New patient		152.06
	Established patient		95.98
Inpatient care	KM hospital		409.18
	KM clinic		355.29
Dispensing of herbal preparations (1 day) *The costs of 68 single herbal preparations are notified separately			4.47
Acupuncture	General acupuncture		34.41
	Special acupuncture	Acupuncture in the intraorbital cavity	37.87
		Acupuncture into the intranasal sinus	37.87
		Acupuncture in the intraperitoneal cavity	37.61
		Acupuncture in the intra-articular joints	35.84
		Acupuncture in the intervertebrae spaces	37.38
		Penetration acupuncture	55.49
	Laser acupuncture		36.07
Electrical stimulation for acupuncture needle			51.95
Moxibustion	Direct type		73.70
	Indirect type		30.51
Cupping	Cupping only		45.62
	Cupping with bloodletting		73.26
Pattern identification (Bianjing)			32.91
Diagnostic test	*Yangdorak (Ryodoraku)*		39.81
	Pulse diagnosis		35.81
	Meridian function test		52.91
	Dizziness test		42.99
	Personality test		169.68
	Dementia test		301.41
Psycho-therapy	Individual psychotherapy		144.65
	Psychiatric personal history taking		94.59
	Family psychotherapy		192.05
Physical therapies	Hot pack		10.32
	Ice pack		10.32
	Infra-red irradiation		10.32

[a] Source: Association of Korean Oriental Medicine. Benefit expense of Korean medicine health insurance [HanbangGŏngangbohŏmYoyangGeupyŏBiyong]. 2012

③ Growth of Korean Medicine uses in National Health Insurance

Table 9 Number of outpatients relative to disease groups in the NHI (first quarter of 2012)[a].

KCD code	Disease group	Persons (n)	%
A00-B99	Infectious and parasitic diseases	25,986	0.11
C00-D48	Neoplasms	52,531	0.22
D50-D89	Blood and immunity disorders	2,584	0.01
E00-E90	Endocrine, nutritional, and metabolic diseases	66,339	0.27
F00-F99	Mental disorders	191,498	0.79
G00-G99	Diseases of the nervous system	1,072,377	4.43
H00-H95	Diseases of the sense organs	235,213	0.97
I00-I99	Diseases of the circulatory system	215,185	0.89
J00-J99	Diseases of the respiratory system	823,328	3.40
K00-K99	Diseases of the digestive system	1,027,035	4.24
L00-L99	Diseases of skin and subcutaneous tissue	235,633	0.97
M00-M99	Diseases of the musculoskeletal system and connective tissue	9,706,754	52.44
N00-N99	Diseases of the genitourinary system	131,730	0.54
O00-O99	Complications of pregnancy, childbirth, and puerperium	5,189	0.02
P00-Q99	Congenital anomalies	4,529	0.02
R00-R99	Signs, symptoms, and ill-defined conditions	849,867	3.51
S00-T99	Injury and poisoning	4,740,601	19.56
Z00-Z99/U00-U19	Other reasons for contact with health services	4,040	0.02
U50-U98	Diseases with KM names	1,841,940	7.60
	Total	24,232,359	100.00

[a] Source : Electronic Data Interchange Claim System, Health Insurance Review Agency.
KCD, Korean Standard Classification of Diseases

Table 9 presents the number of outpatients according to the "Korean Standard Classification of Diseases (KCD)" disease groups. Diseases of the musculoskeletal system are ranked first (52.44%), followed by injury and poisoning (19.56%), Diseases with Korean medicine names that do not matched with the Western medicine disease classification (7.60%), diseases of the nervous system (4.43%), and diseases of the digestive system (4.24%). Clinically, KM services can cover all disease areas, but they are being used disproportionally to treat musculoskeletal disease.

With respect to the number of claims, in 1990 (corresponding to the early stage of Korean medicine health insurance), Korean medicine represented only 1.1% of the total NHI claims, but this percentage increased to 7.1% by 2012 (Figure 2).

The total expense attributed to KM was only 7 million USD in 1988 but had increased to 1,932 million USD in 2012, representing 4.0% of the total cost of NHI treatments (Figure 3).

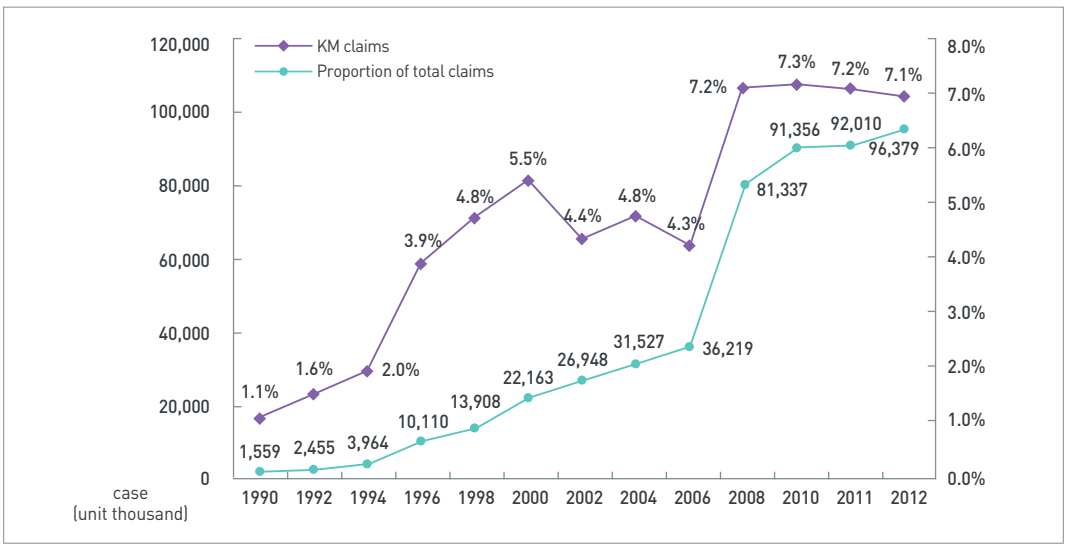

Figure 2 Number of KM claims from the NHI[a]

[a]Source: National Health Insurance Cooperation. National Health Insurance Statistical Yearbook for each year

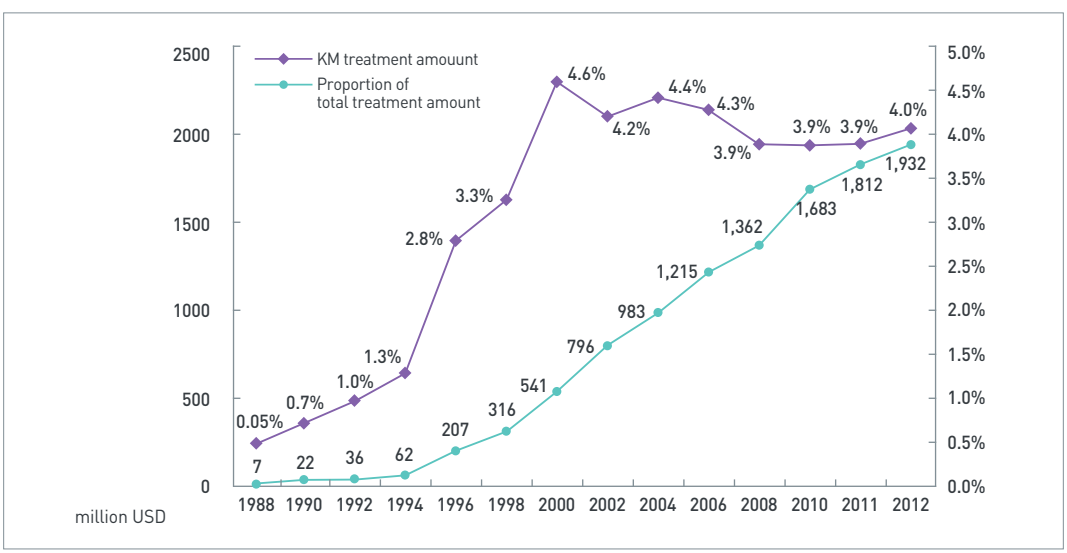

Figure 3 Total treatment amounts for KM in the NHI[a]

[a]Source: National Health Insurance Cooperation. National Health Insurance Statistical Yearbook for each year

If the pharmacy portion was excluded, the total expense of Koren medicine represented 5.4% of the total expense resulting from all medical institutions in 2012. Although the annual treatment amount has steadily grown, the proportion of the total expense has decreased since 2000 because of the rapid growth of higher level general hospitals and increase in number or long-term care hospitals. The roles of hospitals and clinics have not yet been adequately divided in Korea, and therefore, the growth of the use of hospitals highlights the stagnancy or decrease in use of clinics. Most institutions of Korean medicine are clinics.

With 28 years of development, the KM insurance system can be regarded as the most advanced model in the world in terms of benefit coverage and the reimbursement scheme for traditional medicine. KM was able to increase public use and social influence through public insurance programs; however, KM is currently facing challenges due to public safety concerns and stagnancy in medical demand.

2) Other Medical Securities and Korean Medicine

① Industrial Accident Compensation Insurance

Industrial Accident Compensation Insurance in Korea has reimbursed the Korean medical service for industrial accident patients since 1997. Social attention toward Korean medicine industrial accident insurance increased when pneumoconiosis patients in coal mine areas demanded industrial accident reimbursement for Korean medical treatment in the late 1980s. In Korean medicine, the subsequent continuous community efforts and social recognition of the use of Korean medicine for the treatment and rehabilitation of industrial accident patients has increased.

Korean medical services are reimbursed in cases of patients with an injury who require Korean medical care after surgical treatments, musculoskeletal diseases such as lumbago and sprains, or occupational diseases such as cerebrovascular disease or cardiac ailment. Payment for herbal decoctions and decocting fees has been added to the previously reimbursed Korean medical services and herbal preparations since 2009.

② Car Insurance and Korean Medicine

Medical expenses for car insurance policyholders who had a car accident are reimbursed by motor insurance, which began to reimburse Korean medical care in 1999. In addition to items that are paid by national health insurance, herbal decoctions, decocting fees, Chuna (Tuina), pharmacopuncture, Digital Infrared Thermal Imaging, and physiotherapies such as hot packs, ice packs, infrared therapy, Transcutaneous Electrical Nerve Stimulation (TENS),

and Interference Current Therapy (ICT) are currently reimbursed by motor insurance.

In the past three years, Korean medical expenses for car insurance have increased rapidly. Korean medical expenses for car insurance represented 32% of the total cases in 2014 while sharing at only 7% of total health insurance expenses. A larger proportion of Korean medical expenses for car insurance was due to reimbursements for herbal decoctions, which are not payed for by the national health insurance.

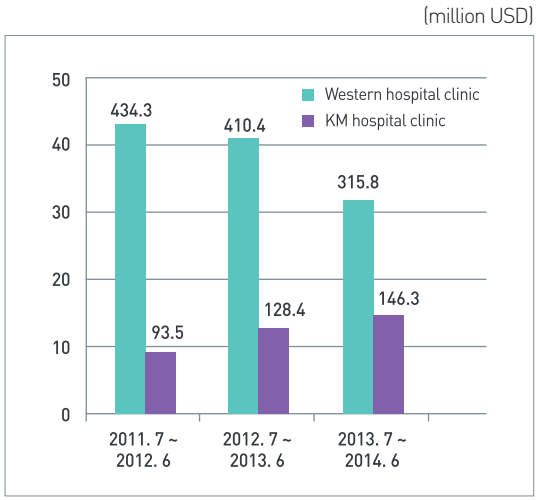

Figure 4 Current Status on Medical Expenses of Car Insurance by Types of Hospitals

Korean Medicine in the Public Health Sector

The first case of the utilization of Korean medicine in the public health sector was the Pilot project for Korean Medicine service, which was executed in three public health centers in rural areas over the course of two years in 1990. The project intended to improve accessibility to public healthcare for rural residents and was introduced by the suggestion of the Medical Policy Review Committee under the Ministry of Health and Social Affairs of the time. The pilot project resulted in improved accessibility to Korean medical care and strengthened treatment functions of health centers.

As Korean medicine specialists began to be placed in the public health centers in rural areas in 1998, the Ministry of Health and Welfare subsequently developed a health promotion program focused on Korean medicine. Consequently, the Ministry supported the implementation of eight major health promotion programs based-on Korean Medicine including stroke prevention class, smoking cessation class, and Sasang constitutional health program in the public health centers.

Korean Medicine doctors who are not specialists have been assigned as public health doctors since 2002, nationally spreading the services of Korean medicine across local health centers. By 2014, 1,005 public health Korean Medicine doctors were deployed in public health centers and health center branches all over the country, providing Korean medical services and participating in local health promotion programs.

In 2005, the Korean medicine HUB center for health promotion was introduced to augment the expertise and efficacy of prior projects. This project was executed in 23 health centers in 2005 and extended to 70 centers in 2011. Not only was the quantity increased, but the execution methods and contents of the projects expanded. Five major Korean medical health promotion programs, including stroke prevention class, qigong classes, Korean medicine home visit care, Sasang health classes, and child nurturing class were provided by health centers according to standard manuals. Other diverse projects according to local situations were developed and executed by each health center.

In 1991, department of Korean medicine was installed at the National Medical Center, and the department of Korean medicine rehabilitation was established at the National Rehabilitation Center. The government has supported the establishment of the department of Korean medicine in public hospitals since 2008, and currently, there are three public hospitals with a department of Korean medicine.

The government is making a variety of efforts to ensure the quality and improve the efficacy and national financial support for public health projects in Korean medicine. Manuals regarding the efficiency of health programs in Korean medicine have been published and utilized by local health centers since 2001, and a program evaluation system was also introduced. In addition, a national subsidy for building infrastructure, support for education in human resources, the implementation and operation of public service evaluation committees in Korean medicine, and the HUB program are enhancing program quality.

Future Directions for Government Policy

1) Development and Proliferation of Clinical Practice Guidelines

Evidence-based standard clinical practice guidelines were developed to promote the scientific development of Korean medicine, establish standard practices, and thus enhance consumer trust in Korean medicine. The utility of the manual was maximized by coupling it with the health insurance system to raise national accessibility.

The strategic stages unfolded as stage 1, in which practice guidelines were developed through R&D, and the developed guideline was then validated. In stage 2, the validated guideline was distributed and advertised, and the demonstration program associated with the national health

insurance was introduced. In stage 3, guidelines regarding Korean medical practices were registered and verified, guideline compliance was evaluated, and unregistered practices were regulated to increase the effectiveness of the guidelines.

2) Reinforcement of the Insurance Coverage for Korean Medical Service

The current health insurance coverage for the practice of Korean medicine by public and private insurance could not cover some of essential procedures and treatments, thus disease area that Korean medicine doctors treat has been narrowing into only musculoskeletal disease, and the out-of-pocket expenditure for Korean medicine has been growing.

In national health insurance, it is essential to expand Korean medicine coverage to herbal decoction, the representative treatment method of Korean medicine, Chuna, and Pharmacopuncture. Various types of physiotherapies and forms of herbal medicines also need to be covered to provide higher quality services.

Besides the coverage expansion, reforming the reimbursement structure implementing partially comprehensive payment method should be considered to enhance efficiency and competency of Korean medicine.

3) Establishment of the Foundation for Herbal Medicine Promotion

After integrating the affiliated organizations under the Ministry of Health and Welfare, the Foundation for Herbal Medicine Promotion will be established to facilitate the Korean medicine industry and support policy development regarding Korean medicine.

The foundation first promoted the international cooperation and globalization of Korean medicine as the think tank of policies in Korean medicine. Second, with a focus on industry invigoration, a foundation was constructed for the production base for medicinal plants, fostering of the pharmaceutical industry.

4) Global standardization of Korean medicine

Research and development regarding the standards of various Korean medicine equipment, modules, manuals and herbal drug quality control should be promoted. National standard plans must be accumulated while striving to register global standards such as the ISO. The development of standards based on scientific evidence should be initiated, with

international cooperation regarding the standard development of Korean medicine and traditional medicine practices.

5) Use of Medical Devices by Korean Medicine Doctors

The usage of Western medical devices by Korean Medicine doctors is currently an important issue in the field of healthcare. In 2014, the government suggested the usage of medical devices by Korean Medicine doctors as an item for regulation reform, which resulted in a conflict between Korean and Western doctors. The Association of Korean Medicine maintains that the usage of a medical device should be approved because Korean Medicine doctors are professionally educated regarding modern medical devices through their regular curriculum; in contrast, the Korean Medical Association opposes their use of medical devices because their function is based on modern medical theories or basic scientific theories that are not held to by Korean Medicine doctors. While reforming regulations, the government continues to mediate between both sides.

6) Policy Support for Korean Medicine

In the future, Korean medical policies for both herbal drug R&D and herbal resource development will be promoted. First, new herbal medicinal preparation developments, the modernization of herbal medicinal preparation formulas, and the standardization of herbal medicinal preparation efficacy and pharmacopuncture in terms of herbal medicine R&D must be performed. Furthermore, in terms of herbal resources, the natural substance databank and Korean medicine biomaterial bank must be established, indigenous herbal resources in Korea must be registered, and specific standards must be established and registered in the official compendium.

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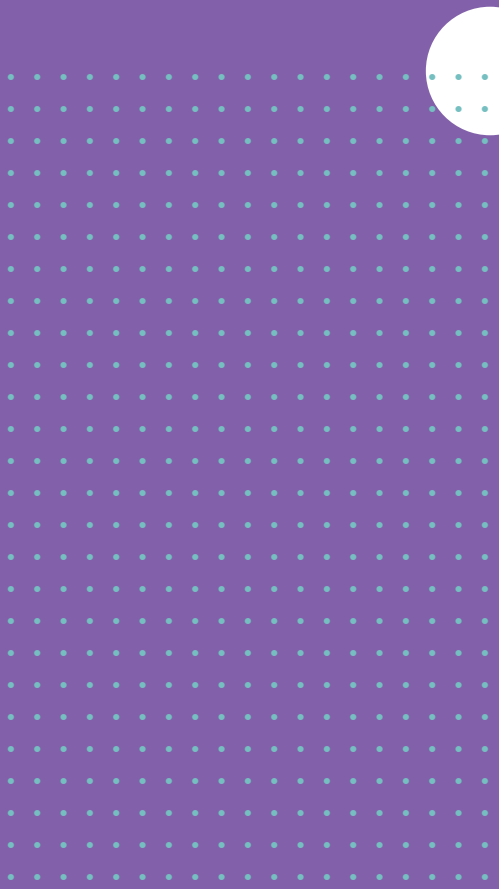
Korean Medicine :
Current Status and Future Prospects

Pusan National University
School of Korean Medicine

Contemporary Education in Korean Medicine

written by Byungmook Lim



2015

CHAPTER 05

chapter 05

Contemporary Education in Korean Medicine[1)]

Introduction

Modern education in Korean medicine started at Dongje medical school in 1904, which was sponsored by Emperor Gojong at his own expense, but lasted for only three years, as Emperor Gojong was deposed in 1907.

Since that time, Korean medicine education barely maintained its existence through small institutions until the liberation from Japan. In 1948, Dongyang Medical College was established, and it was given a legal basis with implementation of the National Medical Service Act of 1951, which reinstated Korean Medicine doctors and Korean Medicine education.

Dongyang Medical College was a four-year institution with departments of both Korean Medicine and pharmacology. Although Dongyang Medical College achieved status as a six-year institution in 1964, it merged with Kyunghee University only a year later.

The curriculum comprised basic medical subjects and clinical medical subjects. Basic medical subjects included physiology and pathology in Korean medicine, herbology, acupuncture meridians, and anatomy. Clinical medical subjects included internal medicine, pediatrics, gynecology, psychiatry, and ENT among other things. To enhance Korean medicine doctors'understanding and use of Western medicine, parallel learning systems for Western and Korean medicine was provided.

[1] This chapter was written and supplemented with refering to the Education chapter of 2014 Yearbook for Traditional Korean Medicine. 2015.

When the popular use of Korean medicine increased with the introduction of health insurance for Korean medicine in 1987, interest in Korean medicine increased and additional Korean medical colleges were established. An increased demand for a standardized educational curriculum began following this trend. A common educational goal was set for each subject and was reflected in the national examination, and national standard textbooks were published for various basic and clinical subjects.

The student quota was maintained at 750 students in 2013. The highest quota was given to Kyunghee University and the Daegu Haany University with 108 students each, followed by 90 students at Wonkwang University and 72 students each at Daejeon University and Dongguk University. The total number of students attending Korean medicine colleges and graduate schools for Korean medicine was 4,632, with 665 at Daegu Haany University, 652 at Kyunghee University and 550 in Wonkwang University. The School of Korean Medicine at Pusan National University, which opened in 2008, has 208 students in all four years of the program.

Table 1 List of Colleges and Graduate Schools for Korean Medicine in Korea

	Year Established	Annual Entrance quota	KMD Completion Term	Location
Kyunghee University College of Korean Medicine	1947	108	6	Seoul
Wonkwang University College of Korean Medicine	1972	90	6	Jeollabuk-do
Dongguk University College of Korean Medicine	1979	72	6	Gyeongsangbuk-do
Daegu Haany University College of Korean Medicine	1980	108	6	Daegu
Daejeon University College of Korean Medicine	1981	72	6	Daejeon
Dongshin University College of Korean Medicine	1987	40	6	Jeollanam-do
Dong-eui University College of Korean Medicine	1987	50	6	Busan
Sangji University College of Korean Medicine	1988	60	6	Gangwon-do
Woosuk University College of Korean Medicine	1988	30	6	Jeollabuk-do
Gachon University College of Korean Medicine	1989	30	6	Gyeonggi-do
Semyung University College of Korean Medicine	1992	40	6	Chungcheongbuk-do
Pusan National University School of Korean Medicine	2008	50	4	Gyeongsangnam-do

The herbal pharmacist system was introduced in 1993 for the professionalization of herbal medicine management, distribution and dispensation. A 4-year course in the department of herbal pharmacy was established at three pharmacy colleges — Kyunghee University and Wonkwang University in 1996 and Woosuk University in 1998. Beginning with the qualification of 89 herbal pharmacists in 2000, a total of 1,775 herbal pharmacists were licensed by 2012.

One of the most important milestones in modern Korean medicine education is the establishment of the School of Korean Medicine a Pusan National University, which was the first school for Korean Medicine at a national university since Korea's independence. The School of Korean Medicine at Pusan National University is the only graduate school for Korean medicine that is attempting to innovate modern education in Korean medicine in the past half century which has been achieved primarily through the introduction of an integrated curriculum, the development and application of training modules in basic and clinical medicine, PBL (Problem-Based Learning) and CPX (Clinical Practice Examination). These changes have contributed to establishment of an advanced education system, which is being extended to other colleges of Korean medicine.

Education system for the 6-year College of Korean Medicine

The 6-year course at the College of Korean Medicine, which is identical to colleges for Western medicine, is composed of a 2-year preparatory course and a 4-year regular course. The preparatory course educates students in cultural studies, such as the principles of Korean medicine, medical classics, and basic Western medicine. Basic and clinical subjects in Korean medicine and clinical practice are taught through the regular course.

In the case of Kyunghee University College of Korean Medicine, the oldest college of Korean medicine, the overall course curriculum comprises a total of 244 credits. Specifically, there are 203 credits for mandatory subjects, 7 credits for selective subjects and 35 credits for liberal arts.

Classifying the courses by field of study, the curriculum consists of 20% cultural, humanities & social studies subjects, 50.4% Korean medicine subjects, and 28.5% Western medicine subjects. This composition ratio is not precise as some subjects are ambiguous in their nature, but this breakdown shows the general outline of the academic composition. Western medicine accounts for approximately 30% of the curriculum, but in actuality, each clinical

subject in Korean medicine contains relevant clinical substance from Western medicine, so the proportion of Western medicine taught in Korean medicine colleges is estimated about 40%.

