
Advances in Visual Science and Eye Diseases

Series Editor

Ningli Wang
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Advances in Visual Science and Eye Diseases presents the latest progress and achievement made in visual science and eye diseases for eye care health professionals at different links in the chain of eye care delivery including ophthalmologists, researchers, eye care service providers, health policy makers, and medical students.

The series firstly covers major blinding eye diseases, expounding on their characteristics and the latest development in pathogenesis, up-to-date researches and treatment options of the diseases in detail. Then, the series unfolds the pathogenesis, new diagnosis methods, latest surgery techniques, genetic research, animal modelling studies and translational medicine in glaucoma. Next, the series provides an overall picture on 1. the development of ophthalmology in China along with the contribution of Chinese ophthalmologists to the international community from historical perspective and sheds light on its future development directions; 2. eye epidemiological studies and achievements in blindness prevention in China; 3. holistic view on the systematic relationship between the eye and other organs as well as the relationship between eye diseases and systematic diseases. We hope readers can benefit from this series by enriching their latest knowledge in no matter visual science or clinical management of eye diseases.

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Integrative Ophthalmology



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Foreword 1



It is estimated that, except ocular trauma, only 15% ocular diseases are directly resulted from abnormal ocular structure or function, while the remaining 85% are caused by abnormalities in other organs. If an ophthalmologist only focuses on the eyes in the diagnosis and treatment, it means he is trying to cure all diseases with only 15% of his capability, and the consequences will be devastating.

It is difficult for both ophthalmologists and doctors in other departments to understand this conclusion, since we know so little about the pathogenesis of systemic diseases that can cause eye diseases. There is a famous saying that the eye is the window of the soul. In fact, it is the best organ to reflect the health of the entire body. For example, the pale conjunctiva represents anemia of the blood system; the yellow sclera may reflect liver failure; the change of pupil size may indicate foodborne illness. Paying attention to systemic diseases could be conducive to the prevention and treatment of eye diseases. Understanding the systematic factors resulting in ocular lesions and applying them to the treatment and diagnosis in ophthalmology are what integrative ophthalmology is going to do.

Integrative ophthalmology is an important part of holistic integrative medicine. Although the theory of integrative medicine was proposed just recently, its practice has a long history. At the beginning of the Tang Dynasty, a famous doctor named Simiao Sun found that fine diet may lead to beriberi disease, which can be cured by adding bran to the diet, while rough diet may result in nyctalopia, which could be cured by eating pork liver (I don't know if the idiom "Xing Gan Ming Mu" comes from that). At that time, we didn't know that nyctalopia was a result of vitamin A deficiency. If we figured it out at that time, we would definitely win the Nobel Prize, except that at that time, Mr. Nobel was not born yet! So far, numerous eye diseases still remain incurable or have only imperfect treatment options, and some may even become severer after the treatment. The fact is that we know too little about the pathogenesis of many eye diseases. Ocular diseases may be presentations of the abnormalities of the whole body. To understand the pathogenesis of ocular diseases, there is much we need to learn from Mr. Simiao Sun!

Professor Wang is a distinguished ophthalmologist in China. He has many unique insights and exquisite techniques in the field of ophthalmology. What is more valuable is that he is

committed to connecting ocular diseases with the abnormalities of the whole body. He invited many experts other than ophthalmologists to write this book called *Integrative Ophthalmology*. He is also the first pioneer in this aspect and could be regarded as the founder of integrative ophthalmology. This book is just a beginning. It is the first version of *Integrative Ophthalmology*, so it may not be perfect. We know that it is difficult to perceive everything in the world and even harder to link all the things together. However, it doesn't matter; as long as we insist on writing it year after year, we will ultimately get the ideal version of *Integrative Ophthalmology*.

Xian, China
March 20, 2019

Daiming Fan

Foreword 2



When I received this manuscript titled *Integrative Ophthalmology* from Professor Ningli Wang, I was deeply impressed by his talents and his keen grasp of future development and direction of ophthalmology.

I have known Professor Wang for many years, but it was only after I came to Beijing Tongren Hospital in 2012 that I had a better understanding of his work and had the opportunity to work closely with him. Over the past 2 years, he has made great progress as a manager and as the vice president of the hospital, then the director of the Beijing Institute of Ophthalmology, and the secretary of the party committee of the hospital. He is a famous ophthalmologist in China and also serves as the president of the Chinese Ophthalmological Society and has been awarded the title of Academician Fellow of the Academia Ophthalmologica Internationalis. He is also a successful scholar and has been awarded two National Science and Technology Progress Second Class Awards and published SCI articles with an impact factor of more than 20. There are endless amounts of hard work behind such prestigious achievements of Professor Wang, which is also reflected in his ambition and persistence in academics. In him, I see the success and generosity of a medical practitioner, along with the sagacious perception and wisdom of a scholar.

At the annual meeting of the Chinese Medical Association in January 2013, Professor Wang was fortunate enough to hear an excellent lecture on “Holistic Integrative Medicine” by Academician Daiming Fan and Academician Xuetao Cao. He was deeply inspired and caught a glimpse of the key to breaking the bottleneck in the development of ophthalmology.

After the meeting, he approached Academician Fan, eagerly asking him for advice, exchanging idea, and consulting on the literature for the study. Subsequently, under the guidance of Academician Fan, the “First Integrative Ophthalmology Conference” was held in October 2013. Experts from various clinical departments such as ophthalmology, internal medicine, surgery, neurology, radiology, endocrinology, oncology, and gynecology, as well as professors

in biomedical research, were invited to participate in the conference. For the first time, integrative medicine was used to analyze eye diseases from different perspectives, proving the conference to be a huge success. Following this, in June 2014, the “First Integrative Glaucoma Conference” was organized by the Chinese Ophthalmological Society and the Beijing Ophthalmological Society. This conference further discussed glaucoma with diagnosis and treatment strategies in integrative medicine. After obtaining the agreement of the experts who attended both conferences, Professor Wang decided to invite experts who resonated with his work to participate in and publish their conclusions in a book titled *Integrative Ophthalmology*, which is an academic report as well as an open-minded inquiry that sums up the two academic conferences in about 400,000 words, indicating Professor Wang’s keen academic vision and wisdom.

The essence of *Integrative Ophthalmology* is to study the systemic factors that cause eye diseases and apply them to the diagnosis and treatment of eye diseases. It not only is the integration of traditional and modern medicine but also conveys the essence of the profound culture-based traditional medicine in our country.

Furthermore, it is also an integration of ophthalmology and other medical disciplines, as well as a practice that is worthy of reference for other professional disciplines. The book will have a positive impact on the promotion of ophthalmology. In this work, we may understand more of integrative ophthalmology, the philosophies behind such a writing process, and even the makings of a successful scholar or may begin to contemplate the necessary correlation between integrative medicine and other disciplines. If you’ve set your mind to accomplish something and are willing to pair it with coherent thinking, this book will be a great learning tool for you.

Beijing, China
March 20, 2019

Jixiang Wu

Preface



At the annual meeting of the Chinese Medical Association in January 2013, I had the honor to listen to the wonderful lectures on “Holistic Integrative Medicine” delivered by Academician Daiming Fan and Academician Xuetao Cao. Enlightened by their speeches, I