Table 2 Curriculum Composition at Kyunghee University College of Korean Medicine

Field	Cultural studies, Humanities & social studies	Basic Korean medicine	Clinical Korean Medicine	Western medicine	Total
Total credit	49	55	70.5	69.5	244
%	20.1	22.5	28.9	28.5	100.0

Table 3 Specific Curriculum at Kyunghee University College of Korean Medicine 2013

Category	Subject title	Credit	Preparatory 1		Preparatory 2		Regular 1		Regular 2		Regular 3		Regular4	
			1st semester	2nd semester	1	2	1	2	1	2	1	2	1	2
Mandatory Major	Chinese Classics(1,2)	4	2(4)	2(4)										
	Principle of Korean Medicine(1,2)	4	2(4)	2(4)										
	Medical English(1,2)	2	1(2)	1(2)										
	Chinese Conversation	1			1(2)									
	Medical Chinese Classics(1,2)	3			1.5 (3)	1.5 (3)								
	Medical History(1,2)	3			1.5 (3)	1.5 (3)								
	Physiology(1,2)	8			4(4)	4(4)								
	Physiology Lab(1,2)	1			0.5 (2)	0.5 (2)								
	Biochemistry and Lab(1,2)	7			3.5 (5)	3.5 (5)								
	Embryology(1,2)	2			1(2)	1(2)								
	Medical Qigong(1,2)	2			1(2)	1(2)								
	Introductory Herbology(1,2)	2			1(2)	1(2)								
	Medical Statistics	1				1(2)								
	Anatomy(1,2)	8					4(4)	4(4)						
	Anatomy Lab(1,2)	1					0.5 (2)	0.5 (2)						
	Physiology(1,2)	8					4(4)	4(4)						
	Physiology Lab(1,2)	1					0.5 (2)	0.5 (2)						

Category	Subject title	Credit	Preparatory 1		Preparatory 2		Regular 1		Regular 2		Regular 3		Regular4	
			1st semester	2nd semester	1	2	1	2	1	2	1	2	1	2
Mandatory Major	Preventive Medicine(1,2)	4					2(2)	2(2)						
	Preventive Medicine Lab(1,2)	1					0.5 (2)	0.5 (2)						
	Western Physiology(1,2)	4					2(2)	2(2)						
	Herbology(1,2)	8					4(4)	4(4)						
	Herbology Lab(1,2)	1					0.5 (2)	0.5 (2)						
	Medical Classics(1,2)	6					3(6)	3(6)						
	Histology	2						2(2)						
	Acupoint Study(1,2)	4							2(2)	2(2)				
	Acupoint Lab(1,2)	2							1(4)	1(4)				
	Pharmacology(1,2)	4							2(2)	2(2)				
	Pharmacology Lab(1,2)	1							0.5 (2)	0.5 (2)				
	Western Pathology(1,2)	4							2(2)	2(2)				
	Prescription and Preparation(1,2)	6							3(3)	3(3)				
	Prescription and Preparation Lab(1,2)	1							0.5 (2)	0.5 (2)				
	Western Preventive Medicine(1,2)	4							2(2)	2(2)				
	Treatise on Cold Damage Diseases(1,2)	2							1(2)	1(2)				
	Various Scholars(1,2)	2							1(2)	1(2)				
	Medical Ethics	1							1(2)					
	Microbiology	2							2(2)					
	Microbiology Lab	0.5							0.5 (2)					
	Western Diagnostics	2								2(4)				
	Forensic Medicine	1								1(2)				
	Health Regulations	1								1(2)				
	Warm Disease Study	1								1(2)				
	Sasang Medicine(1,2)	1.5								1(2)	0.5 (1)			

Category	Subject title	Credit	Preparatory 1		Preparatory 2		Regular 1		Regular 2		Regular 3		Regular4	
			1st semester	2nd semester	1	2	1	2	1	2	1	2	1	2
Mandatory Major	Internal Medicine of Liver System(1,2,3,4)	5									1(2)	1(2)	1.5 (3)	1.5 (3)
	Internal Medicine of Heart System(1,2,3,4)	5									1(2)	1(2)	1.5 (3)	1.5 (3)
	Internal Medicine of Spleen System(1,2,3,4)	5									1(2)	1(2)	1.5 (3)	1.5 (3)
	Internal Medicine of Lung System(1,2,3,4)	5									1(2)	1(2)	1.5 (3)	1.5 (3)
	Internal Medicine of Kidney System(1,2,3,4)	5									1(2)	1(2)	1.5 (3)	1.5 (3)
	Acupuncture and Moxibustion Study(1,2,3,4)	6									3(6)	3(6)	3(6)	3(6)
	Gynecology(1,2,3,4)	6									3(6)	3(6)	3(6)	3(6)
	Pediatrics(1,2,3,4)	5									1(2)	1(2)	1.5 (3)	1.5 (3)
	Dermatology(1,2,3,4)	5									1(2)	1(2)	1.5 (3)	1.5 (3)
	Ophthalmology and Otolaryngology (1,2,3,4)	5									1(2)	1(2)	1.5 (3)	1.5 (3)
	Psychiatry(1,2,3,4)	5									1(2)	1(2)	1.5 (3)	1.5 (3)
	Rehabilitation Medicine(1,2,3,4)	5									1(2)	1(2)	1.5 (3)	1.5 (3)
	Chuna(Tuina)(1,2)	2									1(2)	1(3)		
	Radiology(1,2,3,4)	5									1(2)	1(2)	1.5 (3)	1.5 (3)
	Laboratory Medicine(1,2,3,4)	5									1(2)	1(2)	1.5 (3)	1.5 (3)
	Emergency Medicine(1,2,3,4)	4									1(2)	1(2)	1(2)	1(2)
	Diagnostics(1,2,3,4)	5									1(2)	1(2)	1.5 (3)	1.5 (3)
	Subtotal	203												
Selective Major	Selected among lectures open during Regular 1-1st semester	1					1(2)							
	Selected among lectures open during Regular 2-1st semester	1							1(2)					
	Selected among lectures open during Regular 2-2nd semester	1								1(2)				

Category	Subject title	Credit	Preparatory 1		Preparatory 2		Regular 1		Regular 2		Regular 3		Regular4	
			1st semester	2nd semester	1	2	1	2	1	2	1	2	1	2
Selective Major	Selected among lectures open during Regular 3-1st semester	1									1(2)			
	Selected among lectures open during Regular 3-2nd semester	1										1(2)		
	Selected among lectures open during Regular 4-1st semester	1											1(2)	
	Selected among lectures open during Regular 4-2nd semester	1												1(2)
	Subtotal	7												
Core Subjects	Search for Human Values	3	3(3)											
	The Universe We Live In	3	3(3)											
	Subtotal	6												
Distribution	Life, Body, and Symbiotic System Field	3	3(3)											
	Nature, Universe, and Substance Field	3	3(3)											
	Meaning, Symbol, and Empathy Field	3	3(3)											
	Society, Community, and Nation Field	3		3(3)										
	Peace, Nonviolence, and Ethics Field	3		3(3)										
	Subtotal	15												
Basic study	Writing1	2	2(2)											
	Writing2	2	2(2)											
	English1	2	2(3)											
	English2	2	2(3)											
	Civil Education	3	3(3)											
	Subtotal	11												
Free completion	Free Courses	3	3(3)											
	Total	244												

Education system for the 4-year School of Korean Medicine

The 4-year School of Korean Medicine has been established only at Pusan National University. In 2013, the curriculum at the Pusan National University School of Korean Medicine consisted of 172 credits. The coursework is composed of only major mandatory subjects, and the higher the course level, the more focused the curriculum is on segmented clinical subjects and practice.

As the graduate school of Korean medicine does not offer preparatory courses, there are few liberal arts subjects. Additionally, the subjects taught for 2–4 semesters in Korean medicine colleges are shortened to 1–2 semesters by integrating courses and block lectures. Courses such as Korean medicine research, Korean-Western medicine co-practice methodologies, and specialized field practice distinguishes this school from other colleges.

Korean medicine clinical subjects taught at the School of Korean Medicine also contain a significant amount of material from Western medicine courses.

Table 4 Curriculum composition at Pusan National University, School of Korean Medicine

Field	Cultural studies, Humanities & social studies	Basic Korean medicine	Clinical Korean Medicine	Western medicine	Total
Total credit	19	53	73	27	172
%	11.0	30.8	42.4	15.7	100.0

Table 5 Specific Curriculum at Pusan University, School of Korean Medicine2013

Category	Subject title	Credit	Year 1		Year 2		Year 3		Year 4	
			1st semester	2nd semester	1	2	1	2	1	2
Mandatory Major	Introduction to Korean Medicine	6	6(6)							
	Visceral Manifestation and Life Nurturing(1,2)	8	3(4)	5(6)						
	Molecular Cell Medicine	5	5(6)							
	Body Structure and Function(1,2)	10	7(9)	3(4)						

Category	Subject title	Credit	Year 1		Year 2		Year 3		Year 4	
			1st semester	2nd semester	1	2	1	2	1	2
Mandatory Major	Modern Society and Korean Medicine(1,2,3,4,5,6)	10	1(2)	2(2)	2(2)	1(2)			2(2)	2(2)
	Korean Medicine Research(1,2,3,4,5,6)	2	0(3)	0(3)	0(3)	0(3)	0(3)			2(2)
	Meridian and Acupoint Study(1,2)	8		5(6)	3(4)					
	Perception and Interpretation of Human Diseases(1,2)	11		4(5)	7(8)					
	Body Responses and Principles of Disease(1,2)	5		2(3)	3(4)					
	Elective Course(1,2,3,4)	4		1(1)	1(1)	2(2)				
	Herbology/Formulas(1,2)	13			6(8)	7(9)				
	Treatise on Cold Damage Diseases	3				3(4)				
	Basic Western Diagnosis	2				2(3)				
	Clinical Pharmacology	1				1(1)				
	Acupuncture and moxibustion	4				4(4)				
	Rehabilitation Medicine	2				2(2)				
	Symptomatology(1,2)	8					5(6)	3(4)		
	Internal Medicine(1,2)	8					5(6)	3(3)		
	Psychiatry	2					2(2)			
	Gynecology(1,2)	7					2(3)	2(2)		
	Pediatrics(1,2)	3					2(2)	1(2)		
	Dermatology(1,2)	2					1(2)	1(1)		
	Opthalmology and Otolaryngology(1,2)	2					1(2)	1(1)		
	Musculoskeletal Study(1,2)	4					2(2)	2(2)		
	Sasang Medicine(1,2)	4					2(2)	2(3)		
	Mandatory Clinical Practice(1,2)	21						7(10)	14(20)	
	Problem Based Learning	2							2(2)	
	Korean-Western Co-practice Methodology	2							2(2)	

Category	Subject title	Credit	Year 1		Year 2		Year 3		Year 4	
			1st semester	2nd semester	1	2	1	2	1	2
Mandatory Major	Selective Clinical Practice	3								3(4)
	Specialized Practice	4								4(6)
	Clinical Case Discussion	6								6(8)
	Seminars and Special Lectures	3								3(7)
	Total	172								

Another important characteristic of the curriculum at the Pusan National University School of Korean Medicine is that an advanced methodology of medical education is introduced — that is, PBL (Problem-based learning), OSCE (Objective Structured Clinical Examination) and CPX (Clinical Performance Examination), which were generalized in Western medical education but not in traditional medicine. To make these methodologies reflect characteristics of Korean medicine, many Korean medicine specialists, professors and educational methodology scholars have been working since 2008 to develop PBL and OSCE modules along with standard patient models. Since 2011, those models have been applied to educational practices.

To disseminate these educational methodologies — thereby improving the educational level of all colleges of Korean Medicine, Pusan National University has offered open OSCE and CPX courses to professors of other colleges to share and co-develop this educational module.

Curriculum of the Herbal Pharmacy Department

A department of herbal pharmacy has been established in the pharmacy schools at three universities: Kyunghee University, Wonkwang University and Woosuk University. The curriculum for the Kyunghee University Department of Herbal Pharmacy comprises 163 credits. Basic science and basic Korean medicine subjects are mainly covered in the initial years, and curricula for upper levels are composed of advanced core courses. Specific major courses are evenly distributed throughout the 4 school years.

Table 6 Specific Curriculum at the Kyunghee University Department of Herbal Pharmacy 2013

Category	Subject title	Credit	Hours	Year 1		Year 2		Year 3		Year 4	
				1	2	1	2	1	2	1	2
General Requirements	Medicobotany	2	2	2(2)							
	Herbal Medicine Classics	2	2	2(2)							
	Introduction to Herbal Pharmacy	2	2		2(2)						
	Subtotal	6	6								
Mandatory Coursework	Herbology(1,2) and Lab	6	9			3(6)	3(3)				
	Pharmacologic Organic Chemistry(1)	2	2			2(2)					
	Korean Medicine Physiology(1)	3	3			3(3)					
	Pharmacologic Analytics(1,2) and Lab	5	8			2(2)	3(6)				
	Pharmacobiochemistry(1) and Lab	4	7			4(7)					
	Pharmacognosy(1,2)	6	9				3(3)	3(6)			
	Physiology(1)	2	2				2(2)				
	Korean, Western Physiology Lab	1	4				1(4)				
	Korean Medicine Pathology	2	2				2(2)				
	Herbal Medicine Classics	2	2				2(2)				
	Natural Substance Chemistry(1,2) and Lab	6	9					3(6)	3(3)		
	Microbiology	2	2					2(2)			
	Pharmacopoeia	3	3					3(3)			
	Herbal Preparation(1,2) and Lab	6	9					3(3)	3(6)		
	Formula Study(1,2) and Lab	6	9						3(3)	3(6)	
	Pharmaocology	3	3						3(3)		
	Pharmaceutics(1,2) and Lab	6	9						4(7)	2(2)	
	Korean Medicine Pharmacology(1,2) and Lab	6	9							3(3)	3(6)
	Hospital Herbal Pharmacy and Lab	3	6							3(6)	
	Pharmacy Law	3	3							3(3)	

Category	Subject title	Credit	Hours	Year 1		Year 2		Year 3		Year 4	
				1	2	1	2	1	2	1	2
Major Basics	Drug Distribution and Storage	3	3								3(3)
	Herbal Appraisal and Lab	3	6								3(6)
	Preventive Pharmacy	3	3								3(3)
	Subtotal	86	122								
Electives	General Chemistry	2	2	2(2)							
	Medical Terminology	2	2		2(2)						
	Biology	2	2		2(2)						
	Korean Medicine Terminology	2	2		2(2)						
	Natural Ingredient	2	2		2(2)						
	Anatomy	2	2			2(2)					
	Physical Pharmacy	2	2			2(2)					
	Bioinorganic Chemistry	2	2			2(2)					
	Pharmacostatistics	2	2			2(2)					
	Introductory Meridian Study	2	2			2(2)					
	Instrumental Analysis	2	2				2(2)				
	Pharmacologic Inorganic Chemistry(2)	2	2				2(2)				
	Korean Medicine Physiology(2)	2	2				2(2)				
	Drug Biochemistry(2)	2	2				2(2)				
	Advanced Instrumental Analysis	2	2					2(2)			
	Treatise on Cold Damage Diseases	2	2					2(2)			
	Physiology 2	2	2					2(2)			
	Pathology	2	2					2(2)			
	Molecular biology	2	2					2(2)			
	Manufacturing Herbal Pharmacy	2	2					2(2)			

Category	Subject title	Credit	Hours	Year 1		Year 2		Year 3		Year 4	
				1	2	1	2	1	2	1	2
	Pathogenic Microbiology	2	2						2(2)		
	Drug Design&Discovery Chemistry	2	2						2(2)		
	Industrial Property Right	2	2						2(2)		
	Bioinformatics	2	2						2(2)		
	Immunology	2	2						2(2)		
	Public Health Science	2	2							2(2)	
	Pharmacotherapeutics	2	2							2(2)	
Selective Major	Sasang Pharmacology	2	2							2(2)	
	Health Functional Food Science	2	2							2(2)	
	Clinical Herbal Medicine1	3	3							3(3)	
	Clinical Herbal Medicine2	3	3								3(3)
	Herbal Dispensary Management	2	2								2(2)
	Quality Maintenance	2	2								2(2)
	Internship	1									1
	Herbal Pharmacy International Exchange	2	2								2(2)
	Subtotal	71	70								
	Total	163	198								

Clinical Specialist Education

Traditional medicine in Korea has its own specialist system. The Korean medicine specialist system was introduced in 2000 to transform Korean medicine into a competitive therapeutic division of medicine by promoting the professional development of

each branch of Korean medicine and improving the quality of medical services provided by the clinical departments.

In Western medicine, specialists are trained in 26 specialist areas in Korea, whereas there are only eight areas for specialization in Korean medicine. These areas are internal medicine, gynecology, pediatrics, psychiatry, acupuncture & moxibustion, ophthalmology-otolaryngology & dermatology, rehabilitative medicine, and Sasang constitutional medicine.

The training program consists of one year of general training as an intern and three years of specialist training as a resident. Western medicine training generally comprises a 1-year internship and a 4-year residency, with the exception of a 3-year residency for family medicine.

As of March 2014, there are 184 Korean medicine interns and 448 residents. Thirty-seven Korean Medicine hospitals can train both interns and residents, and nine Korean Medicine hospitals can train only interns.

A Korean Medicine hospital must meet the following standards to train interns.

Table 7 Designation Criteria for Internship Training at Korean Medicine Hospitals

Category	Common Criteria
Required Department	The Department of Korean Internal Medicine must be established as compulsory specialist subject, with the addition of more than two specialist departments.
The Number of Exclusive Advisors	Each department must have more than one medical specialist who serves exclusively as an advisor.
The Number of available beds and Treatment Records	A. More than 50 approved beds B. More than 400 annual patient discharges C. More than 20,000 annual outpatients (refers to annual total number of outpatients in clinical departments operated by the applicable Korean medicine hospital) D. More than 50% annual bed utilization
Facility and Organization	A nursing department, nutrition department, dispensary department, medical record department, first aid department, accommodation for doctors-in-training, a lecture or assembly rooms must be present.

The designation criteria for residency training at Korean medicine hospitals are listed in the following table. This table is the common standard for Korean medicine hospitals that train residents. The criteria differ for each department in terms of the number of exclusive advisor specialists and the annual treatment records, the facility and its organization.

Table 8 Designation Criteria for Residency Training at Korean Medicine Hospitals

Category	Common Criteria
Required Department	A Department of Korean Medicine Internal and the Department of Acupuncture and Moxibustion must be established as compulsory specialist subjects, with the addition of more than three specialist departments.
The number of exclusive advisors	Each department must have more than one medical specialist who serves exclusively as an advisor.
The number of sickbeds and treatment record	A. More than 70 approved beds B. More than 550 annual patient discharges C. More than 30,000 annual outpatients (the outpatient standard of each department, according to the specialist areas listed in Sub-paragraph 2, refers to annual total of outpatients in clinical department operated in relevant Korean medicine hospital) D. More than 50% annual bed utilization
Facility and Organization	A. The facility and organization in the departments installed must meet the criteria for specialist areas in Sub-paragraph 2. B. A nursing department, nutrition department, dispensary department, medical record department, first aid department, accommodation for doctors-in-training, and a lecture or assembly room must be present.
Other	Except for medical institutions approved by the Minister of Health and Welfare as meeting the criteria and requirements for designation as a Korean medicine training hospital and Korean medicine university hospitals with more than 100 beds, newly established training hospitals must have a record of internship training of over one year.

Generally, interns circulate to each department every month for training, similar to internships in Western hospitals. After the internship, the trainees apply to their desired specialist departments. During residency training, the residents are responsible for outpatient and inpatient treatment, attendance and presentation at department conferences, writing and publishing papers, and educating undergraduates for three years. After completing a certain amount of outpatient and inpatient treatment and successful publication of papers, the doctor-in-training is qualified to take the specialist qualifying examination. The qualifying examination for Korean medicine specialist is conducted by the Association of Korean Medicine with delegation from the Ministry of Health and Welfare and consists of a written

examination and an interview. The Korean medicine specialist license is granted after the doctor-in-training passes the examination.
As of 2014, there are a total of 2,472 Korean medicine specialists, which represents approximately 11.2% of the 22,049 licensed Korean medicine doctors. In Western medicine, approximately 75% of licensed medical doctors are specialists in Korea.

The development of the specialist system is somewhat abnormal in Korea. Originally, specialists — in contrast to primary care physicians — work at the hospital level and manage more complex medical problems with the relevant devices, facilities, and staffs. However, the roles of primary care physicians and secondary or acute-care hospitals are not clearly separated in Korea and are in competition with one another, while many specialists work at clinic-level institutions. This situation is the case because even doctors working in clinics are believed to need specialist licenses to remain competitive.

When the introduction of the Korean medicine specialist system was initially discussed, the Korean medicine community felt that such issues in the practice of Western medicine should not be duplicated and that the number of specialists at the hospital should only be as many as required.

Western medicine clinics can advertise a certain specialty on their signs. However, in the first 10 years after the introduction of the Korean Medicine specialist system, it was legally banned to advertise the specialist care at Korean medicine clinic level. Korean medicine community did not want the specialist license become a deciding factor in clinic competition.

In 2010, Korean medicine clinics were allowed to advertise a specialist practice. However, even today, clinics rarely advertise specialist care because Korean medicine specialists worry that mentioning specific specialties may discourage patients from visiting the clinic, most of whom seek care for musculoskeletal issues.

Continuing Medical Education for Korean Medicine

Since the continuing medical education clause was added to the Medical Act in 1965 to improve national healthcare by making healthcare providers obtain the necessary medical knowledge, the Association of Korean Medicine has conducted continuing education annually for Korean medicine doctors.

Currently, the Association of Korean Medicine provides continuous education refresher courses in the form of national and international academic conferences, local academic lectures, paper publishing, and cyber lectures. The educational term runs from January 1 to December 31 every year, and a total of 8 credits must be completed per term. One credit is given after completing a half-hour to 1 hour course, depending on the type of course.

Continuing Medical Education (CME) has long been part of the practice of Korean medicine, but many Korean medicine doctors doubt the actual effectiveness of CME to maintenance and enhancement of their capacity. The nature of Korean medicine is such that changes in its study occurs at a lower rate than Western medicine, and CME's purpose of helping practitioners acquire new medical information is not as effective in this case. Instead, it is commonly believed among the Korean medicine community that practitioners with more clinical experience have better clinical skills. Thus, many Korean medicine doctors feel that unofficial CME, such as study group sessions or apprenticeships with experienced local practitioners, is superior to the official refresher courses offered by the Association.

Many Korean Medicine doctors with less than a decade of clinical experience actually take private lessons from more experienced Korean Medicine doctors who are known to as masters of certain classic or clinical techniques. These small group studies may enhance practical clinical skills, but the quality of these clinical lecturers is inconsistent, and practitioners may be mislead regarding the use of clinical procedures or methods with little scientific evidence. Therefore, maintaining and enhancing the skills of Korean Medicine doctors through official CME and the quality improvement of official courses is one of the principal concerns for the Association of Korean Medicine and Korean Medicine academic societies.

Accreditation and Evaluation of Education in Korean Medicine Institutions

Evaluation for Western medicine was introduced in the 1990s in Korea. Korean medicine followed suit and attempted to establish a system for education evaluation in the 2000s. Initially, this began by creating a system to evaluate residency training, but soon the evaluations for training hospitals and Korean medicine colleges became separate. The Institute

of Education in Korean Medicine & Evaluation (IKMEE), the first and only institution for the accreditation and evaluation of education in Korean medicine, was established in 2005 and is probably the first institution in the world to evaluate the education of traditional medicine.

IKMEE was designated a non-profit corporation by the Minister of Health and Welfare based on Article 32 of the Civil Code for the purposes of research, development and evaluation of education in Korean medicine. IKMEE aims to educate, produce and manage medical professionals for the quality improvement of Korean medicine healthcare services. The ultimate goal is to make a national standard for education in Korean medicine by establishing a standard of quality for educational conditions and curricula at institutions of Korean medicine.

Starting with the revision of curriculum goals at Korean medicine colleges, education standardization work, such as the development of a residency training clinical handbook and practice guidelines, was done in 2006. Specifically, evaluation and accreditation standards and specific guidelines for Korean medicine institutions were developed to establish a Korean medicine education evaluation and accreditation system. The guidelines also required the development of a system for internal evaluation that can be used for the self-assessment of the institution being appraised and an evaluation guideline manual for evaluating professionals to maintain reliability and objectivity. IKMEE also conducts a program for fostering the development of evaluators, education programs and textbooks. The evaluator training program educates participants in the evaluation and accreditation system and standards for the execution of the relevant fieldwork. The program is for teachers with no experience in the evaluation and accreditation process and other participants that comprise the evaluator staff pool.

IKMEE organizes an evaluation and accreditation group to establish an evaluation system and permanent bodies such as an operation committee, specialist committee, decision committee and non-permanent bodies such as a visiting evaluation group and decision committee.

The specialist committee researches and develops evaluation criteria, designs the general evaluation and accreditation plan, and works with the accreditation standard committee, which is in charge of evaluator training. The accreditation system committee is in charge of policy and regulation development, and the accreditation management committee maintains the quality of evaluation, accreditation and ex-post facto management. Additionally, the visiting evaluation committee is composed of those who have completed a basic program for training evaluators and fieldwork education, while the decision committee decides on the accreditation type and follow-up measures for the Korean medicine educational program and the environment of the Korean medicine college (school).

	Preliminary stage	8mon. prior	Notify evaluation plan	Evaluation & Accreditation Group
			Notify designation of evaluation target, and select Evaluation&Accreditation Group	Evaluation&Accreditation Group
Self-evaluation	Stage 1	6mon. prior	Submit application for Evaluation&Accreditation	Korean Medicine College or School of Korean Medicine
	Stage 2		Submit internal evaluation report	Evaluation&Accreditation Group
Evaluation activity	Stage 1	Datum	Documentary evaluation	Visiting Accreditation Group
	Stage 2	Datum	Site visit evaluation	Visiting Accreditation Group
	Stage 3	Within 5weeks	Deviation adjustment and evaluation report	Visiting Accreditation Group
	Stage 4	Within 5weeks	Collect college's opinion, determine and report Evaluation&Accreditation report	Evaluation&Accreditation Group
Evaluation	Stage 7	Within 9week	Decide on accreditation and declare results/forward result report. 5-year accreditation, postponement or unallowable	Evaluation&Accreditation Group, or Decision Committee
	Stage 8		File objection Rescreening Redecision	Korean Medicine College or School of Korean Medicine Evaluation&Accreditation Group
Post-accreditation activity	Stage 9		Monitoring and consulting	Evaluation & Accreditation Group
	Stage 10		Revaluation Postponement : revaluation within 1 year from decision date Unallowable : 2 years after decision	Korean Medicine College or School of Korean Medicine

Figure 1 Process for Evaluation and Accreditation

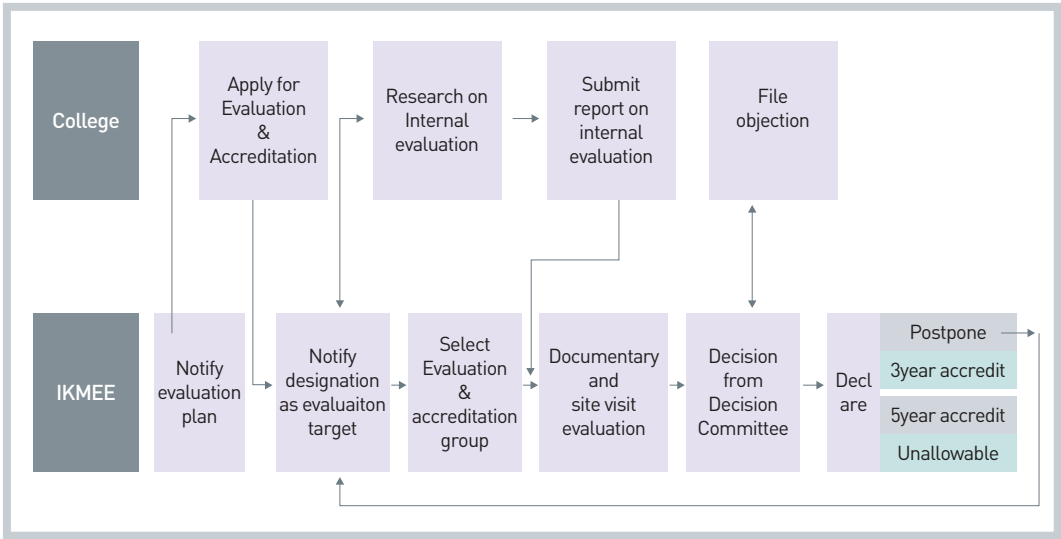


Figure 2 Evaluation Authentication Process

The evaluation of education in Korean medicine was conducted when the Pusan University School of Korean Medicine was evaluated and accredited based on an establishment standard in 2010. Later, as an amendment of the Medical Act called for more competitive and future-oriented criteria, evaluation and decision standards were revised for improved evaluation and accreditation. Evaluation and accreditation (5-year accreditation) of the Wonkwang University College of Korean Medicine was conducted in 2012, and the same was done for the Kyunghee University College of Korean Medicine in 2013. IKMEE is preparing for designation as a Ministry of Education authorized institution for the evaluation and accreditation of higher education in accordance with the Medical Act amendment which is scheduled for implementation in 2017. IKMEE intends to to focus on evaluation and accreditation programs by continuously reinforcing evaluation and accreditation standards.

Table 9 Evaluation and Accreditation Result Type and Criteria

Type		Decision Criteria	Accreditation duration and follow-up measures
Accredited	3-year Accreditation	- Satisfies all requirements	- Accreditation valid for 3 years - Monitoring of accreditation criteria maintenance
	5-year Accreditation	- Satisfies all requirements + more than 50% of superior criteria	- Accreditation valid for 5 years - Monitoring of accreditation criteria maintenance
Not approved	Accreditation Postponement	- Sub-criteria	- Improve insufficient areas and file a report on the measures performed. Reevaluate within 1 year - If reevaluation of the insufficient area is successful, the accreditation is valid for 2 or 4 years
	Accreditation disallowed	- Non-accreditation on three consecutive occasions	- Cannot be reevaluated for 2 years from the decision date of rejection

Conclusion

As we have discussed above, education in Korean medicine in Korea has developed to adjust to various aspects of the modern medical education system. Qualified Korean medicine professionals are produced through an educational system and curriculum identical to that of Western medical schools, which includes a globally unprecedented traditional medicine specialist system, an educational accreditation and evaluation system, and a licensing system certified by the Minister of Health and Welfare. Therefore, Korean medicine doctors are included in the census of physicians submitted to the OECD Health Data report.

The recent inclusion of advanced methodology in medical education, such as PBL (Problem Based Learning), OSCE, and CPX, were introduced to the educational program in Korean medicine at the Pusan University School of Korean Medicine, increasing the quality of education in Korean medicine. Pusan University had developed and applied PBL modules for traditional medicine education since 2011, which is considered the most innovative attempt in the international field of traditional medicine.

The development process of traditional medicine education and the current system in Korea would represent a significant benchmarking model for countries wishing to utilize and promote traditional medicine for health maintenance and disease treatment.

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Korean Medicine :
Current Status and Future Prospects

Pusan National University
School of Korean Medicine

Quality Control and Regulation of Herbal Medicine

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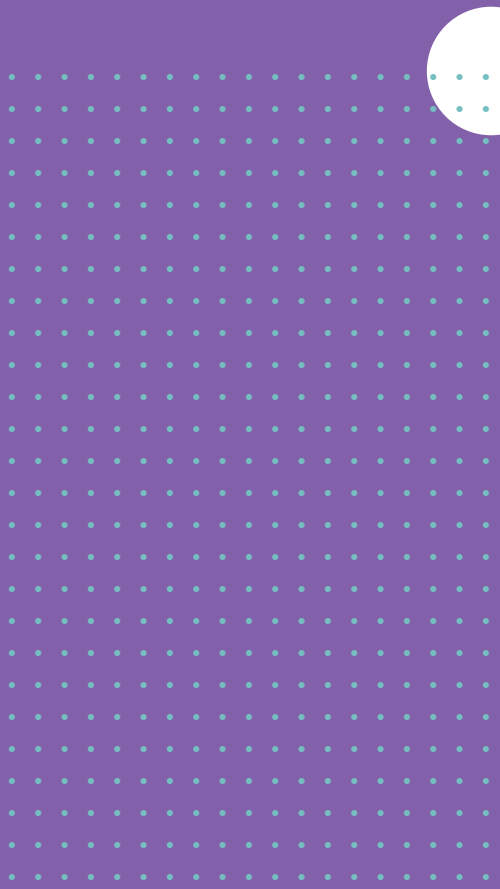


2015

CHAPTER 06

chapter 06

Quality Control and Regulation of Herbal Medicine

Quality Control of Medicinal Plants

1) Production of Medicinal Plants and GACP

Medicinal plants, as opposed to Western drugs which are synthesized and manufactured in pharmaceutical factories, occur in nature and so their composition often varies due environmental factors. To minimize this variance and improve the quality of herbal medicine, the Good Agricultural and Collection Practices (GACP) guidelines were established to determine how to cultivate and obtain medicinal plants of the highest possible quality. The WHO has also publicized its own set of guidelines on GACP for Medicinal Plants.

The main objectives of GACP guidelines are to : (WHO GACP, 2003)

1. contribute to the quality assurance of medicinal plants used as the source for herbal medicine to improve the quality, safety and efficacy of finished herbal products;
2. guide the formulation of national and/or regional GACP guidelines and GACP monographs for medicinal plants and related standard operating procedures; and
3. encourage and support the sustainable cultivation and collection of medicinal plants of good quality in ways that respect and support the conservation of medicinal plants and the environment in general.

In Korea, Office of Rural Development has established GACP and SOP(Standard Operating Procedure) guidelines to set the standard on collection, maintenance and primary processing process on good medicinal plants. Currently the items approved by Good Agricultural Product

(GAP) cultivation regulation are Lycii Fructus, Angelicae Gigantis Radix, Liriopis Tuber, Coicis Semen, Paeoniae Radix, Astragali Radix, Ginseng Radix Alba, Cnidii Rhizoma, Schisandrae Fructus, Rehmanniae Radix, Dioscoreae Rhizoma, Scutellariae Radix, Corni Fructus, Bupleuri Radix, Acanthopanax Root Bark, Cynanchi Wilfordii Radix, Polygoni Multiflori Radix, Alismatis Rhizoma, Cyperi Rhizoma, Platycodi Radix, Chrysanthemi Indici Flos, Glycyrrhizae Radix et Rhizoma, Agastachis Herba, Araliae Continentalis Radix, Adenophorae Radix, Achyranthis Radix, Saururi Herba, Atractylodis Rhizoma Alba, Rubi Fructus, Carthami Flos, Polygonatumodoratum, etc.

Standards for Good Agricultural Product Control

1. Agricultural Product Traceability Management System
2. Selection of seed and seedling
3. Soil management before cultivation: testing
4. Farming utensil management
5. Fertilizer and nutrient management
6. Water management: water quality examination
7. Crop protection and use of agrochemicals
   - Pest control and crop-dusting
   - Pesticide residue analysis and presentation
   - Agrochemical storage and maintenance
8. Collection process
9. Management after collection
10. Post-collection management facility
    (Selection standard of GAP management facility)
11. Waste and hazardous substance management
12. Laborers' health, safety, welfare
13. Environmental issues
14. Education

For GAP certification, the soil is analyzed and examined for heavy metal contamination before cultivation, agricultural water and water used for cleansing or post-collection management is examined to see whether they meet criteria, and overall water quality is regularly analyzed. Agrochemicals water must meet safety standards, and is examined for pesticide residue and heavy metal contamination before collection. Agricultural product is processed in GAP management facility approved by the Director of Agricultural Products Quality Control Center, while looking after facility maintenance and hygiene and health of

laborers. Agrochemicals, fertilizer and farming equipment should be stored and maintained against contamination of hazardous substances and environments. Every process should be documented and with evidence specified on the packaging according to the agricultural product traceability management standard.

Currently, the agricultural product quality control standards differ from the control standards of medicinal plants. Therefore medicinal crops are not certified as standard medicinal plants even if they are produced according to GAP, and must be processed according to standards of herbal medicine manufacturers.

2) Medicinal Plants Standard Manufacturing Process Guideline

This refers to the standard manufacturing process implemented from collection to small packaging. It applies to the primary processing of 409 of the 546 herbs listed in the official compendium of the Korean Pharmacopoeia by medicinal herbs material manufacturers, with the remainder undergoing a more specialized process called "Pojae". This guideline categorizes medicinal plants by the part used and describes their collection period, medicinal properties, process of screening for impurities and packaging in detail. The Korean Food and Drug Administration published its final edition in 2010 after years of research, enabling herbal medicine manufacturers to establish a standard manufacturing process for herbal medicine and improve quality under the GMP system.

Table 1 Example of Manufacturing Process According to Classification of Standard Manufacturing Process

Classification	Processing Process According to Process Stages									
	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6	Stage 7	Stage 8	Stage 9	Stage 10
Pericarpium	Collection period and method	Transfer	Washing	Drying	Decortification	Cutting	Self-inspection	Storage	Unit Packaging	
Peduncle	Collection and processing	Transfer	1st drying	Cutting	2nd drying	Self-inspection	Storage	Unit Packaging		
Rhizoma and tuber	Collection and processing	Transfer	Washing	1st drying	Cutting	2nd drying	Debris removal	Self-inspection	Storage	Unit Packaging
				2nd washing	Drying	Cutting	Debris removal	Self-inspection	Storage	Unit Packaging
				Processing	1st drying	Cutting	2nd drying	Debris removal	Self-inspection	Storage	Unit Packaging

Table 2 Standard Manufacturing Process Standard on Medicinal Material

Medicinal Material Name	Sukjihwang(熟地黃)	Crude Drug Name: Rehmanniae Radix Preparata
Origin	This drug is the processed root of Jihwang, or Rehmannia Glutinosa Liboschitz ex Steudel (Scrophulariaceae).	
Production Centre		

Specific Tasks in Manufacturing Stages			
Process		Task	Remarks
1	Collection	Applies to Rehmanniae Radix Crudus	
2	Checking origin	Check origin according to The Korean Pharmacopoeia	KP
3	Primary screening	Remove rhizome site, folium, stalk and other impurities	
4	Transfer	Bag the plant and transfer to manufacturing factory	
5	Washing	Cleanse the soil with cylindrical cleanser	
6	Drying	Dry Rehmanniae Radix Crudus under 50˚C with hot-air blower	
7	Steam with wine	Soak the processed Rehmanniae Radix in wine, and steam and dry repeatedly until it is thick.	
8	Crude packaging (storage)	Pack the material in sealed container(box) for storage	
9	Inspection	Based on related regulations such as KP, or The Korean Herbal Pharmacopoeia	
10	Fractional standard packaging	Standard packaging based on material · drug purpose	
11	Caution	Processing conforms to steaming method stated in processing methods from The Korean Herbal Pharmacopoeia	

(KFDA, 2009)

3) Manufactures of Medicinal Plant Material and hGMP

GMP is short for *Good Manufacturing Practice*, a system in which the government screens and evaluates the manufacturing process of drugs for certification. Quality control is strictly applied to the whole process of drug material purchase, manufacturing and packaging and supervised by the government for the enhancement of overall drug quality.

The WHO general assembly first established GMP standards in 1969, and recommended its compliance. Korea established its own KGMP in 1977, and GMP standards were made mandatory on prescription drugs and chemical agents in 1994. GMP standards on biological formulas were first established in 2000, applied to generic drugs in 2008, then began to cover medicinal plants in 2012, with the latter being referred to as hGMP.

hGMP is a mandatory certification authorized by Food and Drug Administration on good medicinal plants materials for the health and safety of citizens. hGMP was introduced in 2012, and is used as quality assurance for manufacturers of standard herbal medicine.

GMP systems share these three important functions:

1. Minimize man-made error by fully equipping facilities
2. Prevent contamination and quality deterioration by educating workers
3. Establish a quality assurance system with standard documentation of maintenance

Manufacturers of medicinal plant material are evaluated on their conformance to the guidelines through both questionnaires and on-site inspections by the Food and Drug Administration. Areas of evaluation include facilities such as operation sites, testing rooms, personnel, and the routes of storage and material transfer along with other major factors such as machinery layout, water treatment facilities and cleanliness. The companies are given grades of Critical/Major/Minor, along with corrective recommendations. Following a grace period, adherence to hGMP has been obligatory since 2015, and only medicinal plants materialsproduced by GMP manufacturers can be supplied to Korean medicine hospitals, clinics, and pharmacies. As of January 2015, a total of 82 herbal manufacturers in Korea were certified and registered as hGMP. (KFDA, 2015), (Journal of KM, 2011)

Figure 1 the symbol of Korean hGMP

4) Herbal Standard Product and Quality Inspection Standard

Products with this label have been manufactured from materials that passed inspection for quality as well as the hazardous substance inspection. It is certifiably safe from heavy metal and other hazardous substances.

Korea abolished the self-standardization system under which farmers could simply process, package and sell their own crops, or herbal medicine retailers could process, package and distribute without quality inspection. Since April 1st, 2012, only those medicinal plants manufactured by qualified manufacturescan be distributed, so as to guarantee the safety of herbal medicine. Therefore, herb retailers cannot process, pack or sell domestic or imported herbs that have not passed a strict inspection following the proper guidelines.

Table 3 Example of Manufacturing Process According to Classification of Standard Manufacturing Process

Artemisiae Argyi Herba Net contents 600g			
Seoul-Incheon Food and Drug Administration raw material medicine manufacturing permission Number 0			
Importer, Manufacturer = 00 Pharmaceutical inc.			
Inspection Agency Korean Association of Drug Export and Import Test Research Center			
Inspection Date	11.11.23	Manufacture Date	11.11.23
Serial number	11/49/1	Origin	China
Remark			

Also, the manufacturer or provider, serial number with date of manufacture, use-by date, standard product phase, inspection agency and inspection date are marked on the packagingof standard herb products, so that it can be distinguished from general agricultural goods. Obligation to use the Standard Herb Product designation is applied not only to institutions of Korean Medicine such as Korean Medicine hospitals and clinics, but to Korean Medicine pharmacies and apothecaries so that consumers can safely buy herbal medicine.

Quality inspections for herbal standard products are conducted either on the spot or in the lab, depending on the need for a standard, in-depth, or hazardous material inspection. To meet safety standards, morphology verification and hazardous substance tests are performed. To meet efficacy standards, ash, acid-insoluble ash, contents of extract and quantitative method tests are conducted. The inspections relevant to both criteria are the purity test and the loss on drying test.

Summaries of each test are as follows (FDAD of CDA, 2007) :

1. Morphology

- Object : to identify the part used in animal and plant of origin
- Method : sensory inspection of the color, shape, smell, taste, and texture of medicinal plants

2. Verification

- Object : to verify the part used in animal and plant of origin
- Method : Inspection after physiochemical test
- Remark : All items of verification must be conducted.

3. Hazardous substances

1) Pesticide residue
2) Sulfur dioxide
3) Heavy metal
   − Instrumental analysis of pesticide residue during cultivation, sulfur briquettedrying, or heavy metal contamination
4) Aflatoxin
   − Prevent molding of medicinal plants

4. Purity Test

1) Spoilage
2) Impurity
   − Inspection by sensory test or magnifying glass

5. Loss on drying

- Measure the amount of water in medicinal plants

6. Ash

- Test to measure the amount of inorganic material in addition to the organic material contained in the herbal medicine to standardize quality

7. Acid-insoluble ash

- Measure the ratio of silica dioxide insoluble to acid within the ash, to prevent the contamination of soil

8. Extract content

- Measure the amount of the organic substance when medicinal plants are dissolved in thin ethanol, water or ether for quality standardization

9. Oil dose

- Measure the quantity of oil content within medicinal plants

10. Quantity

- Test measuring the index component in medicinal plants

5) Imported Medicinal Plants and Herbal Medicine Quality Inspection Agency

To assure the safety of medicinal plants imports, the Food and Drug Administration's Regulation of Imported Drug legislates on Article 5 Clause 3 that "Importers of medicinal plants must submit an application for quality inspection to the director of National Institute of Food and Drug Safety Evaluation, or to the head of herbal medicine quality inspection agency designated by the Food and Drug Administration. They must undergo an inspection according to the inspection method for imported herbal medicine specified in annexed table 1 for customs."

As of May 2015, eight research centers and private agencies are designated as inspection agencies for the quality of medicinal plants, for customs tests on imported medicinal plants or for self-quality inspection on domestic herbs.

Table 4 (May 2015 Current status)

Serial	Institution	Location	Representative	Designated scope
1	(Co) Korean Pharmaceutical Traders' Association affiliated Korean Pharmaceutical Test and Research Institute	127, Yangnyeongdong-gil, Dongdaemun-gu, Seoul (Jegi-dong) TEL. 02-967-7067 FAX. 02-968-4583	Hangi Kim	Items on the Korean Pharmacopoeia (KP and Korean Herbal Pharmacopoeia (KHP) Physochemical test
2	Korean Food Industry Association affiliated Korean Food Research Institute	41, Myeongdal-ro, Seocho-gu, Seoul(Bangbae-dong) TEL. 02-585-5052 FAX. 02-523-2072	Ingu Park	Items on KP and KHP Physochemical test

Serial	Institution	Location	Representative	Designated scope
3	(FDN) Chungbuk Techno Park	41, 2ro Biovalley, Jecheon, Chungcheongbuk-do TEL. 043-270-2610 FAX. 043-270-2699	Changhyun Nam	Items on KP and KHP Physochemical test
4	(FDN) Korean Promotion Institute for Traditional Medicine Industry	17, Namsung-ro, Jung-gu, Daegu TEL. 053-421-9701 FAX. 053-421-8050	Heungmeuk Shin	Items on KP and KHP Physochemical test
5	(FDN) Jeonnam Bioindustry Foundatoin	288, Woodland-gil, Jangheung-gun, Jeollanam-do TEL. 061-860-2837 FAX. 061-864-8706	Jeonghee Cho	Items on KP and KHP Physochemical test
6	(Ltd.) Dong-eui Herbal Medicine Analysis Center	176, Eomgwang-ro, Busanjin-gu, Busan 901~907 ho, 9th floor, College of Human Ecology, Dong-eui University TEL. 051-890-2941 FAX. 051-890-2943	Byungwoo Kim	Items on KP and KHP Physochemical test
7	Daegu Haany University Center for Herbal Medicine Quality Control	3rd floor, 136, Sincheondong-ro, Suseong-gu, Daegu TEL. 053-770-2330 FAX 053-770-2335	Changhoon Byun	Items on KP and KHP Physochemical test
8	(FDN) Gyeongnam Oriental Medicinal Herb Institute	39, 2605gil, Chinhwangyeong-ro, Geumseo-myeon, Sancheong-gun, Gyeongsangnam-do TEL. 055-970-7791 FAX. 055-974-1067	Joonpyo Hong	Items on KP and KHP Physochemical test

6) Regulation of Wonoi Tangjeonsil

The use of standard medicinal plants in Korean medicine institutions is mandatory in Korea. Along with such regulations, Medical Act Enforcement Rules amended in September 2008 enforces regulations that long-term care hospitals, Korean medicine hospitals and clinics must all install Wonoi Tangjeonsil (outside-decoction rooms) for the decoction of herbal medicine, and supervise the facility in accordance with the pertinent guidelines for the safe supply of herbal medicine.

Each Wonoi Tangjeonsil should be declared to the jurisdictional health center before its establishment in its medical institution. Enforcement Rules of the Medical Act can be seen in the Attached Table 4, Facility standards for medical institutions establish that facilities such as dispensary rooms and medicinal plants storage facilities needed for decoction be stationed in a separate decoction room. This separate decoction room should employ a Korean Medicine doctor or a Korean Medicine pharmacist, and decocting facilities which provide outside prescription must have a Korean Medicine pharmacist.

Also if herbal medicine is dispensed in the separate decoction room, relevant paperwork including a prescription from a Korean Medicine doctor, a record of preparations, stored and released medicinal plants and shipping bills of dispensed herbal medicine should be stated and stored. (DKMP, 2009)

Quality Control of Herbal Medicine

1) Natural Medicine in Various Countries

• Gaps in national policies and regulations

According to the 2005 WHO global survey, for which responses were received from 141 out of 191 member states, 45 of the responding member states reported having a policy on TM/CAM (Traditional Medicine/Complementary and Alternative Medicine). Of the member states that currently do not have this type of national policy, 51 (56%) indicated that such policies are currently being developed. Most member states with a national policy established the policy recently, as only five states reported having a national policy before 1990. Forty member states (28%) reported that they had instituted a national program on TM/CAM. Seventy-five countries (53% of the responding member states) reported having a national office in charge of TM/CAM. In most of these countries, the national office is located within the Ministry of Health. Sixty-one countries (43% of the responding member states) reported that they have expert committees for TM/CAM. In all, 58 member states indicated that they had at least one national institute for TM, CAM or herbal medicine. (From "National policy on Traditional Medicine and regulation of herbal medicines" by WHO)

The most recent WHO resolution on Traditional Medicine (2009) urges its member states to formulate national policies, regulations and standards as part of a comprehensive national

health strategy to promote the appropriate, safe and effective uses of Traditional Medicine in order to strengthen the healthcare system's ability to provide holistic primary health care.

While Western medicine produced miracle drugs such as penicillin in the 20th century, traditional medicine was far from manufacturing drugs, and its medicine was ridiculed as random grassroot remedies with no efficacy. Drugs originating from natural products, based on indigenous traditional medicine practices or usage, were used as supplementary therapies for major diseases and symptoms and were categorized as OTC or health supplement products in Europe and America.

However, developed countries, including the U.S. and Europe, have recently implemented institutions to enable drug development with natural substances to satisfy unmet needs in Western medicine.(TCM business plan, 2012), (FDA, 2004), (EU, 2005), (ROC DAL, 2007)

The global trend on natural product-originated drug development is geared toward overcoming the previous limits of adjunctive therapy and developing natural drugs based on regulations from authorities with data from preclinical and clinical trials: the same procedure used for synthetic drugs. With this endeavor, natural drugs are evolving into drugs that may substitute for synthetic drugs, which are conventionally the primary treatment for severe diseases.

2) Established Korean Medical Classics and Herbal Medicine

Established Korean medical classics refer to "established Korean medical classics" in *Pharmacy Law*, Article 45 (Approval of drug sales), Paragraph 4, that "The herbal pharmacist approved by Clause 1 may mix and sell herbal medicine according to prescriptions in established Korean medical classics or a Korean medicine doctor's prescription at the patient's demand." The origin of this word appears in the Pharmacy Act established in 1953, Article 26 (classification of drug sales professions), Subparagraph 3 "The herbal medicine merchandiser may mix and sell herbal medicine only for prescriptions found in a conventional Korean medical book or a Korean medicine doctor's prescription at the patient's demand." The term was more specifically defined in the *Provisional code on conventional Korean medical books*. Currently, "established Korean medical book" is defined as either "Treasured Mirror of Eastern Medicine (東醫寶鑑), Compilation of Formulas and Medicinals (方藥合編), Emergency Prescriptions for the Countryside (鄕藥集成方), Complete Works of Jingye (景岳全書), Introduction to Medicine (醫學入門), New Edition of Universal Relief (濟衆新編), Secret

Works of Universal Relief (廣濟秘編), Longevity and Life Preservation in Eastern Medicine (東醫壽世保元), the Compendium of Materia Medica (本草綱目), or Longevity and Life Preservation (壽世補元)."

Regarding the prescriptions from a "Korean medical book" and "Established Korean medical book" today, Article 3 Subparagraph 5 of *Regulation on item approval and report of herbal medicine (crude drug)* states that "The items applying to prescriptions in a Korean medical book should be applied for item approval with its reference attached. In this case, the Director of the Korean Food and Drug Administration applies the principles of Korean medical books, and approves with a written reference if necessary." This regulation enables the approval of herbal medicine items based on principles from Korean medical books. Taiwan and India also approves formulas published in a number of traditional medical books.

When an herbal medicinal preparations is based on a Korean medical book, the usage, dosage, efficacy and effects found in the book are directly applied. Additionally, prescriptions found in Korean medical books or similar prescriptions are exempt from safety or efficacy screening so that herbal medicine prescriptions may easily receive drug-related permissions. (DMKMP, p1~14)

3) Herbal Medicinal Preparations and Natural Drugs

According to Article 2, Subparagraph 5 of *Pharmacy Law*, herbal medicine is a crude drug (生藥) that is dried, cut, and prepared from an animal, plant or mineral, and Article 2, Subparagraph 6 states that an "herbal medicinal preparations (韓藥製劑)" refers to medicine mixed and manufactured according to Korean medical principles.

The *Natural Drug Research and Development Promotion Act* states that a natural drug is a drug based on the research and development of natural substances with new composition and efficacy. *Regulation on item approval and report of herbal medicine (crude drugs)* classifies items approved as natural drugs based on submitted data for herbal medicine (crude drugs) as below.

Table 5 Category Classification According to Submitted Materials from Regulation on Herbal Medicinal Preparations(Crude Drugs) Approval and Notification

I. New Drug	1. Single product mainly composed of crude drugs with a new composition or origin that was previously unused (unapproved)
	2. Compound product containing a crude drug in Section 1 above
	3. Injection and percutaneous absorption applied as prescription drugs without evidence
II. Data submission drug	1. Crude drug with new composition and standards A. Single product of an crude drug used (permitted) as the main component of a compound product B. Compound product of a new composition (quantity alteration excluded) C. Single or compound product that has been used as the basis of a crude drug but with a new standard
	2. Quantity-adjusted single product
	3. Quantity-adjusted compound product
	4. Drug with new efficacy

Herbal medicine product is classified under subcategory II. *Regulation on item approval and report of herbal medicine (crude drugs)*, whose classification is as follows.

Table 6 Category Classification According to Submitted Materials from Regulation of Herbal Medicinal Preparations (Crude Drugs) Approval and Notification: Herbal Medicinal Preparations

II. Data submission drug	7. Herbal medicine product A. Adjusted formula of the prescription found in a Korean medical book, adjustment made based on a reference other than a Korean medical book B. Based on a prescription found in a reference other than a Korean medical book C. Cases that may cause severe adverse effects, depending on the patient D. Cases that include a crude drug processed (preparation included) by a method other than those found in a Korean medical book E. Cases where crude drugs other than those found in a Korean Pharmacopoeia and a Korean Herbal Pharmacopoeia are used as Korean medical book prescriptions

Adjusted formula based on Korean medical book may be approved as herbal medicine according to, and may also be approved as crude drug since 1. Crude drug with new composition and standard of II. Data submission drug applies according to. Then the relevant crude drug appertain to natural drug under *Regulation on item approval and report of herbal medicine(crude drug)*, resulting in herbal medicine being used as natural drug with Western medical purposes.

According to Article 2, Subparagraph 8 of *Pharmacy Law*, a new drug refers to a "new substance drug with a completely new chemical structure or essential composition, or a compound drug containing a new substance as an active component that is designated by the director of the Korean Food & Drug Administration." In its subdivision notification *Regulation on item approval and report of herbal medicine(crude drug)*, a new drug is defined as a "drug conforming to *I. New Drug* in data submission of herbal medicine (crude drugs) in attached table 5" among new drugs under *Pharmacy Law*. Here, *I. New Drug* refers to a "single product and compound product with an unused (unapproved) composition or a main component of a completely new origin, and injection or percutaneous absorptive conforming to a prescription drug without evidence." As a result, herbal medicine is separately classified as a data submission drug, outside the range of new drugs, and so the new drug development of herbal medicine is blocked.

However, items used in the traditional medicines of America, Europe, Japan and China, where rational regulations on naturally occurring drugs exist, show that herbal medicine in Korea corresponds to America's botanical raw material (FDA, 2004), herbal substances in Europe (EU, 2005), crude drug (生藥) in Japan and Chinese medicine decocting substances (中藥飮片) in China (MMNSC, 2012) as a biological resource to be used in herbal medicine and herbal medical products. Additionally, when a botanical drug product is approved through an NDA (New drug application) or ANDA (Abbreviated new drug application) in America (MHW, 2012), when an herbal medicinal product in Europe is registered via full marketing authorization (FMA) (Pharmaceutical Press, 2010), or when a Chinese medicine product (中藥) in China satisfies the new drug standards specified in Drug Policy Management Act (藥品注册管理辦法) (CDAL, 2007) the traditional medical product may be registered as new drug. However, such regulations to induce new drug development of herbal preparations are insufficient in Korea, which leads to be'a social issue. (KAKM, 2015)

4) Herbal Preparations and GMP

"Regulations on manufacture and quality control of drugs," which require GMP regulation on 16 medical products, was newly established according to PIC/S GMP regulations in Korea after joining the Pharmaceutical Inspection Cooperation/Scheme (PIC/S) and has been implemented since July 1, 2015.

In particular, regulations for manufacturing herbal medicine (crude drugs) are stated in the attached Table 5, which classifies; Principle, Facility (storage, shed, device), documentation (starting material standard, official compendium), and Quality control (specimen collection). Additionally, because most herbal medicines (crude drugs) are complex and diverse, the management, storage and processing of "starting materials" in the manufacturing procedure are stressed.

Origin crude drug or crude drug (herbal medicine), or crude drug extraction, fraction, etc. (herbal medicine powder and extracts) may be the "starting material" in herbal medicine (crude drug) manufacture. A crude drug (herbal medicine) must be of appropriate quality, and manufacturers of herbal extractions (herbal powder, extracts) and herbal medicine (crude drugs) must be provided with evidence-based data.

An herbal medicine (crude drug) manufacturer must only use a starting material that is manufactured by (material) drug manufacturing and quality control standards and drug item approval (report) and must appraise starting material providers and prepare the necessary papers. Manufacturers must verify whether the suppliers of origin crude drug or crude drug (herbal medicine) comply with the correct herbal medicine (crude drug) manufacture and management guidelines or supervise appropriately, according to quality risk control (QRM) if necessary. With such measures, a globally adequate manufacturing and quality control system according to PIC/S may be established, and quality drugs may be supplied through an upgraded GMP system.

5) Official Compendium and Quality Control of Herbal Medicine

The current Korean Herbal Pharmacopoeia discussed herbal preparation in Sections 2 and 3 from 2012 and contains more than 200 formulas, including OTC and reimbursed drugs. The Pharmaceutical Codex of each medicine states the following items in the relevant articles, and each herbal preparation must satisfy the stated contents according to

the standard and test method. Additionally, the Codex separately contains identification and content tests as test methods for crude drugs.

1. Process method
   (includes composition)
2. Appearance
3. Identification test
4. pH
5. Specific gravity (liquid)
6. Purity test
   (heavy metal, pesticide residue)
7. Loss on drying
8. Crude ash (pill)
9. Extract content
10. Disintegration test
11. Mass deviation test
12. Product grain size test
13. Product uniformity test
14. Microorganism limit
15. Quantitative method
16. Preservation and storage

Stabilize the Root and Revive the Eyeballs Pill Gobonhwanjeonghwan Pill The quantification of this drug includes more than 32.8 mg of ginsenoideRb_1 ($C_{54}H_{92}O_{23}$: 1109.31) in ginseng, 0.82 mg of betaine ($C_5H_{11}NO_2$: 117.15) in lycium, 3.3 mg of amygdaline ($C_{20}H_{27}O_{11}$: 457.44) in amygdales, 0.31 mg of schizandrin ($C_{24}H_{32}O_7$: 432.52) in schisandraefructus, 1.5 mg of glycyrrhizinate ($C_{42}H_{62}O_{16}$: 822.92) in licorice, and 3.2 mg of berberine [berberine chloride ($C_{20}H_{18}ClNO_4$: 371.82)] in coptis in a single dosage for adults.	Purity Test for Heavy Metals A) Less than 30 ppm of heavy metals B) Less than 5 ppm of lead C) Less than 3 ppm of arsenic Crude Ash Less than 7.0% Extract Content Thin Ethanol Extract 38.0-48.0% Disintegration Test Appropriate when tested. (May be omitted when it is a large pill that is chewed or mixed with water.) Mass Deviation Test Appropriate when tested.

Process Method A single dosage for adults,

Asparagi Tuber, Liriopis Tuber, Rehmanniae Radix Crudus, Rehmanniae Radix Preparata 364.0 mg

Ginseng Radix, PoriaSclerotium, DioscoreaeRhizoma, LyciiFructus 182.0 mg

Achyranthis Radix, DendrobiiHerba, Cassiae Semen, Armeniacae Semen, ChrysanthemiFlos, Cuscutae Semen, AruantiiFructusImmaturus 121.4 mg

AntelopisCornu, Saposhnikoviae Radix, Celosiae Semen 97.0 mg

Schisandraefructus, Glycyrrhizae Radix, TribuliFructus, CnidiiRhizoma 85.0 mg

Select the crude drugs above, powder or finely powder according to the section or fineness degree in the Pharmacopoeia general rule, and manufacture according to the pill process method.

Identification Test

1) Asparagi Tuber, Liriopis Tuber, Rehmanniae Radix Crudus, Rehmanniae Radix Preparata, Ginseng Radix, PoriaSclerotium, DioscoreaeRhizoma, LyciiFructus,

   Achyranthis Radix, DendrobiiHerba, Cassiae Semen, ArmeniacaeSemen, ChrysanthemiFlos, Cuscutae Semen, AruantiiFructusImmaturus, Saposhnikoviae Radix, SchisandraeFructus, Glycyrrhizae Radix, CoptidisRhizoma, CnidiiRhizoma Powder these herbs and conduct an identification test.

2) TribuliFructus Powder this and conduct the [TribuliFructus] identification test stated in the [Korean Pharmacopoeia].

Microorganism Limit Appropriate when tested.

Quantification method

1) Ginsenoide Rb1 in Ginseng Radix Weigh the exact mass of more than 20 pills, powder it, measure precisely 0.5 mg of ginsenoide Rb1, and test it according to the ginseng content quantification method of crude drug test methods.

2) Betaine in LyciifructusWeigh the exact mass of more than 20 pills, powder it, measure precisely 1 mg of betaine, and test it according to the Lyciifructus quantification method of crude drug test methods.

3) Amygdaline in Armeniacae Semen Weigh the exact mass of more than 20 pills, powder it, measure precisely 10 mg of amygdaline, and test it according to the armeniacae semen quantification method of crude drug test methods.

4) Schizandrin in SchisandraeFructus Weigh the exact mass of more than 20 pills, powder it, measure precisely 5 mg of paeoniflorin, and test it according to the schisandraefructus quantification method of crude drug test methods.

5) Glycyrrhizinate in Glycyrrhizae Radix Weigh the exact mass of more than 20 pills, powder it, measure precisely 15 mg of glycyrrhizinate, and test it according to the glycyrrhize radix quantification method of crude drug test methods.

6) Berberine in CoptidisRhizoma (as berberine chloride) Weigh the exact mass of more than 20 pills, powder it, measure precisely 5 mg of berberine (berberine chloride), and test it according to the coptidisrhizoma quantification method of crude drug test methods.

3) Ginseng Radix, LyciiFructus, Armeniacae Semen, SchisandraeFructus, Glycyrrhizae Radix and CoptidisRhizomaThe specimen peaks at the same holding time as the standard liquid in the quantification test.	Storage Airtight container

Herbal preparation is multi-component compound, a mixed extraction of diverse medicinal herbs. Thus, for the quality control of herbal medicine, more than one extracted component from each of the mixed medicinal must be managed rather than managing just one index component. Therefore, a comparison test of a standard decoction made with the standard extraction method and herbal medicine, and a quantitative method using a multi-component profile should be applied to herbal medicine, but such measures are not yet officially established. The current Codex is limited to items that may be quantified with major index components of herbal medicinals.

To show an example of equivalence assessment using a multi-component profile, a standard decoction of Coptis Decoction to Resolve Toxicity extracted with glassware and a 20 times reflux extracted decoction showed high similarity, with the coefficient higher than 0.9. (Figure 3 and 4)

(A) Mixed standards

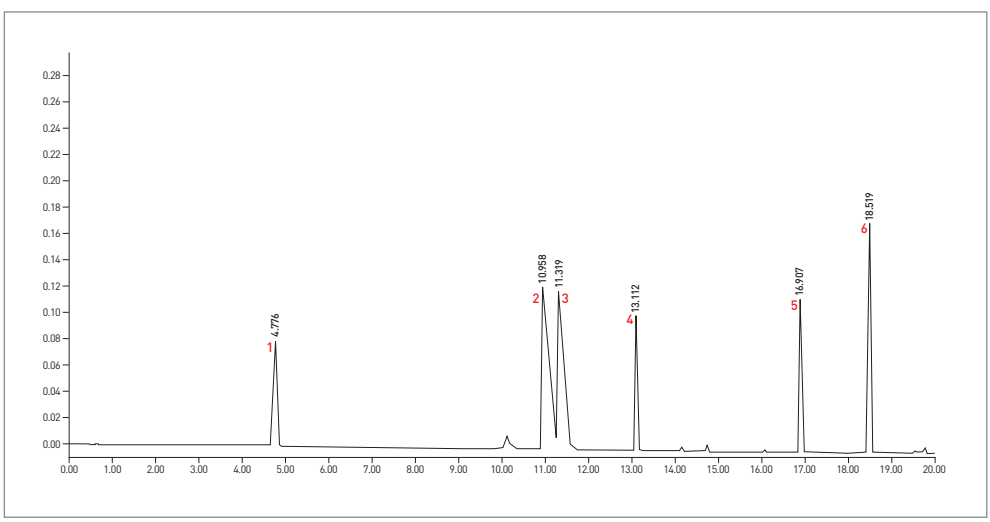
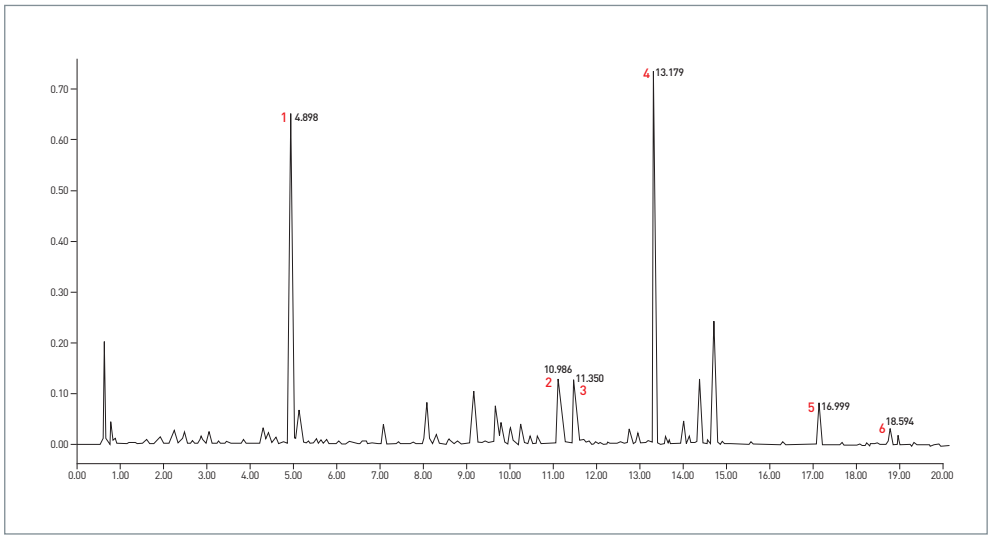


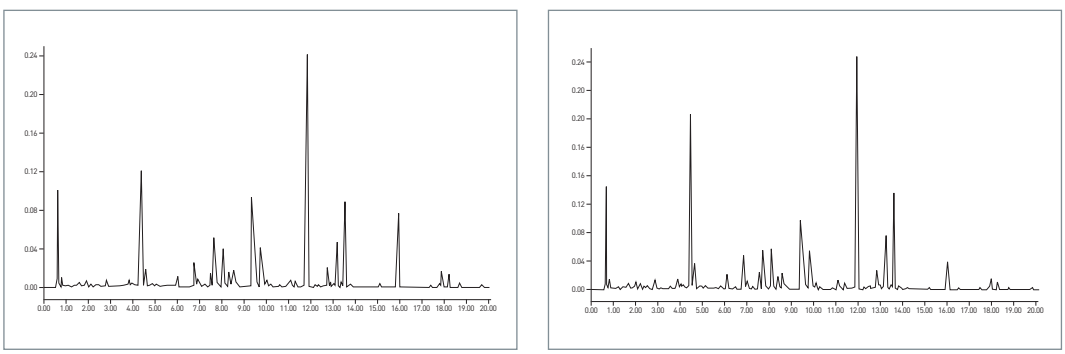
Figure 2 (KHP, 2012)

(B) HHT ex



1. Geniposide, 2. Berberine, 3. Palmatine, 4. Baicalin, 5. Baicalein, 6. Wogonin

Figure 3 UPLC chromatogram of (A) Standards and (B) Hwangryun Haedok-tang standard decoction



Coptis Decoction to Resolve Toxicity Compound, Single Component Extract Powder

Shares a similar pattern with index component content and coefficient over 0.92

Coptis Decoction to Resolve Toxicity Reflux Extraction (decuple)

Figure 4 Comparison between the combination of single extract and a combined standard decoction (KFDA, 2012)

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Korean Medicine :
Current Status and Future Prospects

Pusan National University
School of Korean Medicine

Recent Trends in Korean Medicine

written by Dongwoo Nam

2015

CHAPTER 07

chapter 07

Recent Trends in Korean Medicine

Korean Medicine Examination Devices and Tools

A great deal of effort has been put forth to bring a higher level of medical service to Korean Medicine through its globalization and the use of a variety of examination and therapeutic devices to standardize diagnosis and treatment. Standardized diagnoses enable the accumulation of reliable clinical data through quantification and objectification. Institutions or Korean medicine have used modern devices and tools for examination and treatment, and numerous research articles have been published surrounding this usage of technology. These devices provide objective information about the physical conditions of patients while taking into account their subjective experiencing of symptoms to enable doctors to clearly understand diseases, which can increase the efficiency of treatment by clarifying the difference in the patient prior to and following treatment.

1) Yangdorak (Ryodoraku)

The Yangdorak (Ryodoraku) measures the electrical resistance of the skin in the representative measurement points of the 12 meridians. The electrical resistance of the skin is known to be related to the sympathetic nervous system, which controls sweating. When vital functions decrease, the measurement values also decrease.

Figure 1 & 2 MEDIRA of Neomiz

Therefore, increases in mean measurement values may indicate improved physical fitness, whereas decreases in mean measurement values may indicate the worsening of worsening physical fitness.

Furthermore, based on statistical analysis, its measurements can be used to inform the diagnosis of certain syndromes.

Korean medicine professionals adopted it in the 1970s. It was once considered to be a device that could detect the actual meridians. Recently, based on scientific reports that electrical acupuncture stimulation of points with decreased electrical resistance improves natural healing power, the use of this device was approved by the national health insurance policy of Korea.

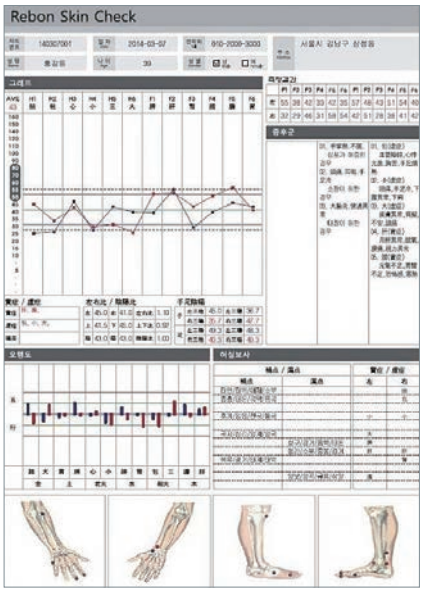

Figure 3 Rebon Skin Check

2) Pulse Analyzer

The pulse analyzer provides digitalized data regarding the pulse, which has been traditionally measured based on the sensations of the finger tips. Multiple contact pressure sensors detect the length, height and width of the pulse as well as the pulse intensity according to the applied pressure.

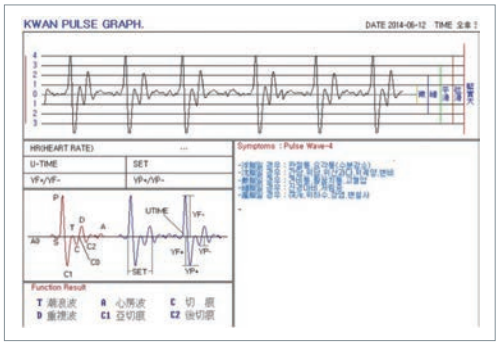

Figure 4 & 5 Pulse Analyzer

The pulse pressure wave and photoplethysmograph (PPG) are recorded using this device. These two features are known to be related to atherosclerosis. Many studies have reported correlations between traditional pulse diagnosis and the pulse value determined using the pulse analyzer.

It can be applied to monitor vital signals (arterial oxygen saturation, heart rate, blood pressure, cardiac output and respiratory rate), cardiovascular functions (arterial diseases, arterial compliance, vascular aging, intima function, vein function, vasospasm) and the autonomic nervous system (vasomotor function, body temperature control, blood pressure, heart rate variability).

3) Digital Infrared Thermographic Imaging (DITI)

DITI detects infrared on the surface of the skin and develops a computerized image that can be used to identify physical disorders and changes in physical health conditions. By detecting the temperature of the skin surface, we can evaluate the warmth and coldness of each part of the body in a more objective manner.

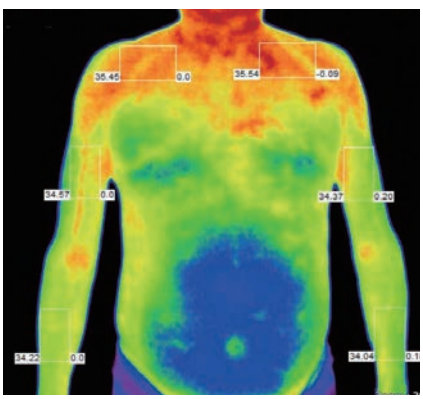

Figure 6 DITI

DITI can also be applied to assess patients with diabetes, blood stagnation, stress-related syndromes, cold syndromes or various types of pain, including arthritis or lower back pain. For more accurate image collection, clothes of any kind should be removed from the part of the body that will be assessed. Additionally, any physical therapy, medications, or medical examinations that can influence the body temperature are prohibited prior to obtaining the image. Drinking alcohol and smoking can also change the body temperature. Recent studies have reported that comparisons of differences in temperature on the right and left side of the body can be clinically meaningful. Opinions vary in regards to the what degree of temperature indicates a clinically significant difference, with some maintaining that a difference as low as 0.3°C is significant while others insist that anything less than 1°C is insignificant. For practical purposes, a temperature difference of 0.5°C is generally considered to be significant.

4) Sasang Constitution Questionnaire

Based on the Korean medicine literature the *Dongui Suse Bowon* written by Lee Jema, the patients can be categorized into four major constitutions based on their body shape, daily habits, social relationships, emotional character, and behavioral patterns. The first

Figure 7 QSCC II +

questionnaire, the QSCC, was developed in the 1990s. Modifications of this questionnaire were introduced, and the QSCC II + is currently widely used. The patients are asked to answer fifty-eight questions to assess their constitution. This questionnaire is widely used in studies and clinics.

5) Moire Topography

Shadows are produced by shining a light through a screen of thin parallel strings. This process enables the detection of body asymmetry and is used to evaluate scoliosis or other pain-related musculoskeletal diseases. By obtaining a Moire image of the back, assessments of twisted hips or misalignments such as scoliosis can be achieved. Additionally, hyperlordosis, hypolordosis, hypokyphosis, or hyperkyphosis of the spine can also be assessed.

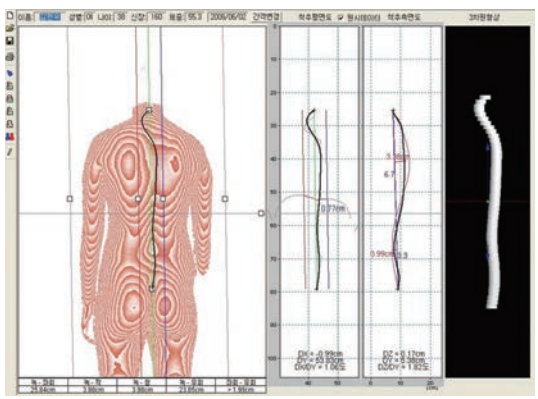

Figure 8 Moire Topography

Moire topography is widely used in Korean Medicine hospitals or clinics related to the spine and posture of the body.

6) Blood Stagnation Analyzer

The assessment is performed based on heart sounds, ECG, photoplethysmo graphy, and blood pressure measured from the four limbs.

The PWV (pulse wave velocity) is measured to assess artery hardening, and the ABI (ankle brachial index) is measured to assess angiostenosis.

By measuring the arterial elasticity and intimal precipitation, arteriosclerosis can be assessed, and the risk of stroke, myocardial infarction, sudden death or vascular dementia can be evaluated.

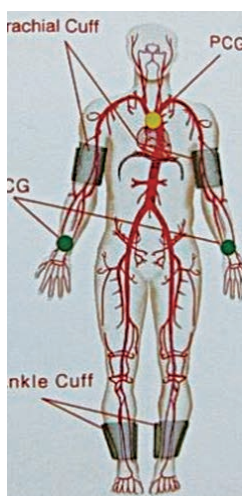

Figure 9 & 10 Blood Stagnation Analyzer of the Dong-A pharmaco-company. VP-1000

Korean Medicine Treatment Devices

1) Smokeless Moxibustion Devices

Moxibustion is a treatment in which moxa is burned over specific acupuncture points. The heat and chemical stimulations of the moxa provide as the main source of the treatment effect. Mugwort, ginger, fermented beans, or red clay can be used as materials for moxibustion. Recently, smokeless moxibustion has been developed and is widely used in clinics. Smokeless moxa is not associated withbad smells or smoke, which can be harmful to children, the elderly or patients with respiratory problems. In addition, the temperature is maintained regularly, and therefore, the risk of a burn in reduced.

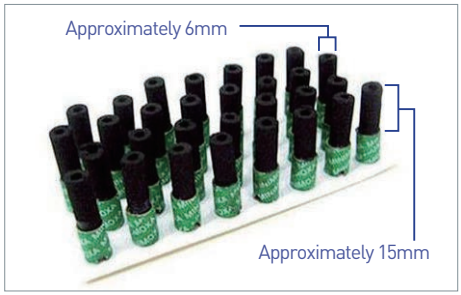

Figure 11 Dongbang Acupuncture Company – Mini smokeless moxibustion.

Figure 12 Dongbang Acupuncture Company – Smokeless moxibustion made of Red clay and mugwort

2) Laser Acupuncture

A laser beam is applied to specific acupuncture points to simulate the meridians of the body. The energy stimulation replicates the stimulation of the acupuncture needle.

Figure 13 Laser acupuncture of Rayhwa Medical - SC laser MX-830

The laser beams possess a high simultaneity and directivity. Thus, it is convenient to concentrate the beam on a small point to stimulate the acupuncture points. The origin or attachment points the muscles or tendons and ligaments can represent the point of the stimulation. Laser acupuncture is non-invasive and painless, and therefore, it can be applied in patients who are afraid of ordinary acupuncture needles.

3) Electrical Acupuncture

After inserting two or more needles into acupuncture points, electrical stimulation is applied through the acupuncture needles. Through the flow of weak electricity, acupuncture needle stimulation is enhanced with electrical stimulation. Electrical acupuncture is widely used for post-operative pain, pain during delivery, and various acute and chronic types of pain. Electrical acupuncture is also applied for acupuncture anesthesia. The treatment effect differs according to the frequency or intensity of electrical stimulation.

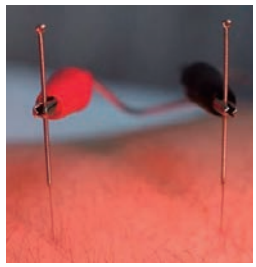

Figure 14 & 15 Electric acupuncture device STN-100

4) Acupuncture Point Magnetic Treatment Devices

Magnetic fields are created on the surface of acupuncture points for treatment purposes. The device may be used for pain relief, sedation, reducing blood pressure and anti-inflammatory effects. According to many studies, the magnetic fields stimulate the activity of acetylcholine ester, which leads to a decrease in acetylcholine and results in the described treatment effects. A harmless amount of magnetic energy can safely stimulate the nervous system without disturbing the fat or bones. The treatment is non-invasive and does not injure the skin or induce pain. The magnetic energy can affect regions deep within the body, and therefore, it is possible to apply this technique for the rehabilitation of nerves and muscles (sciatic neuralgia, acute and chronic lower back pain, cervical sprain, frozen shoulder, degenerative arthritis, ligament injury), spinal disorders (intervertebral disc disorders, among others), peripheral nerve and vascular diseases (Buerger disease, cardiovascular thrombosis, among others), and urinary incontinence.

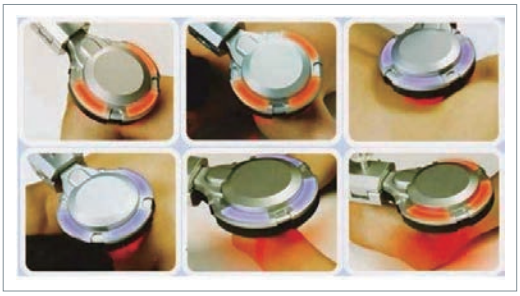

Figure 16 & 17 Acupuncture Point Magnetic Treatment Device - TESLA - 3000

5) Acupuncture Point Light Therapy Devices

- **Infrared**

  Thermal infrared radiation can be applied to acupuncture points or treatment areas to provide heat stimulation. As the muscles are heated up by the infrared radiation, the capillary vessels are enlarged, and blood flow is improved to remove stagnant blood or other metabolites. Thermal infrared radiation has pain killing effects, controls the autonomic nervous system, and can be used to relax smooth muscle spasms and stimulate the healing of cells and tissues.

Figure 18
Infrared - WHF-312

- **Ultraviolet**

  Ultraviolet light is applied to acupuncture points or ashi points. The light stimulates blood circulation and cell metabolism and has anti-inflammatory effects. Ultraviolet light can be applied for the treatment of various pain-related diseases. The light also has anti-allergenic effects and enhances immunity. Clinically, ultraviolet light is widely applied to treat skin diseases such as psoriasis or atopy.

Figure 19 Ultraviolet device – UV beam

6) Acupuncture Point Ultrasound Treatment Devices

Figure 20 Acupuncture Point Ultrasound Treatment Device of KMG - PT200

The physical energy of ultrasound is used to stimulate acupuncture points. Castor oil, liquid paraffin, glycerin or Vaseline is used as the contact agent, and the probe is applied to the treatment area. Ultrasound is painless, non-invasive, safe and highly effective. Ultrasound not only provides physical stimulation but also permits the application of chemical and heat stimulation. Ultrasound can be used to treat neuralgia, neuritis, neuromyositis, soft tissue injury, arthritis and periarthritis and can also be used for beauty purposes. The heat stimulation improves the circulation. The high speed vibration stimulates the discharge of bodily wastes.

7) Acupuncture Cold & Heat Therapy Devices

Cold and hot stimulation is applied to acupuncture points for treatment

purposes. The device can be used for muscular pain, contusions, arthritis, rheumatism, lower back pain, shoulder pain, burns and acute musculoskeletal injuries.

Figure 21 Cold & Heat Therapy Device - AM-L08G1

Figure 22 & 23 Cold & Heat Therapy Device of SJ Global – Cryostamp

Clinically, methods such as spraying medications (ions) or mid-to-low frequency devices are widely used to stimulate the distribution of medications and improve local blood flow. In addition, the mid-to-low frequency stimulation relieves muscle tension.

8) Embedding Therapy

Medical threads are inserted into acupuncture points, muscles and subcutaneously to stimulate the area for a long period of time. The therapy stimulates the skin, muscle or joints to induce a reaction in the body that stimulates the healing of the system. This therapy can improve the flow of energy through the meridians, nourish the muscles and nerves and improve immunity. Medical threads have been reported to be effective for the treatment of facial palsy,

▲ Figure 25 Dan-a Korean medicine clinic embedding therapy

◀ Figure 24 MAS Mega lift embedding therapy

trigeminal neuralgia, intervertebral disc disorders, as well as arthritis. The therapy is most widely used in beauty clinics for face lifts and wrinkle improvement, or to make the face look smaller. Based on the part of the body to which it is applied, needles of various lengths and thicknesses can be selected. The absorption of medical threads takes approximately 28 days, but some threads can remain in place for 6 months.

9) Acupotomy

Acupotomy is a collaborative treatment between Korean traditional acupuncture treatment and surgery. Synechotomy, or the removal of soft tissues, can be used to treat painful diseases caused by soft tissue injury. An acupuncture needle is used, which is long and thin and has an end shaped like a knife. The treatment is with a rapid effect, and is considerably less painful than normal surgery. Pain caused by synechia, spasms, or epulosis of the soft tissues, which are hard to treat, can be treated through this method. It can also effectively treat bone spurs, bursitis, acute stages of myositis ossificans, tenovaginitis, accumulated damage to muscles and ligaments, traumatic muscular spasms and other musculoskeletal.

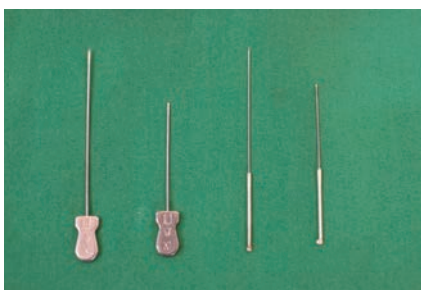

Figure 26 Acupotomy device of the Kim Kyung Tae Korean Medicine Clinic

- **Introduction to device development and official permissions in Korean medicine**

  According to the Korean law concerning medical devices, there is no official classification that divides Korean medical devices from Western medical devices. However, medical devices used in Korean Medicine hospitals and clinics are generally called Korean medical devices. As a result, legislation concerning Korean medical device development and manufacturing does not differ from that of Western medical devices. Development and permits all start from patenting the new technology or the developed system. Patents are not obligatory, but will be necessary to defend one's rights concerning the developed devices. If one is to obtain permits for a medical device that is already patented, the manufacturer must first contact and reach an agreement with the patent owner. The manufacturer can then better understand the new ideas and generate a prototype. The prototype will undergo efficiency tests, electrical safety tests, and electromagnetic wave tests. If the prototype passes all of these tests, the Korean Ministry of Food and Drug Safety will review the approval of the product. After the prototype is approved, it will receive a legal permit for its manufacture and

distribution. Only approved medical devices can be used by doctors in their clinics or hospitals.

Many devices associated with health have recently been developed. However, for some of these devices, it is sometimes obscure whether they are medical devices. To date, these devices have also been strictly regulated by laws concerning medical devices. However, there have been recent attempts to lift the restrictions to promote the development of such devices and related market activities.

Disease-Specific Clinics

Like Western medicine, Korean medicine also consists of various specialties, and well-ordered courses are designed to enhance specialization in a specific field. The eight medical specialties into which Korean medicine is divided are internal medicine, gynecology, pediatrics, psychiatry, acupuncture & moxibustion, ophthalmology, otolaryngology & dermatology, rehabilitative medicine, and Sasang constitutional medicine. After the completion of further training at a specialized department in a Korean Medicine hospital, the trained individual is qualified to take the Korean medicine specialist qualification test to become a specialist who can actually treat patients. At present, many medical clinics are specialized for certain types of diseases. Specialization eventually helps patients receive more personalized and high-quality medical care while helping to more effectively collect clinical data regarding specific diseases or patients. The accumulated of data and studies from these clinics have contributed greatly to Korean medicine. The following are the most common specialized centers for Korean medicine.

1) Spine & Joint Center

Along with an increased interest in non-surgical treatments for spine & joint diseases, the demand for Korean medical treatment has also been growing. Many local clinics specialize in spine & joint maladies, focusing on intervertebral herniations and degenerative joint diseases. Many hospitals have also arranged specific outpatient and inpatient treatment programs that focus on spine & joint diseases, and some also manage specialized centers.

- **Jaseng Korean Medicine Hospital**

Figure 27 (source: Jaseng Korean Medicine Hospital homepage)

Non-surgical therapies are sought to treat the cause of spine & joint diseases. Our treatment methods focus on regenerating the weakened bone and nerves with herbal medicine and pharmacopuncture and enhancing the natural healing ability of the body with Chuna(Tuina) and rehabilitation exercises. The range of our specialities include disc herniations of the cervical and lumbar spine, spinal stenosis, degenerative disc diseases, non-specific lower back pain, straightening of the cervical spine, degenerative knee arthritis, frozen shoulder and temporomandibular disorders. The effect of Motion Style Acupuncture Treatment, in which patients with acute back pain are ordered to walk during acupuncture treatment, was recognized in the academic paper PAIN in 2013.

- **Mokhuri Korean Medicine Hospital**

Mokhuri's goal is to treat severe diseases of the spine, such as herniations of the cervical and lumbar regions of the spine, severe spinal stenosis, and severe spondylolisthesis in a non-surgical manner. Mokhuri's treatments focus on the cause of diseases and aim to restore and strengthen the functions of the muscles and ligaments. They include acupuncture, pharmacopuncture, bee-venom, Chuna, herbal medicine and exercise programs. Interferential current therapy (ICT), electro-magnetic therapy, and traction therapy are also used. Our continuous efforts in the research of non-surgical Korean medical treatments were rewarded when the Ministry of Health and Welfare designated the Mokhuri Korean Medicine Hospital as a medical facility specializing in the spine in 2015.

- **Kyung Hee Korean Medicine Hospital**

The Spine & Joint center specializes in various diseases such as diseases of the spine (disc herniations, spinal stenosis, scoliosis, compression fractures), joint diseases (degenerative disease, rheumatoid arthritis, frozen shoulder, rotator cuff tear, obesity), rheumatoid diseases (ankylosing spondylitis, Behcet's disease, fibromyalgia) and traffic accident-related symptoms. The center includes specialists from the department of Korean Rehabilitation Medicine and the department of acupuncture and moxibustion. The main treatments include bee-venom treatment, Chuna treatment, thread-embedding therapy, and spatial spinal manipulation. Korean medical tests and referrals to Western medicine departments allow more accurate and professional treatment, and the center manages a 1-week inpatient treatment program to achieve a faster and more focused treatment plan.

2) Facial Palsy Centers

Facial palsy has long been a specialty in Korean medicine, and many people still seek Korean medical treatment for it. Many clinics specialize in peripheral facial palsy diseases such as Bell's palsy and Ramsay-hunt syndrome, and they also treat sequela that remain after the facial palsy has been treated.

Figure 28 Taping therapy
(source: Dan-a-an Korean Medicine Clinic)

Figure 29 Deep heat stimulation therapy
(source: Dan-a-an Korean Medicine Clinic)

Manual acupuncture is typically applied to improve circulation and treat paralyzed muscles, and specific acupuncture points are selected according to traditional principles of Korean medicine. Other potential treatments include Miso acupuncture, thread-embedding therapy and electroacupuncture, which can facilitate the contraction and relaxation of the facial muscles. Deep heat stimulation therapy, taping and cupping therapy can also be used to maximize the effects of treatment.

- **Kyung Hee University Korean Medicine Hospital**

  We treat various face-related conditions that include facial palsy (facial nerve palsy, sequela of facial palsy, facial spasm, eyelid spasm, facial dysesthesia, eyelid ptosis) from early stages to sequelae symptoms. Our treatments consider the individual conditions and constitutions of each patient as well as different methods such as acupuncture, bee-venom, pharmacopuncture, MTS, Miso acupuncture, thread-embedding therapy, self-exercise programs, qigong therapy and individualized herbal medicines. The 2-week inpatient treatment program also allows a more focused and efficient treatment plan.

Figure 30 Miso acupuncture

Figure 31 Bee-venom treatment

3) Stroke Centers

Many Korean Medicine hospitals manage stroke centers that include a cooperative medical treatment between Korean and Western medicine. The acute stages of stroke often require Western medical treatment, and the overall recovery period usually takes a long time with continuous rehabilitation treatment. Therefore, many patients seek inpatient care, which includes herbal medicine, acupuncture, cupping therapy, moxibustion and other rehabilitation treatment methods such as physical and linguistic therapy. There are various sequelae symptoms for stroke, such as hemiplegia, dyarthria, facial palsy, sensory loss and other types of musculoskeletal pain that are caused by a long period in a bed-ridden state or paralysis, which can also be treated.

- **Kyung Hee University Korean Medicine Hospital**
  Kyung Hee University manages systematic cooperative treatment programs in Korean and Western medicine for the prevention and treatment of stroke and other neurological degenerative diseases such as Parkinson's disease and dementia. Special treatments such as herbal medicine, bee-venom, electroacupuncture and referrals for Western medical treatments and diagnostic tests such as MRI, CT, and sonography are used to maximize the treatment effects.

4) Cancer Centers

Herbal medicines with anticancer effects are used to improve immune functions and aid in the treatment and prevention of cancer. Korean medicine anticancer therapy is not necessarily a substitution for the anticancer treatments provided by Western medicine, and many patients who visit the center maintain both treatment plans. Korean medicine can be used to ease the many side effects of anticancer therapy and increase its therapeutic effects. In addition, Korean medicine treatments can be utilized in cases of terminal cancer patients to relieve pain, help with the overall condition and eventually improve quality of the patients' final days of life.

- **Kyung Hee University Korean Medicine Hospital**
  Acupuncture, moxibustion, herbal medicine, bee-venom therapy and qigong therapy are all used to treat and prevent cancer by improving immune functions. Korean medicine is relatively safe for cancer patients, with no severe side effects. Another objective is to improve patient quality of life by treating the various side effects of anticancer therapy such as nausea and vomiting. Moxibustion is used to improve qi circulation and herbal medicines with lacquer and Hwang-gi *(Astralagus membranaceus)* components, which are also known to

have anticancer effects. Bee-venom can increase immune functions and aid in nerve recovery, which can treat circulatory disorders caused by chemotherapy such as numbness of the limbs.

5) Women's Health Centers

With the increase in gynecological and obstetric diseases, increasingly more women with conditions such as infertility and subfertility are receiving Korean medicine treatments. As a result, many local clinics list gynecology and obstetrics as specialities. One objective is the treatment of various disease of the uterus and ovaries such as uterine myoma, adenomyosis uteri, ovarian cysts, and polycystic ovary syndrome. Most cases do not require immediate surgery, and Korean medicine treatments can help eliminate blood stasis and improve circulation and immune function. Another objective could be the diagnosis and treatment of women with infertility or subfertility. In Korean medicine, infertility can be categorized into various causes, and each patient can be treated individually to achieve a more pregnancy-friendly bodily condition. Other conditions such as menstrual cramps, irregular menstruation and pregnancy-related symptoms, such as morning sickness and postpartum disorders, can also be treated with Korean medicine.

- **Kyung Hee University Korean Medicine Hospital**

Various conditions related to menstruation, pregnancy, delivery and symptoms, such as coldness of the hands and feet, are all subject to treatment with Korean medicine. Traditional treatment methods, such as herbal medicine, moxibustion, and acupuncture, are used along with diagnostic tests and treatments in Western medicine. The center is subdivided into the Pelvic Clinic, Infertility & Coldness Clinic, Pre & Postpartum Vitalizing Clinic, and the Menopause & Aging Clinic, and many patients with conditions that vary from infertility to osteoporosis visit the center seeking treatment.

Figure 32 Abdomen moxibustiontreatment at Kyung Hee University Korean Medicine Hospital

6) Growth Clinics

The Pediatric Department of Korean Medicine has opened Growth Clinics that can aid in identifying and inducing maximum heights for children. While hormone therapy is

often used in Western medicine, Korean medicine is used to assess the overall condition of a child and to seek to achieve the best conditions for growth. Hormone therapy often suppresses the secretion of sex hormones, which can cause side effects such as incomplete development of the uterus or ovaries, infertility or acromegaly. As a result, many parents and children seek Korean medical treatment as an alternative. Herbal medicine is safe with no severe side effects, and it restores the balance of the body to aid in other conditions such as obesity, atopic dermatitis, psoriasis, allergic rhinitis or lack of appetite.

Figure 33 Growth patch acupuncture of Highki Korean Medicine Clinic

Prescriptions are written by considering various factors such as height, weight, bone density and tests such as x-rays, and body composition analyses are used in diagnostic processes. Herbal medicine is often used to ameliorate the deficiencies of the body, and acupuncture is used to induce growth. Acupuncture treatment is usually applied at specific points that help the qi circulation and improve the body's overall condition. In cases in which regular acupuncture is not an option, other forms of acupuncture, such as intradermal or sticker acupuncture, can be used. It is also important to correct inappropriate lifestyles as well as eating and sleeping habits.

7) Korean Medicine Beauty Clinics

There are various fields in Korean Medicine Beauty Clinics, such as anti-aging (wrinkle removal, treatment of sagging skin) and other cosmetic therapies for the face, eyes, nose and breasts.

Anti-aging (wrinkle removal, treatment of sagging skin) and facial cosmetic therapy: thread-embedding therapy, Jung-an acupuncture, and pharmacopuncture are used to improve the regenerative ability of the skin and to lift sagging skin. Jung-an acupuncture and pharmacopuncture can facilitate qi circulation and help people with facial edema. This approach can achieve natural looking improvements and is relatively safe in comparison to surgery. Other treatment methods such as MTS, lymph massage, and ICT can also be used.

Cosmetic therapy for the eyes and nose: various conditions such as drooping eyelids, dark circles under the eyes, crow's feet, and crooked noses are targets for treatment. The treatment objective is to stimulate certain acupuncture points and the derma to induce collagen regeneration, cell growth and correction of the orbicular muscles. Thread-embedding therapy,

Jung-an acupuncture and ICT can be used and compared with surgery, which includes skin incisions, Korean medicine treatments leave little to no scars and take a shorter period of time.

Cosmetic therapy for the breasts: the objective for treatment is to increase the size of breasts and improve skin elasticity. Acupuncture, thread-embedding therapy, pharmacopuncture and herbal medicine are all used to stimulate acupuncture points around the breasts and strengthen the pectoral muscles under the breasts. Patients who are reluctant to undergo surgery due to fear of scars or side effects seek treatment in Korean medicine.

8) Smoking Cessation Clinics

Smoking cessation is usually selected as a subsidiary treatment in an ordinary Korean medicine clinic, and the smoking cessation clinics in public health centers are also very popular. Ear acupuncture is usually applied twice a week, with 3-4 days in between, on points that have proven effective in smoking cessation. Intradermal needles that penetrate the skin to a depth of approximately 1 mm are applied at ear acupuncture points, and patients are instructed to press the points that give them the urge to smoke. Herbal medicine and other lifestyle instructions can also help maximize the treatment effects.

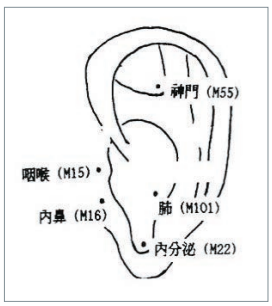

Figure 34 Ear acupuncture points for smoking cessation

9) Traffic Accident Injury Clinics

These clinics specialize in various musculoskeletal and internal medicine symptoms caused by traffic accident-related injuries, and they can also treat sequelae symptoms. The symptoms vary from pain in affected areas, such as the posterior neck, shoulders, back, knee or ankles; to other conditions, such as sensory disorders, headache, dizziness, nausea; and even psychological symptoms, such as anxiety, palpitations and post-stress disorders. Depending on the time since the accident, herbal medicine is prescribed to resolve blood stasis and restore balance to the body and mind. Acupuncture, cupping therapy and moxibustion are all used to reduce pain and resolve blood stasis via the circulation. Pharmacopuncture, deep heat stimulation therapy, and Chuna therapy can also be used. Since amendments to the law in February 1999, Korean medical treatment can be covered by Korean Medicine Automobile Insurance.

Korean Medicine :
Current Status and Future Prospects

Pusan National University
School of Korean Medicine

Korean-Western Co-practice

written by Youngju Yun

2015

CHAPTER 08

chapter 08

Korean-Western Co-practice

The Concept of Korean-Western Co-practice

1) Korean Specificity

Co-practice, as the collaboration of Eastern and Western medicine is referred to in Korea, functions differently than Chinese integrated medicine. In China, there is a single license for doctors of either tradition, and those doctors are free to integrate methods as they see fit.

2) Diverse Approaches to Co-practice

Ideally, in Korea, co-practice takes place when a doctor of Western medicine and a doctor of Korean medicine collaborate in efforts to diagnose and treat a patient. (Lee Dong-hee, 1994) The reality, however, is that such collaboration takes place when patients being hospitalized in one sort of clinic supplement their treatment with a doctor from the other, (Wi Myeong-ju, 2000) or when the method of treatment being used is defined as a mix between Western and Korean medicine. (Kim Dae-hwan and Lee Gi-hyo, 2004) In the medical law that was revised in 2010, co-practice is supposed to be a system that involves doctors of Western, Korean medicine or dentistry providing care together in a hospital. The definition of 'co-practice' is not precisely provided in this statute, but co-practice is intended to involve healthcare providers with mutually exclusive licenses interacting in some way to treat patients.

3) Integrative Medicine, Co-practice and Healthcare Unification

There is little use of complementary alternative care in Korea compared with the West, and therefore, integrative medicine is designed around Korean-Western co-practices. The necessity for the development of Korean-Western integrative health technology is also emphasized, and the relationship between integrative health technologies, co-practices and integrative medicine can be schematized as shown in the figure below (Figure1).

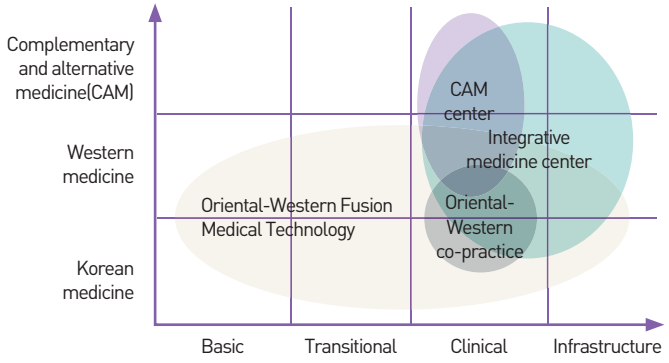

Figure 1 Excerpt from Korea Institute of Oriental Medicine.
〈Pre-phase Oriental-Western Fusion Medical Technology Development Plan〉 presentation data, 2013.1.9

The current argument states that co-practice would help improve the mutual understanding between Western medicine and traditional Korean medicine and achieve complementation and progress, and therefore co-practice is a step toward health care unification (Cho Jae-guk, 2010) and the argument emphasizing that co-practice would only solidify the dualized health care system.

4) Recent Definition of Co-practice

Proponents of the co-practice system maintain that this system works to improve the understanding between Korean and Western practitioners, and is therefore a step towards healthcare unification. (YUIC, 2010) Opponents say that the co-practice system solidifies the current dual healthcare system.

Table 1 Comparison of Consultation, Referral and Co-management

Type	Method	Key Factor	Liability
Consultation	A doctor from one medical tradition seeks the opinion of a doctor from another	Consulting doctor may not actually see the patient.	Only the doctor seeking consultation is liable.
Referral	The original doctor refers the patient to a new doctor who assumes responsibility for treatment.	The responsibility for the patient upon referral is not always clearly defined	Upon accepting the referred patient, liability is assumed.
Co-management	Using the specialties of two professions to maximize results and improve care	Both professionals treat the patient and mutually adjust roles	Co-liability

History of Co-practice

1) The Rise of Co-practice

A research center for Korean-Western medicine was established at Kyunghee University in 1971. During the 1980s, Kyunghee University, Wonkwang University and Dongguk University, each of which has both an affiliated Western hospital and an affiliated Korean hospital, began co-practice. Since 1990, with the implementation of traditional Korean medical health insurance, Korean-Western co-practices gained popularity as people sought complementary care between Western and traditional Korean medicine. (RIHPR, 2004) In 1992, the government offered a Korean-Western co-practice plan, but the Medical Association opposed this measure, stating that a unified plan was needed.

2) Government Policy for Co-practice Invigoration

In 1997, the Medical Reform Committee discussed a healthcare unification/ co-practice plan, but no agreement could be reached because the Association of Korean

Medicine did not agree with the plan that was promoted by the Medical Association. In 2004, the government adopted the co-practice infrastructure as its official policy in a 5-year plan for progress in healthcare as part of the reform of the Korean healthcare system. As a consequence, plans for the development of a co-practice model and expansion of mutual exchange, as well as institutional support for co-practice vitalization were pushed forward.

To subsequently invigorate the co-practice system, a medical law amendment permitting the establishment of clinics licensed for both Korean and Western medicine was announced on January 30, 2009. Previously, a practitioner with both a Western medical license and Korean medical license could open only one clinic under one license.

A constitutional appeal was filed appealing that this measure was against occupational freedom and the right to the pursuit of happiness. In December 2007, the Constitutional Court ruled that the regulation was unconstitutional. Clause 2 Article 33 of the Medical Act indicates that a Western doctor may establish a general hospital or convalescent (long-term care) hospital or clinic, a dentist may establish a dental hospital or dental clinic, a doctor of Korean medicine may establish a Korean medical hospital, convalescent hospital or a Korean medical clinic, and a midwife may establish only a maternity clinic.

Clause 8 indicates that a healthcare provider cannot operate more than one medical institution under any circumstance. A new clause stating that "a healthcare provider with multiple medical licenses who wishes to open a clinic-level institution may run that establishment under those licenses" was added to Clause 8.

In 2010, the Medical Act was amended to officially permit co-practice in a hospital-level institution, enabling the reciprocal employment of medical personnel and the installation of clinical departments.

Article 43 provides that ① the Western Medical hospital may employ doctors of Korean medicine and operate a department of Korean medicine; ② the Korean medical hospital or dental hospital may employ a doctor of Western medicine and additionally operate a department of Western medicine; ③ the Korean medical or convalescent hospital may employ a dentist and additionally operate a dental department, thus permitting the co-practice of not only Western and Korean medicine but also of dentistry and Korean medicine. However, the hospital must possess the necessary equipment and facilities if it is to operate an additional clinical department.

The Medical Act Enforcement Rules define the standards for installing new departments. A general hospital may install departments for each of the eight Korean medicine specialties, but more basic hospitals can only install departments of internal medicine, Sasang, and acupuncture. The Korean psychiatry department and Korean rehabilitative medicine department can only be included in hospitals with a neurology department, psychiatry department, neurosurgery department or rehabilitative medicine department.

The Korean gynecology department, Korean podiatry department and Korean ophthalmology-otorhinolaryngology department can be included in only hospitals with a department of internal medicine, ob-gyn, plastic surgery, podiatry, ophthalmology, ENT or dermatology.

Additionally, alterations in permission are limited so that the additional clinical departments with another license do not exceed the number of previously installed clinical departments. This causes hospitals to specialize in specific diseases or fields. (MHW, 2010) Departments of internal medicine, family medicine and anesthesia-analgesia can be established in all Korean medical hospitals, but departments of neurology, psychiatry, neurosurgery, orthopedics, urology, or rehabilitative medicine can be included in only Korean medical hospitals with the department of Korean internal medicine, Korean psychiatry, Korean rehabilitative medicine or acupuncture.

The ob-gyn, pediatrics, ophthalmology, ENT, and dermatology department can be implemented in only Korean medical hospitals with a Korean gynecology, Korean podiatry, and Korean ophthalmology-ENT-dermatology department. Furthermore, a department of radiology or laboratory medicine is allowed only in hospitals that are already operating multiple other departments. Special medical equipment such as an MRI or CT is installed only when there is an exclusive radiologist and radiological technologist.

To prepare for the 2010 Medical Act amendment and support follow-up measures through policies, the Ministry of Health and Welfare has continued to lead studies investigating co-practice since 2009.

3) Quantitative Expansion of Co-practice

A current state survey by the Association of Korean Medicine Hospitals showed that the number of Korean medicine hospitals providing co-practice continually increased from 55 out of 101 (54.56%) in 1997 to 93 out of 122 (76.23%) in 1999 and 112 out of 136

(82.35%) in 2008. (PNUIC, 2012)

In 2004, many Western hospitals (20.6%) reported that they perform co-practice. (Kang Eun-jung, 2004) The national medical center implemented a Korean medicine department in May of 1991 and started to carry out co-practice in 1995. A department of Korean medicine was subsequently included in most of the national public hospitals, and co-practice in Western hospitals expanded largely among public hospitals. In a survey of medical institutions that included medical departments with other licenses since the amendment of the Medical Act by the Ministry of Health and Welfare in June 2011, 36 Korean hospitals had a department of Western Medicine, 71 Western hospitals had a Korean medicine department, and three dental hospitals had a department of Korean medicine. (PNUIC, 2012)

Convalescent hospitals (or long-term care hospitals), which have grown rapidly in number since the 2000s, are classified in the Medical Act as a follows: a "convalescent hospital is where a doctor of Western or Korean medicine provides health care". Most of them provide Korean medical services by employing doctors of Korean medicine and have largely contributed to the quantitative growth of collaborative care institutions.

Although co-practice at the level of the clinic is not officially allowed, the number of collaborative institutions at the primary care level that are established by a double license holder has increased to almost one hundred since 2009.

4) Changes in Co-practice Subjects

In a 2005 survey by the Health Insurance Review & Assessment Service, the most frequent reason for co-practice in a Korean Medicine hospital was the need for medical examination, which accounted for 73.9%, followed by Western medical care and rehabilitation consisting of 8.8% each. (YUIC, 2010) Use of co-practice has been led by Korean Medicine hospitals for a long time, and most of the instances of co-practice were accounted for by consultation of Western medical tests from Korean Medicine hospitals. However, co-practice was actively introduced in small, start-up secondary hospitals that sought to enhance competitiveness. This trend was highlighted in specialized hospitals such as rehabilitative hospitals, hospitals specializing in cancer, and gynecologic hospitals. In those cases, co-practices entailing disease-specialized medical care and Korean medical care was more feasible than mere examination consultations.

Most convalescent hospitals have employed Korean medical doctors, but rather than providing a meaningful co-practice, they tend to focus on acupuncture therapy, which is paid for by insurance.

Current Status of Korean-Western Medicine Co-practices

1) Current Status of Collaborative Medical Institutions

Counting hospitals that reportedly employed Western doctors and Korean medicine doctors simultaneously as collaborative hospitals, and based on the data on convalescent hospitals in December 2013, the proportion of collaborative institutions is calculated as the table below (Table 2).

Table 2 Co-practice rate in hospital-level institutions (by 2013.12)

	Collaborative hospital	Non-collaborative hospital
All hospitals	1133(33.4%)	2263(66.7%)
General hospital level or above	17(5.0%)	324(95.0%)
Hospital	92(6.0%)	1375(94.0%)
Oriental hospital	72(32.4%)	150(67.6%)
Convalescent hospital	952(73.6%)	342(26.4%)

The table shows that 33.4% of hospital-level institutions offer co-practice service, but the ratios by type of hospital differ greatly. the Co-practice rate within convalescent hospitals and Korean hospitals is high, but only 6% of hospitals and 5% of general hospitals offer co-practice.

Currently, in 2015, the only medical school affiliated hospitals that provide intra-institutional co-practice are the Bundang Cha hospital with the Chaum hospital of Cha Medical University, and Busan University Hospital's Integrative Medicine Center. Of the 109 collaborative institutions above hospital level, national public institutions such as Veteran hospitals, Health centers and County hospitals made up 31(28.4%).

The co-practice rate among Korean medicine hospitals is as low as 32.4% in the statistics above because Korean medicine hospitals that used to co-practice with hospitals or clinics under the same foundation or corporation in the form of inter-institutional co-practice adhered to the form, despite the fact that Medical Act amendment enabled intra-institutional co-practice. In the internal data in 2010 from Association of Korean Medicine Hospital, among 167 Korean medicine hospitals 116 of them (69.46%) were collaborative hospitals with 55 hospitals (47.4%) co-practicing with hospitals and 61 hospitals (52.6%) co-practicing with clinics. (PNUIC, 2012) It seems that most Korean medicine hospitals are doing co-practice in one way or another.

The rate of co-practice is high in convalescent hospitals primarily because unlike to other types of hospitals, they have been able to simultaneously employ Western doctors and Korean medicine doctors since 1994. However, though employing both professions is not mandatory, convalescent hospitals show a co-practice rate as high as 50 times that of ordinary hospitals. This may reflect the senile and chronic patients' demand and preference for Korean medicine treatment. Also institutional factors such as grading convalescent hospitals on the number of doctors, and Korean medicine therapy not being included in the flat rate scheme of the insurance fee system for convalescent hospitals may have played a hand.

2) The Types of Co-practice (YUIC, 2010)

① Inter-institutional Consultation between hospitals of different types

Co-practicing doctors of two different institutions consult one another. Each institution maintains independence, and because there is no need for separate regulations, the practice can be executed directly. However, the patient initiates co-practice under this form unless practitioner actively puts out for the consultation, so this type of co-practice does not differ much from consultation and is regarded as a passive model of co-practice.

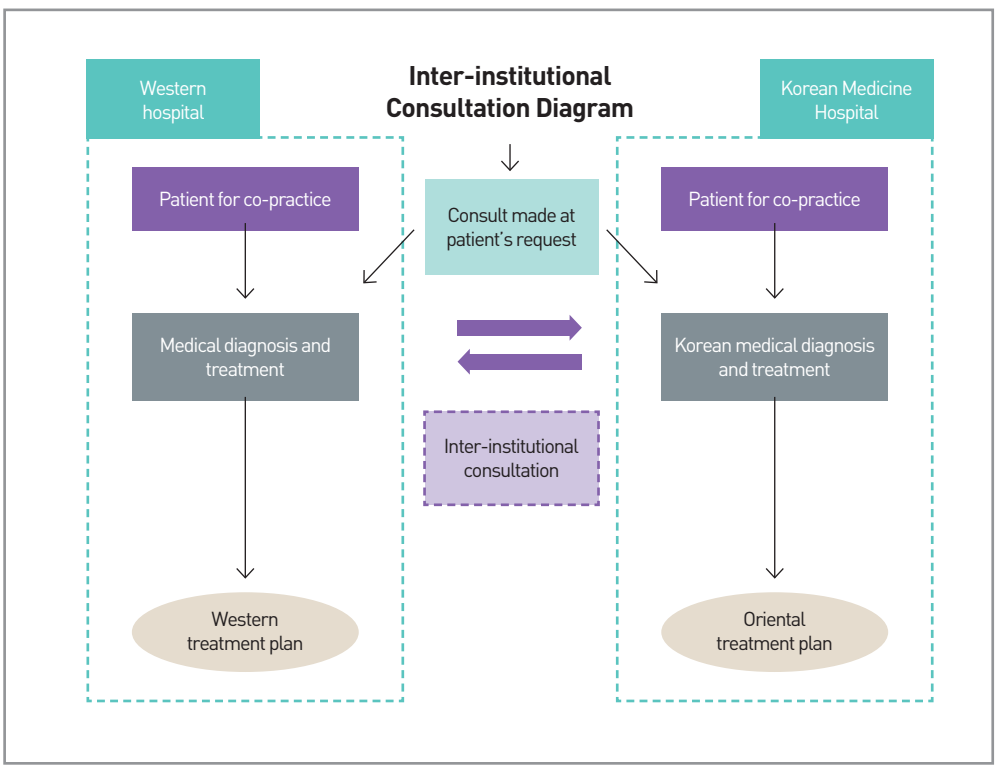

Figure 2 Inter-institutional Consultation Diagram Model

② Intra-institutional Consultation (between departments of the same hospital)

A hospital employs a Korean medicine doctor, or a Korean medicine hospital employs a Western doctor so that autonomous consultation and co-practice are carried out internally. The relevant medical department or Korean medicine department can be installed as an OPD, so there is no need for an independent institution, space, workforce, or facility. Additionally, co-practice appropriate to each hospital may be designed. However, patients may need to visit other institutions if some problems cannot be solved within the co-practicing departments.

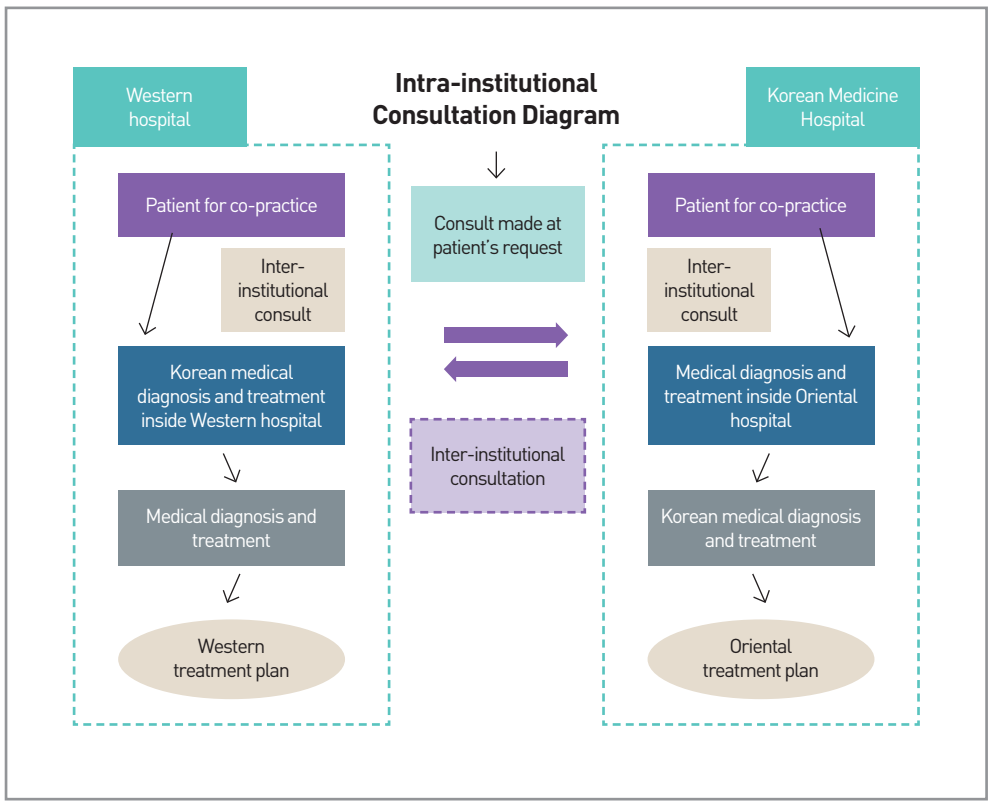

Figure 3 Intra-institutional Consultation Diagram Model

③ The center approach

Practitioners concurrently provide healthcare service in one common location, usually one specialized to deal with a specific disease, in two institutions of different types, or between departments within the same institution. Regulation and organizations of the center labor force to run the co-practice center are installed, so an active co-practice model forms, integrated around a center. However the form of co-practice may fluctuate depending on participants, and there is risk of mutual subjugation of medical personnel.

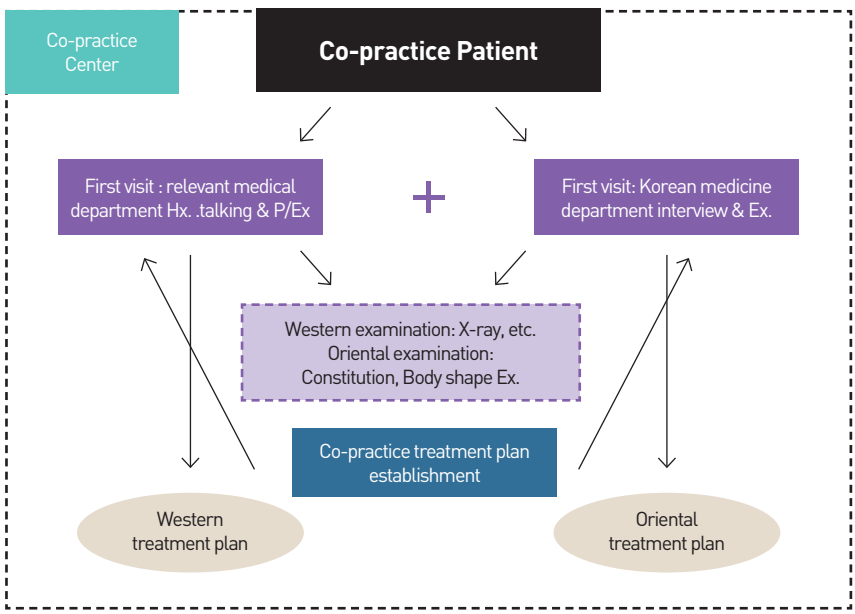

Figure 4 Center-type Co-practice Diagram

3) Diseases Frequently Treated Through Co-practice

In current state research, conducted in June of 2011, of the 128 hospitals providing collaborative treatment, the most frequently installed Western medicine departments in Korean medicine hospitals were the Department of Family Medicine at 17 sites, the Department of Internal Medicine at 13 sites, and the Department of Radiology at 8 sites. Korean medical departments installed in general hospitals and hospitals were, the Department of Korean Internal Medicine at 39 sites, followed by the Department of Acupuncture at 24. Further, Departments of Korean Internal Medicine, Acupuncture and Constitutional Medicine

were often installed concurrently. Beyond that, in 11 cases a Korean medicine department was installed as general practice department instead of specialized clinic. (PNUIC, 2012)

In a 2010 study of diseases frequently treated by collaborative service in medical institutions, cerebrovascular diseases (stroke), musculoskeletal diseases, and spine diseases were the most frequent, with research in 2012 showing similar results. Recently, the number of Korean medicine institutions attempting co-practice in cancer such as cancer surgery, chemotherapy, and pre- or post-radiotherapy care has been growing.

In China, where integrative co-practice is actively used, headache, stroke, facial palsy, insomnia, anxiety, depression, shoulder pain, neck pain, lower back pain, menstrual pain, and infertility, are diseases frequently treated in co-practice via acupuncture. In stroke, epilepsy, angina, cardiac infarction, cough, common cold, COPD, chemotherapy side effects and such, herbal medicine is the preferred choice in co-practice. Co-practice is applied more diversely in China than in Korea.

A study in 2012 asked Korean medicine doctors and Western doctors about the diseases that require collaborative treatment by some type of co-practice. Korean medicine doctors named cancer, cerebrovascular diseases, Parkinson's disease, Herniated Intervertebral Disc, and allergic diseases (atopic dermatitis, allergic rhinitis), as diseases that need alleviation of the side effects from conventional treatment. These diseases require co-practice to overcome the limits of conventional treatment, or are diseases that may gain therapeutic effects through collaborative treatment. On the other hand, Western doctors stressed the need for clinical research to find supporting evidence for the benefits of co-practice, and moreover for the necessity of co-practice to overcome the limits of conventional treatment. The Western doctors named cancer pain, metastatic cancer, obesity, metabolic syndrome, cerebrovascular diseases, diffuse pulmonary fibrosis, other chronic obstructive pulmonary disease, atopic dermatitis, psoriasis, vitiligo, spinal stenosis, sprain, sprain pain diseases, endometriosis, headache syndromes, chronic pelvic pain, alcoholism, and traumatic brain injury, as diseases that need research on the benefits and effects of co-practice. (PNUIC, 2012)

Co-practice can be categorized into a few types. In actuality, it is rare for Korean medicine practitioners and Western practitioners to concurrently see the patient and discuss treatment plans. Generally, necessary medical examinations are consulted or Western drugs are prescribed while treating mainly through Korean medicine, acupuncture treatment is provided under patient's demand while treating mainly through Western medicine, or the patient visits Western medicine and Korean medicine clinics successively for each treatment.

4) Education for Co-practice and Integrative Medicine

① Medical education in College of Korean Medicine

In Korean Medicine colleges, anatomy, physiology, biochemistry and other basic subjects in Western medicine are taught in preparatory courses, and clinical knowledge of Western medicine is included in each clinical subject. In the Pusan National University School of Korean Medicine, 20 out of 172 credits are explicitly Western medical subjects, and 10 credits are medical humanities and social sciences, 17.4% of credits being directly related to medical college courses. Considering that all clinical subjects contain Western clinical contents, almost 40% of total credits or grades are related to the Western medical curriculum, which is fairly standard in schools of Korean medicine across the board.

② Korean medicine education in Western medicine colleges

In 2004, only ten out of the 41 schools of medicine had established subjects in Korean and complementary alternative medicine. However, since the necessity to introduce complementary alternative medicine was posed in a symposium organized by the Association of Deans of Medical Colleges in 2006, education on complementary alternative medicine has steadily grown. Currently, the "implantation of complementary alternative medicine education" clause is included as a recommended standard among appraisal factors. By September 2010, 33 out of 41 medical colleges and schools (80.5%) had implemented education in complementary alternative medicine. (KMC, 2010) The curriculum varies among schools, but the survey showed that most schools devoted 2-4 hours among a total of 16 hours to courses in complementary alternative medicine. The proportion of medical schools providing an education in Korean medicine as part of the official curriculum increased, but rather than being taught as a separate subject, Korean medicine is only introduced as a part of complementary alternative medicine.

Students at schools of Western medicine have the opportunity to learn about Korean medicine in the curriculum, albeit for just a few hours, but there are no educational programs for doctors who have already graduated.

Some medical schools with a department of integrative medicine or a center for integrative medicine hold seminars or open lectures in the form of study groups. However, most of them address complementary alternative therapies, and in some cases, they are run by acupuncturists or lecturers from private organizations rather than doctors and professors of Korean medicine,

or professors who regularly give lectures on Korean medicine. Because the teaching staff on basic research and clinical medicine in Western medical colleges may have an even poorer comprehension of Korean medicine than the students, Korean medical education provided at the college level can hardly be developed continuously in clinical training or graduate school research courses. Additionally, the educational content needed to understand Korean medicine is absent during the training of interns and residents who wish to participate in co-practice.

The situation is very different from that in Japan, where vigorous education in traditional medicine for medical students or doctors is provided. There is no official school or license for Kampo medicine in Japan, and although there are no regulations for Kampo medical practice by Western doctors, the Western doctors mostly focus on herbal drug prescriptions due to the availability of acupuncturists. Since the mid-1990s, the number of medical schools that provided Kampo medicine in their curriculum has only increased. Following the Ministry of Education and Science propounding the need for Kampo medicine education in 2001 in the core curriculum of a medical college, all medical colleges have provided at least 16 hours of education in Kampo medicine since 2006. Additionally, 66 medical university hospitals (82.5%) were performing Kampo medicine OPD by 2007. Kampo medicine education is often conducted through research centers in the form of corporate or special lectures held by academic societies, of which the largest and most representative is the Japan Society for Oritental Medicine (JSOM). If a doctor undergoes clinical training in Kampo medicine for more than 3 years in a training facility granted by JSOM and passes the approval exam, he or she is approved as a Kampo medicine specialist. In a census conducted in July 2009, there were 2,755 Kampo specialists, representing 1% of all doctors. These specialists must renew their qualifications every five years.

5) The Benefits of Co-practice

① **Quality healthcare services can be provided to the citizen by enhancing the therapeutic effect and patient satisfaction.**

The two medicines may complement one another to maximize the treatment effect, and in some diseases, selecting the more effective treatment over the other may increase the cure rate.

② **Co-practice reduces indiscreet double use of healthcare by patients and saves on national healthcare costs in the long term.**

③ Small hospitals that are specialized for diseases can be fostered. The co-practice health service model can motivate new growth in the health industry, such as health tourism or medical device development.

④ Co-practice can be a foundation for the creation of new medicine.

Combining the medical theories and treatment methods of the East and West may create a new approach toward disease and therapeutic technology. The introduction of lifestyle management and diet by the Sasang constitution for the treatment of chronic diseases such as metabolic syndrome, as well as the use of Western medicine drugs according to constitutions are being implemented.

6) Drawbacks of Co-practice

① Supplier features

Co-practice institutions that provide treatment in Western and Korean medicine together are increasing, but the necessary infrastructure, research systems, regulations and system modifications remain insufficient.

② Consumer features

There is demand for Korean-Western co-practice, but because of the insufficient quality of the interconnected treatment, the cost-benefit to users is low, and there is a lack of clinical guidelines.

③ Government system management

a. There is a possibility of overtreatment, which may increase medical costs and result in the deterioration of finances in the national health insurance.

b. A combination of technologies may raise safety issues, and policy demands to establish liability for medical accident has increased.

④ Quality of healthcare

a. Co-practice may be used commercially rather than being truly beneficial.

b. Evidence supporting the therapeutic superiority of co-practice is insufficient.

c. Korean medicine may lose its characteristic and unique value during the process of co-practice.

Research on Korean-Western Medicine Co-practice

1) Clinical Study of Co-practice

The quantity of research comparing the effectiveness of Western or Korean treatment alone and co-practice for stroke, facial palsy and musculoskeletal diseases, which have been most frequently treated by co-practice, is comparatively high. However, the study results are discrepant, the number of study subjects is insufficient, and the study quality is low. Thus, it is difficult to arrive at a definitive conclusion. Recent clinical research to develop evidence-based co-practice protocols based on Korean-Western fusion technology for four major and severe diseases are being executed. In addition, the economic evaluation of co-practice is in progress because it is important to appraise not only the effectiveness of the co-practice but also its cost-effectiveness.

2) Research on the Co-practice Reimbursement System

Studies investigating the development of a co-practice reimbursement pilot project model on stroke, spondylopathy and facial palsy were conducted in 2010. (NEHCA, 2010) Doctors have evaded co-practice in clinical practice because the appropriate reimbursement is not provided. There is a high demand to modify the consultation fee or create a separate fee for the co-practice. Therefore, researchers have suggested that the fee for medical consultation, which is currently priced only as an advisory "consultation fee," be classified into 2-3 grades according to the level of supply quality, and the fee for co-practice be applied at a differential rate. However, this strategy has not been actualized into a specific policy.

3) Development of a Standard Manual for Co-practice

Plenty of institutions have claimed to provide co-practice, but in a current state survey conducted in 2010, only four hospitals had co-practice manuals. Co-practice without communication between the doctor and Korean medicine doctor may result in overtreatment or medical malpractice, and thus, internal discussion processes in the hospital must be systemized according to a standard manual.

The recommendation for standard operation regulations based on a separate co-practice center model has been developed through current state research and in-depth interviews with co-practice institutions. (NEHCA, 2010) Items such as the definition of terms related to co-practice, organization of the co-practice center, operation processes in OPD and hospitalization, practice methods, practice forms and prescriptions that must be avoided, utilization of facilities and equipment, medical record management, insurance reviews and claims, implementation and operation of the co-practice board, safety monitoring of concurrent therapy, and the establishment of co-practice evidence are defined. The institutions are also to modify and utilize the contents to fit each the situation of each hospital based on the manual. Administrative guidelines on co-practice hospitals must be developed from 2015 through monitoring studies.

4) Research on a Co-practice Education Program

Perspectives on co-practice and other types of medicine have differed greatly among practitioners of Western and Korean medicine in previous study results. Of the 33 institutions that executed co-practice in a study conducted in 2009, only one third of them had an educational program for medical staff or workers. To activate the co-practice, reorganization of the medical school curriculum and school of Korean medicine were most effective in the long term. However, much discussion is needed regarding this issue, and therefore, a basic education program for medical staff and laborers in co-practice institutions was first developed.

An educational program must include basic knowledge of Korean medicine and medicine together with education on the co-practice manual. Referral to the Western medical department, patient symptoms that require transfer, drug interactions, drug and herbal drug co-administration and Western medical guidelines on major diseases comprise education for Korean Medicine doctors. The consultation of the Korean medical department, transfer cases, Korean medical terminology, and flow chart and therapeutic methods of Korean medical treatment are included in the education of doctors. (NEHCA, 2010)

5) Integrative Medicine and Research on Korean-Western Medicine Fusion

Following the global trend of emphasizing complementary integrative medicine, research on integrative medicine has also been promoted in Korea. The definition of integrative treatment has not been established, but the most common practical definition is

"providing a personalized therapeutic technique by integrating Korean medical technology and state-of-the-art Western medical technology (regenerative medicine, complementary alternative medicine) for intractable, chronic, environmental diseases that are difficult to cure using conventional, individualized medicine." The establishment of two integrative medical centers supported by the central and local governments, and the study of specialized diseases in each center are currently underway.

As a part of the initiative to make Korean medicine the leader in the development of technology, Korean-Western collaborative medical technology development has been underway since 2011. Six research projects are currently in progress. A separate study of the development of Korean-Western fusion-based technology was started in 2014, and currently, 9 projects investigating basic and clinical research of drugs and quasi-drugs are being conducted.

Development Direction of Co-practice and its Task

1) Ideal Korean-Western Medicine Co-practice

The simple addition of other treatments to one type of medicine, or the execution of a parallel treatment without discussion is not an ideal form of co-practice. Furthermore, co-practice is not necessarily more effective for all diseases. The selection of one type of treatment or cross-application of two practices along the stages of a disease according to the disease or individual patient is also termed as co-practice. The goal is to share and discuss patient information. Ideal co-practices can be conducted only when changes occur in each therapeutic policy that are brought about as a result of such communication and consultation, and only then can true synergy be expected. To actualize such a co-practice, the government must improve various institutions to settle adequate forms of co-practice, and the interaction and education of practitioners of both types of medicine is urgent to achieve trust and communication.

2) Ideal Forms of Co-practice

The ideal long-term plan is to establish a disease-specialized co-practice center for quality care, but realistically, the stratified implementation of inter-institutional

consultation, intra-institutional consultation and center-type co-practice is necessary. Co-practice standard manuals that include the process of consultation and co-practice, medical record composition and management, and the co-practice administrative board must be specified and elaborated upon as well as continuously improved during their actual execution.

3) Systemic Reform for the Improvement of Co-practice

① Reform of the Insurance Reimbursement System

Many researchers highlight the current reimbursement system as the largest obstacle for the implementation of co-practice. The consultation fee for the hospitalized patient is reimbursed only once a month, and the subordinated treatment is uninsured if an OPD patient receives treatment from both sides on the same date for the same diagnosis code under the current medical fee system. This system impedes rather than promoting co-practice. The reimbursement system should be improved upon so that the ideal form co-practice can be appropriately insured while preventing a rise in the cost burden of the patient or the total medical cost.

② Selection of the Co-practice Demonstration Institution and Monitoring

Because there is no separate fee for co-practice and because co-practice does not benefit from hospital management, it is difficult for proprietary hospitals to spontaneously broaden the scale of co-practice or attempt to improve the quality of co-practice. To develop a co-practice model that can solve the problems associated with co-practice and to realistically apply an effective disease-specialized co-practice protocol, demonstration institutions for various diseases must be selected among national public hospitals so that diverse attempts toward the achievement of co-practice and clinical research can be realized. In addition, in this way the government can monitor co-practice processes and hospital results to officially demarcate co-practice for the development of administrative manuals and to provide incentive to superior institutions.

③ Creating a Favorable Environment for Co-practice and Utilization

a. Domestic attempts to prevent the development of co-practice into a commercialized entity or from becoming associated with a high cost must be implemented, but a co-practice model that utilizes the Korean situation, in which both modern medicine and Korean medicine have been developed, can be globally competitive and would contribute to medical tourism.

b. The electronic medical records (EMRs) created by the recent growth of the IT industry helps Western hospitals and Korean university hospitals to consult and

co-practice in OPD, which is an important environmental factor that can promote co-practice. In the future, co-practice related to the EMR system should be standardized so that joint diagnosis and treatment can be implemented rather than limited to only co-practice during the simple consultation stage. The establishment of a co-practice electronic program as a basis for the introduction or upgrading of EMRs would help contribute to the establishment, activation and standardization of co-practice.

4) Practitioners' communication and education for creating an environment for co-practice

① Developing an Integrative Medicine Education Program to Encourage Co-practice

a. Implementation of the curriculum in a mutual study: Basic medical subjects were included in the curriculum at a Korean medical college, but clinical training or in-depth learning was insufficient. There were almost no Korean medical subjects in the Western medical schools. To improve the effectiveness of and invigorate co-practice, the opportunity to mutually study school courses must be supplied. The mutual curriculum would enhance comprehension of the study of the other modality and help alleviate conflicts associated with both types of medicine. This would greatly facilitate the mutual respect and trust, which are the basis of co-practice.

b. Development of an education program for the co-practice workforce: Since the 2000s, a greater number of medical schools have been providing education in Korean medicine even with a small number of credits, but the majority of the doctors working in co-practice institutions have never received this instruction. Education programs for each profession, such as the doctor, nurse and administrative staff, should be developed so that staff working in co-practice institutions can complete a mandatory program.

② Research directions for the development of co-practice

The creation of clinical evidence for co-practice is the ultimate measure for a foundation of trust. Intervention studies and clinical research to identify whether co-practice is actually effective should be systematically conducted. The current research on Korean-Western medicine fusion technology must be increased, and studies investigating the combination of Korean medical technology, such as acupuncture, moxibustion and tuina, and medical therapies must be expanded, in addition to conventional studies investigating drug development. The development of integrative diagnostic technology is also necessary.

③ Fostering a co-practice workforce

a. Fostering co-practice coordinators : The analysis of previous co-practice experience has revealed that the role of the coordinator to mediate both practitioners and manage the reception of the patient is fundamental. The mandatory employment of nurses who specialize in co-practice or who are dual license holders in co-practice institutions could be reviewed.

b. Utilization of dual license holders : The number of dual license holders with licenses in both Korean and Western medicine has grown rapidly in the 21st century, reaching 206 doctors in 2010. It is currently estimated that there are more than 300 dual license holders, and the number is steadily growing. There are very few, approximately one dozen, dual license holders who are lecturing in medical schools or Korean medical schools. The majority of the dual license holders are in either public or private practice. Dual license holders, according to the amended Medical Act, may simultaneously open primary medical institutions providing both Western and Eastern medical treatment. However, in the current system, practice is focused on one side due to reimbursement issues and the level of the institution at which the practitioner works. Thus, the rate of dual license holders working in the university hospital system is very low. Approximately one hundred practices are integrated Korean-Western clinics, and the remainder have been estimated to work in a single Korean or Western clinic. A plan to actively utilize dual license holders for co-practice revitalization and monitoring of co-practice must be prepared in future assessments.

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Korean Medicine :
Current Status and Future Prospects

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Standardization of Korean Medicine

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chapter 09

Standardization of Korean Medicine

Overview of Standardization

1) Definition of Standardization

"STANDARDIZATION" is defined in the "ISO/IEC GUIDE 2:2004, Standardization and related activities — General vocabulary", as "anactivity of establishing, with regard to actual or potential problems, provisions for common and repeated use, aimed at the achievement of the optimum degree of order in a given context," accompanied by the following two notes:

"NOTE 1: In particular, the activity consists of the processes of formulating, issuing and implementing standards." and

"NOTE 2: Important benefits of standardization are improvement of the suitability of products, processes and services for their intended purposes, prevention of barriers to trade and facilitation of technological cooperation."

"STANDARD" is also defined as "a document, established by consensus and approved by a recognized body, that provides, for common and repeated use, rules, guidelines or characteristics for activities or their results, aimed at the achievement of the optimum degree of order in a given context," followed by a note that "Standards should be based on the consolidated results of science, technology and experience, and aimed at the promotion of optimum community benefits."

In accordance with the definition, the standard has the following characteristics;

- Developed by consensus
- For common and repeated use
- For public benefit
- Transparent, effective, relevant, and consistent
- On a voluntary basis

2) Classification of Standards

A standard is generally classified into two categories; that is, a de facto standard and a de jure standard.

A de facto standardis a custom, convention, product, or system that has achieved a dominant position through public acceptance or market forces, such as MS Windows, CDMA, VHS, etc. De facto is a Latin phrase that means "concerning fact," "existing in fact" or "in practice but not necessarily ordained by law" or "in practice or actuality, but not officially established."

A de jure standard is a technology, method or product that has been officially endorsedfor a given application. De jure is a Latin phrase that means "concerning law" or "in law." The term refers not only to legally protected or enforced standards but also those that have been endorsed by official standardization organizations, such as ISO, IEC, ITU, ANSI, KS, GB, JIS, etc.

A standard can also be classified into a hierarchy of the following five classes: those from International Standards such as ISO, IEC and ITU; regional standards such as CEN and PASC; national standards such as KS, JIS and GB; collective standards such as ASME and IEEE; and company standards.

3) Benefits of the Standard

The standard ensures that products and services are safe, reliable and of good quality. For business, they are strategic tools that reduce costs by minimizing waste and errors and increasing productivity. They help companies access new markets, level the playing field for developing countries and facilitate free and fair global trade.

International standards offer technological, economic and societal benefits. They help harmonize technical specifications of products and services, making industry more efficient and breaking down barriers to international trade. Conformity to international standards helps reassure consumers that products are safe, efficient and good for the environment.

Traditional Medicine (TM)

Traditional Medicine (abbreviated as TM, hereinafter) is defined in the "WHO International Standard Terminologies on Traditional Medicine in the Western Pacific Region", published by WHO/WPRO in 2007, as "the sum total of knowledge, skills, and practice of holistic care for maintenance of health and treatment of disease based on indigenous theories, beliefs, and experiences handed from generation to generation."

Traditional medicine refers to the knowledge, skills and practices based on the theories, beliefs and experiences indigenous to different cultures, used in the maintenance of health and in the prevention, diagnosis, improvement or treatment of physical and mental illness.

Traditional medicine covers a wide variety of therapies and practices, which vary from country to country and region to region. In some countries, it is referred to as "complementary" and/or "alternative" medicine (CAM). Traditional medicine has been used for thousands of years with significant contributions made by practitioners to human health, particularly as primary health care providers at the community level. TM/CAM has maintained its popularity worldwide. Since the 1990s, its use has surged in many developed and developing countries (WHO/Health topics).

1) Importance of Standardization of Traditional Medicine

In many parts of the world, TM provides health care to a significant portion of the population as part of the general health services. Various distinctive TM systems have evolved such as Korean Medicine (abbreviated as KM, hereinafter), Traditional Chinese Medicine (abbreviated as TCM, hereinafter), Kampo Medicine and Ayurveda.

For a number of reasons including population movement, affordability and reputation, some TM systems have extended well beyond their traditional geographical regions of use and have becoming increasingly utilized in many other countries. As this occurs, the need for international standards to underpin their wider use is recognized.

The increasing international utilization of TM together with the modernization of the traditional practice and manufacture of TM products create a need for internationally recognized and accepted standards. Such standards are necessary to support the reputation of TM and positively affect the expansion of its markets.

The lack of international standards and significant attention for TM, particularly in the area of quality and safety of natural materials, has raised an urgent need for international standards development. Side effects and safety issues in the practice of herbal medicine, acupuncture and related techniques are important aspects. In addition, the lack of reliable information about TM is a barrier. Currently, data collection for TM is frequently not integrated within national or international health information systems. The development of standardized TM terminology may assist various stakeholders in gathering data and meaningfully exchanging information on TM globally. It is essential to produce international health information standards on TM terminologies and nomenclature.

Countries without minimum requirements for practitioner training or education may benefit from establishing voluntary international standards that would provide assistance for improving the regulation of TM practitioners. Such improved regulations may reduce risks to consumers from TM goods and services and preserve the reputation of TM internationally, which would have a positive effect on both health and trade.
In short, increasing demand on the quality, safety, efficacy and reliability of TM leads to the standardization of TM. Securing the scientific basis (scientific approach), objectification, and standardization of TM through scientific research is inevitable.

2) Korean Medicine (KM)

Traditional Korean Medicine (abbreviated as TKM, hereinafter) is defined in Wikipedia as follows:

Traditional Korean medicine (Hangul: 한의학, Hanja: 韓醫學) refers to the traditional medicine practices that developed in Korea. Traditional Korean medicine is popular in Korea and among Korean communities elsewhere. Traditional Korean medicine emphasizes perceived interactions within the body rather than functional mechanisms.

In addition to the common aspects of TM developed in the East Asian region, unique and distinctive aspects of Korean Medicine include Sasang Constitutional medicine and Treasured Mirror of Eastern Medicine (*Dongui Bogam*, 東醫寶鑑).

Dongui Bogam written by Heo Jun, is the most famous and important medical book on TKM. *Dongui Bogam* was registered in the UNESCO World Heritage Record in 2009 and has served as the basis of TKM. Longevity & Life Preservation In Eastern Medicine, *Dongui Suse Bowon* (東醫壽世保元) which concerns the four constitutional medicines and was written by Lee Jema, differentiated TKM from TCM.

ISO Activities on the Standardization of Traditional Medicine

The foremost aim of international standardization is to facilitate the exchange of goods and services through the elimination of technical barriers to trade.

Three bodies are responsible for the planning, development and adoption of International Standards: ISO (International Organization for Standardization) is responsible for all sectors excluding the electrotechnical field, which is the responsibility of IEC (International Electrotechnical Committee), and most telecommunications technologies, which are largely the responsibility of ITU (International Telecommunication Union).

ISO is an independent, non-governmental membership organization and is the world's largest developer of voluntary international standards. It was established in 1947 and its Central Secretariat is located in Geneva, Switzerland. The principal deliverable of ISO is the International Standard. More than 20,000 International Standards have been published and more than 230 Technical Committees (TCs) are actively operating. More than 160 member countries and 100,000 experts currently participate in ISO activities.

1) Development of ISO International Standards

An ISO standard is developed by a panel of experts within a technical committee. Once the need for a standard has been established, these experts meet to discuss and negotiate a draft standard. As soon as a draft has been developed, it is shared with ISO members, who are then asked to comment and vote on it. If a consensus is reached, the draft becomes an ISO standard. If not, it returns to the technical committee for further editing.

Key principles in standard development are as follows;

1. ISO standards respond to a need in the market
2. ISO standards are based on global expert opinion
3. ISO standards are developed through a multi-stakeholder process
4. ISO standards are based on a consensus

2) ISO/TC 249

In June 2009, the ISO Technical Management Board (TMB) established ISO/TC 249 with the provisional title of Traditional Chinese Medicine, which reflects the current work of the committee. The business plan is currently based on the provisional title and is reviewed at each plenary meeting to ensure that the business plan remains up to date.

The current activities of TC 249 primarily focus on standardization in the fields of quality and safety of raw materials, manufactured products and medical devices and informatics, all of which are relevant to traditional medicine.

In the first plenary meeting of ISO/TC 249 in June 2010, the committee resolved to work on the following priorities:

- The top priority is quality and safety.
- With regard to Informatics, the committee has embarked on a process of consulting with other bodies, such as WHO (ICD 11) and ISO/TC 215, to identify the contribution of the committee. A Joint Working Group (abbreviated as JWG, hereinafter) has been proposed between TC 249 and TC 215 entitled “Informatics.”

3) Objectives of ISO/TC 249

ISO/TC 249 aims to contribute to the maintenance of health and the improvements of health care through the use of traditional medicine to support the quality, safety and effectiveness of products and to assist in the trade and commerce of related goods and services.

The following benefits are expected through ISO/TC 249 activities:

- assist in the creation of emerging definitions of TM that will support international development
- facilitate international trade
- assist in setting national standards for TM in countries with health systems that are evolving to regulate TM
- protect the reputation of TM
- enhance the benefits of TM to patients and the broader community
- establish minimum standards for the safety and quality of TM natural materials and equipment
- help increase acceptance of TM by governments, health care funders, health care practitioners, regulators and the public
- assist in harmonizing national standards
- assist in developing consistent terminology and understanding of TM
- allow reliable information, data collection and exchange
- support the integration of TM with other health care systems
- provide a template for dealing with other internationally used medicine Systems, based on the experience of the committee with TM

4) Structure of ISO/TC 249

- Member bodies

Currently, ISO/TC 249 consists of 20 participating countries and 15 observing countries;

- Participating Countries:

Australia, Austria, Canada, China, Czech Republic, Germany, Ghana, India, Italy, Japan, Korea, Netherlands, Singapore, South Africa, Spain, Switzerland, Thailand, Tunisia, USA, Vietnam

- Observing Countries:

Barbados, Finland, France, Hong Kong (Correspondent), Ireland, Israel, Lithuania, Mongolia, New Zealand, Poland, Romania, Seychelles (Correspondent), Sweden, United Kingdom, Zimbabwe

- Liaisons

Relevant organizations and groups for liaison with ISO/TC 249 are

(i) Internal Liaisons

ISO/TC 215: Health informatics

IEC/SC 62D: Electromedical equipment

(ii) External Liaisons

WHO (World health Organization)

World Federation of Acupuncture-Moxibustion Societies (WFAS)

World Federation of Chinese Medicine Societies (WFCMS)

It is important to broaden the involvement of other countries who are considering the global use of TM as their participation is still limited. Possible reasons could include a lack of resources such as finances for traveling costs, and a limited number of national experts and relevant and updated information. Their active participation in ISO/TC 249 will be encouraged. ISO/TC 249 will continue to liaise with related organizations.

- Working groups

The working groups and, where appropriate, joint working groups with other technical committees are established to advising the committee on tests for a particular draft standard, establishing standard operating procedures for the committee's work and ensuring the timely delivery of ISO/TC 249 Work Program. Much of its work will be carried out through electronic communication with plenary meetings being convening when the volume and complexity of work to be considered warrants this.

- Publications and current projects of ISO/TC 249

Three international standards have been published in the area of traditional medicine since the establishment of ISO/TC 249. These are;

Table 1 List of working groups of ISO/TC 249

Working Group	Title	Convener
WG 1	Quality and safety of raw materials and traditional processing	China (Liang Liu)
WG 2	Quality and safety of manufactured TCM products	Germany (Sven Schroder)
WG 3	Quality and safety of acupuncture needles	China (Longxiang Huang)
WG 4	Quality and safety of medical devices other than acupuncture needles	Korea (Sun-mi CHOI)
WG 5	Terminology and Informatics	Korea (Byung Hee Koh), China (Kui Wang)
JWG 1	Joint ISO/TC 249 - ISO/TC 215 WG: Informatics	Germany (Michael Hammes)
TF	Guidelines for Manufacturing Safe and Regular Herb Preparations in Individual Clinics	Korea (Yun-kyung KIM)

- **ISO 17218** : 2014, Sterile acupuncture needles for single use (2014-02-03)
- **ISO 17217-1** : 2014, Ginseng seeds and seedlings
  - Part 1: Panax ginseng CA Meyer (2014-04-22)
- **ISO 18664** : 2015, Determination of heavy metals in herbal medicines used in Traditional Chinese Medicine (2015-7-21)

Thirty-two projects are currently under development in ISO/TC 249;
- **1 FDIS, 3 DIS, 8 CD, 4 WD and 16 AWI**

Twenty-four NWIPs were proposed at the 6th ISO/TC 249 plenary meeting in 2015. The on-going projects in each working group as of July 2015 are shown in the following tables.

Table 2 On-going projects of ISO/TC 249/WG1 as of July 2015

Current Stage	Reference Numbner	Title
CD	19824	Schisandra Chinensis seeds and seedlings
AWI	20311	Salvia miltiorrhiza seeds and seedlings
AWI	20408	Panax notoginseng seeds and seedlings
AWI	20409	Panax notoginseng root and rhizome
AWI	20759-1	Artemisiae Argyi Folium - Part 1: Artemisia Argyi Lévl. et Vant

Table 3 On-going projects of ISO/TC 249/WG2 as of July 2015

Current Stage	Reference Numbner	Title
CD	19610	Requirements for Industrial Manufacturing Process of Red Ginseng
AWI	19617	General requirements for manufacturing process of natural products used in and as Traditional Chinese Medicine
AWI	19609	Quality and Safety of natural materials and manufacturing products made with natural materials used in and as traditional Chinese medicine(TCM)

Table 4 On-going projects of ISO/TC 249/WG3 as of July 2015

Current Stage	Reference Numbner	Title
DIS	18746	Intradermal acupuncture needles
WD	20520	Infection control for acupuncture treatment
AWI	20487	Test Method for Acupuncture needles for single use on electrical stimulation

Table 5 On-going projects of ISO/TC 249/WG4 as of July 2015

Current Stage	Reference Numbner	Title
FDIS	18665	Herbal decoction apparatus
DIS	18666	Moxibustion devices - General requirements
WD	18586	Requirements for basic safety for Electroacupuncture Stimulator
WD	18615	General requirements of electric radial pulse tonometric devices
WD	18663	Electroacupuncture stimulator device for quality
AWI	19611	Cupping apparatus for medical use except for the traditional cupping apparatuses
AWI	19614	Pulse Graph Force Transducer
AWI	20308	Gua Sha instruments
AWI	20493	Infrared moxibustion–like instruments
AWI	20495	Electrical resistance detector at acupuncture points
AWI	20498-1	Computerized tongue image analysis system Part1 : General requirements
AWI	20498-2	Computerised tongue image analysis system Part2 : Light environment
AWI	20758	Abdominal physiological parameter detector

Table 6 On-going projects of ISO/TC 249/WG5 as of July 2015

Current Stage	Reference Numbner	Title
CD	18662-1	Traditional Chinese medicine - Vocabulary - Part 1: Chinese Materia Medica
CD	19465	Traditional Chinese Medicine - Categories of TCM Clinical Terminological System

Table 7 On-going projects of ISO/TC 249/JWG1 as of July 2015

Current Stage	Reference Numbner	Title
DIS	18668-1	Coding system of Chinese medicines – Part 1: Coding rules for decoction pieces
CD	18668-2	Coding system of Chinese medicines – Part 2: Codes of decoction pieces
CD	18668-3	Coding system of Chinese Medicines – Part 3: Codes of Chinese Materia Medica
CD	18668-4	Coding System of Chinese Medicines – Part 4: Codes of Granule forms of individual medicinal for prescriptions
CD	20333	Traditional Chinese Medicine – Coding Rules for Chinese Medicines in Supply Chain Management
AWI	20334	Traditional Chinese Medicine – Coding System of Formulas

In addition, international standards related to traditional medical informatics were developed by ISO/TC 215 as follows.

- ISO/TS 16277-1:2015 (Ed. 1) Health informatics - Categorical structures of clinical findings in traditional medicine - Part 1: Traditional Chinese, Japanese and Korean medicine
- ISO/TS 17938:2014 (Ed. 1) Health informatics - Semantic network framework of traditional Chinese medicine language system
- ISO/TS 17948:2014 (Ed. 1) Health informatics - Traditional Chinese medicine literature metadata
- ISO/TS 18790-1:2015 (Ed. 1) Health informatics - Profiling framework and classification for Traditional Medicine informatics standards development -- Part 1: Traditional Chinese Medicine

Table 8 On-going projects of ISO/TC 215/JWG1 as of July 2015

Current Stage	Reference Numbner	Title
DTS	18062	Health informatics - Categorial structure for representation of herbal medicaments in terminological systems
DTS	16843-1	Health Informatics - Categorial structures for representation of acupuncture - Part 1: Acupuncture points
DTS	16843-2	Health Informatics - Categorial structures for representation of acupuncture - Part 2: Needling
NP TS	16843-3	Health Informatics - Categorial structures for representation of acupuncture - Part 3: Moxibustion
PWI	16843-4	Health informatics - Categorial structures for representation of acupuncture - Part 4: Meridian and collateral channels

- **Plenary Meetings of ISO/TC 249**

  Since the establishment of ISO/TC 249, six plenary meetings have been held up to now;

  1st meeting : Beijing, China/ June 07-08, 2010
  2nd meeting : Hague, Netherlands/ May 2-4, 2011
  3rd meeting : Daejeon, Rep. of Korea/ May 21-24, 2012
  (Attendees : 14 countries, 161 people)
  4th meeting : Durban, South Africa/ May 21-24, 2013
  5th meeting : Kyoto, Japan/ May 26-29, 2014
  6th meeting : Beijing, China/ June 01-04, 2015

WHO Activities on the Standardization of Traditional Medicine

WHO (World Health Organization) is the directing and coordinating authority for health within the United Nations (UN) system.

WHO is responsible for providing leadership on global health matters, shaping the health research agenda, setting norms and standards, articulating evidence-based policy options, providing technical support to countries and monitoring and assessing health trends.

WHO/WPRO(WHO/Western Pacific Regional Office), under the theme of "Standardization through evidence-based approaches," has conducted a number of standardization projects in the areas of traditional medicine, including terminologies, acupuncture point location, etc. Major outcomes related to the standardization of TM as a result of these efforts by the WHO/WPRO are

1. Standard acupuncture nomenclature, second edition (1993)
2. WHO standard acupuncture points location in the Western Pacific, second edition (2008)
3. WHO International Standard Terminologies on Traditional Medicine in the Western Pacific Region (2007)
4. International Classification of Diseases (ICD) 11th Revision-Chapter 27: Traditional Medicine conditions-Module I

In addition, the five key objectives of regional strategy for traditional medicine in the western Pacific region were identified for the period 2011-2020 as seen below:

- to include traditional medicine in the national health system;
- to promote the safe and effective use of traditional medicine;
- to increase access to safe and effective traditional medicine;
- to promote the protection and sustainable use of traditional medicine resources;
- to strengthen cooperation in generating and sharing traditional medicine-related knowledge and skills.

Standardization Activities of Korean Medicine in Korea

The Korean government has been supporting projects for the standardization of Korean Medicine. The MoHW (Ministry of Health and Welfare) has launched a project for the globalization of KM from 2014 and developed a strategic roadmap for KM standardization, and MoHW is also supporting activities such as ISO and WHO tasks.

The MoTIE (Ministry of Trade, Industry & Energy) and MSIP (Ministry of Science, ICT and Future Planning) also have financially supported the research and development of standards for KM.

The Korea Institute of Oriental Medicine (KIOM) is a government-funded research institute under the MSIP of Korea and is a national hub of research and development for Korean Medicine (KM). KIOM was established to contribute to the improvement of public health through specialized and systematic research on the promotion and development of Korean medicine, Korean medicine services, and herbal medicine. Since its establishment in 1994, KIOM has conducted numerous research projects on the scientific advancement, standardization and globalization of Korean medicine.

Korean Medicine Standards Center, as a hub organization for the standardization of Korean Medicine in Korea, was established in KIOM in 2011. The center is in charge of the establishment of strategies and plans for the standardization of KM technology; standardization activities related to ISO, WHO and KS (Korean Industrial Standard); and activities related to the WHO Collaborating Center for Traditional Medicine.

KATS (Korean Agency for Technology and Standards) is responsible for developing Korean Industrial Standards (KS) as a National Standards Body (NSB) of Korea. KATS has published 6 Korean Standards in the field of Korean medicine:

KS P 3007 : Sterile filiform acupuncture needles for single use
(published : August 2009, revised: March 2013)
KS P 3008 : Ear acupuncture needles (December 2010)
KS P 3009 : Intradermal needles (December 2010)
KS P 2000 : Safety management guideline for acupuncture treatment
in oriental medicine (January 2012)
KS P 3000 : General requirement of moxibustion in oriental medicine
(January 2012)
KS P 3010 : Human acupuncture point names and locations
– The fourteen meridian (January 2012)

Standardization Activities of TM in Other Countries

1) China

SAC (Standardization Administration of China) is responsible for developing Chinese National Standards (GB) as a national standards body for China. SAC established 7 TCs regarding TCM, such as Acupuncture, Integrated Medicine, Chinese MateriaMedica, Traditional Chinese Medicine, Seed and Seedlings of Chinese Medicinal materials, etc.

The first Chinese national standard on TCM, GB 2024 (Acupuncture needle), was published in 1994. The total number of GBs on TCM developed under the responsibility of SATCM (State Administration of Traditional Chinese Medicine of the People's Republic of China) up to now is 37.

2) Japan

JISC (Japanese Industrial Standards Committee) is responsible for developing Japanese Industrial Standards (JIS) as a national standards body of Japan. JIS T 9301 (Acupuncture needle) was published in 2005.

Japan has a good system with regards to research, reporting and information sharing on the quality and safety of herbal medicine and raw materials.

Currently, Japan is trying to increase their competitiveness in the world market by producing and developing of high-quality herbal medicine, as seen with the Tsumura pharmaceutical company, etc.

Conclusion

Each country has developed unique TM systems with their own names. For the expansion of global use of TM, it is required to not only respect the diversity of medical practice and resources in each country but also try to improve the safety, essential quality and reliability of traditional medicine. Standardization activities for traditional medicine will make great contributions toward global health.

Increasing demand on the quality, safety, efficacy and reliability of TM leads to the standardization of TM. To secure the scientific basis and objectification, standardization of TM through scientific research is inevitable.

International standards on traditional medicine are being actively developed by international organizations, including the ISO and WHO, and several countries. Active participation in TM standardization activities of numerous countries that use TM is expected to facilitate future cooperation and further development of traditional medicine

Korean Medicine :
Current Status and Future Prospects

Pusan National University
School of Korean Medicine

APPENDIX

Appendix

Korean Medicine and Pharmaceutics Promotion Act

[hereinafter referred to as "this Act"]

[Enacted on August 6, 2003 as Law No. 6965]
[Revised on February 29, 2008 as Law No. 8852]
[Revised on October 22, 2012 as Law No. 11524]

Chapter I General

Article 1 (Purpose)

The purpose of this Act is to establish the matters that are required to lay the groundwork and basic directions for the promotion of Korean Medicine and Pharmaceutics technology and to implement R&D related to the field to contribute to the promotion of the health of the people and the development of the national economy.

Article 2 (Definition)

For the purpose of this Act, the following terms specified in this Act shall have the meaning ascribed to them herein:

1. "Korean Medicine and Pharmaceutics" shall mean any medical treatment services based on Korean Medicine as traditionally handed down from the nation's ancestors, scientifically applied and developed Korean medicine services, and Korean medicine pharmaceutical affairs.
2. 'Korean Medicine pharmacist' shall denote a person who is engaged in the production (growing), processing, manufacturing, dispensing, importing, selling, appraising and storage of herbal medicines or matters related to traditional Korean pharmacy technology;
3. 'Korean Medicine and Pharmaceutics technology' shall denote Korean medical practices and

pharmaceutical dispensing as well as the technology related to relevant goods and services, including completed herbal products (i.e., the remedies that are manufactured in accordance with the relevant Korean Medicine; the same applies to the term stated ? in Article 5) and the growing (including the development of high quality species), manufacturing, distribution and storage of herbal preparations used for Korean Medicine and Pharmaceutics, as stipulated by the relevant Presidential decree;

4. 'Herbal medicines' shall denote medicines that are largely "made from botanical extracts, but they are sometimes also derived from animals, extracts or minerals. They are natural medicines in an unprocessed form, representing natural ingredients that are simply dried and cut, or sometimes ground into a powder and rolled into a pill;
5. 'Herbal preparations'shall denote raw materials that are used to produce an herbal medicine or a finished herbal product.

Article 3 (Duties of the Government)

1. The Government shall establish and implement comprehensive policies for the development of Korean Medicine and Pharmaceutics technology.
2. Local administrative units shall establish and implement policies for the development of Korean Medicine and Pharmaceutics technology considering the relevant policies of the central government and the prevailing local situations.

Article 4 (Development of Korean Medicine and Pharmaceutics technology through Scientific Operations Based on Information Technology)

1. Both the central Government and local administrative units shall establish and implement policies for the development of Korean Medicine and Pharmaceutics technology through scientific operations based on information technology.
2. Both the central Government and local administrative units shall ensure that a sufficient number of private experts and organizations participate in the process of policy development and implementation to enhance the transparency and rationality of the policies related to Korean Medicine and Pharmaceutics technology.

Chapter II Establishment of a Basic Policy for the Development of Korean Medicine & Pharmaceutics

Article 5 (Basic Directions for the Development of Korean Medicine and Pharmaceutics)

Both the central Government and local administrative units shall establish, manage and operate policies for the development of Korean Medicine and Pharmaceutics based on the following basic directions:

1. Ensure the protection and development of its unique characteristics;
2. Lay the necessary foundations for its development;
3. Pursue information-based development of its technology;
4. Implement a systematic management and standardization based on international standards;
5. Undertake the necessary groundwork for the stable production of herbal preparations;
6. Reinforce the international competitiveness of the relevant industries and promote international cooperation;
7. Provide support for the herbal medicine market.

Article 6 (Comprehensive Plan to Foster Korean Medicine and Pharmaceutics)

1. The Minister of Health and Welfare shall establish a comprehensive plan for the development of Korean Medicine and Pharmaceutics ("comprehensive plan") every five years and have it reviewed by the Korean Medicine and Pharmaceutics Development Deliberation Committee in accordance with the following 3 items.
2. The comprehensive plan shall include the following:
   1) The basic objectives and directions necessary for its development;
   2) A system for the provision of support related to the formation of the groundwork for relevant research;
   3) The training for the relevant manpower and instructions on how to use them;
   4) The enhancement of the relevant technology and how to provide support for them;
   5) The globalization of Korean Medicine and Pharmaceutics;
   6) Promotion of the exchange and cooperation with North Korea;
   7) Other items pertaining to its development.
3. The Korean Medicine and Pharmaceutics Development Deliberation Committee shall be established

under the control of the Minister of Health and Welfare for the review of the comprehensive plan. Matters concerning its composition and operation shall be fixed in accordance with the relevant Presidential decree.

4. The Minister of Health and Welfare shall consult with the head of the relevant central Government office prior to establishing the comprehensive plan, if he/she judges that one or more items stated in the foregoing 2 is/are related to the business of such a central Government office.

Article 7 (Establishment and Implementation of Methods for the Promotion of Major Policies)

Once the comprehensive plan is established, the Minister of Health and Welfare and the heads of other related government agencies shall establish and implement a rolling annual plan that is drawn up every year based on the comprehensive plan.

Article 8 (Establishment and Implementation of a Regional Plan in Korean Medicine and Pharmaceutics Development)

1. After the establishment of a long-term policy plan, the heads of local governments shall establish and implement a regional plan regarding Korean Medicine and Pharmaceutics development (herein,'regional plan'), in accordance with the relevant laws and considering the local situations.
2. The heads of the local governments may designate relevant institutions or organizations to implement the regional plan.

Article 9 (Cooperation in Plan Establishment)

1. The Minister of Health and Welfare, the head of the relevant central Government office and the heads of local administrative units may request the cooperation of the relevant institutions or organizations when and if required for the establishment and implementation of the comprehensive plan, as well as the methods required to promote major measures and regional plans.
2. The relevant institutions or organizations stated in the foregoing 1 shall comply with such a request for cooperation unless there is a specific reason.

Chapter III Promotion of Projects for the Development of Korean Medicine and Pharmaceutics Technology

Article 10 (Promotion of R&D Projects for Korean Medicine and Pharmaceutics)

1. Both the central Government and local administrative units shall do their best to encourage R&D in health & industrial technology using Korean Medical services and herbal medicines, and they shall provide support measures that are designed to commercialize Korean Medicine and Pharmaceutics technology and products and to reinforce international competitiveness in the field.
2. To efficiently promote research in Korean Medicine and Pharmaceutics in related technologies, both national and local government agencies must encourage and facilitate joint or collaborative research between industry and academia.
3. Both the central Government and local administrative units shall establish a system of clinical trials and verification for Korean Medical services and Korean Medicine products.
4. Both the central Government and local administrative units may designate relevant institutions or organizations to implement R&D if required for its efficient promotion as stated in the foregoing 1.
5. Both the central Government and local administrative units may provide financial support to the relevant institutions or organizations that implement R&D as stated in the foregoing 4.

Article 11 (Establishment of a Korean Medicine and Pharmaceutics Clinical Center)

1. The Minister of Health and Welfare may establish a Korean Medicine and Pharmaceutics Clinical Center to conduct clinical trials related to Korean Medical services and Korean Medicine products as stated in Article 10, Paragraph 3.
2. The Minister of Health and Welfare may designate a Korean Medical service institution or a similar entity as a Korean Medicine and Pharmaceutics Clinical Center, if so required, for the efficient operation of such a center as stated in the foregoing 1.

Chapter IV Performing the Groundwork for the Korean Medicine Industry

Article 12 (Formation of a Korean Medicine industrial complex)

1. Both the central Government and local administrative units may implement the necessary measures

for the formation of an industrial complex and the provision of the relevant infrastructure for Korean Medicine, or they may provide administrative and financial support to private businesses intending to form such a complex.

2. The Korean Medicine and Pharmaceutics Development Council may be established within the Ministry of Health and Welfare for the efficient formation of a Korean Medicine and Pharmaceutics industrial complex.
3. The formation of an industrial complex and the provision of the relevant infrastructure for Korean Medicine is in accordance with Article 6, Article 7, Paragraph 4 of Article 7, Article 10 to Article 13, Paragraphs 2 and 3 of Article 13, Article 16, Article 17, Article 18, Paragraph 2 of Article 19, Article 20, Paragraph 2 of Article 20, Article 21, Article 26, Article 28, Article 37, Article 38, and paragraphs 2 and 3 of Article 386 in the Act on Industrial Sites and its Developments.
4. Matters pertaining to the support of a Korean Medicine and Pharmaceutics industrial complex and the composition and operation of the Korean Medicine and Pharmaceutics Development Council, as stated in the foregoing 1 and 2, shall be fixed in accordance with the relevant Presidential decree.

Chapter V Improvement of the Quality of Herbal Medicines

Article 13 (Foundation to Promote Herbal Medicine)

1. The Minister of Health and Welfare may establish an Herbal Medicine Promotion Foundation to provide efficient support for the development of the skills of the Korean Medicine pharmacist.
2. The foundation stated in the foregoing 1 shall be a corporation.
3. Matters pertaining to the establishment and operation of the foundation stated in the foregoing 1 shall be fixed in accordance with the relevant Presidential decree.

Article 14 (Criteria for High Quality Herbal Medicine)

1. The Minister of Health and Welfare may establish the criteria for the growing of high quality herbal preparations, as well as the distribution, production and management of herbal medicines ("in accordance with high quality herbal medicine management criteria") if required for proper quality control.
2. The Minister of Health and Welfare may make it obligatory for pharmacies and Korean Medicine

service institutions to use only those herbal preparations and medicines that satisfy the high quality herbal medicine management criteria stated in the foregoing 1.

Article 15 (Improvement of the Quality of Herbal Medicine and Adoption of an Advanced Distribution Method)

1. The Minister of Health and Welfare must design policies to help improve the quality of herbal medicine by impacting different stages of production, from the cultivation of medicinal herb crops to the manufacturing and distribution of herbal medicines, in accordance with the related decrees of the Health and Welfare Ministry.
2. The Minister of Health and Welfare must, furthermore, commission research to assess the current status of the herbal medicine industry and develop policies and programs for improving product quality and the efficiency of the warehousing and distribution systems. The scope of the research must also include policies designed to promote international trade and cooperation in this area.

Chapter VI Supplementary Rules

Article 16 (Governmental Support for Expenses)

The government may provide financial support to local administrative units for part or all of the incurred expenses to implement the regional plan stated in Article 8, provided that the said expenses are within the limits of the budget of the government.

Article 17 (Entrustment of Rights)

The Minister of Health and Welfare may entrust part or all of the rights endowed to him/her under this Act to the head of the relevant institution or organization in accordance with the relevant presidential decree.

Article 18 (Relations with Other Laws)

With the exception of those matters stipulated in this Act, matters pertaining to R&D in the field of

Korean Medicine and Pharmaceutics technology shall be conducted in accordance with the Health and Medical Service Technology Promotion Act.

ADDENDA (No. 6965, 06. Aug, 2003)

This Act shall take effect after one year has elapsed from the time of promulgation.

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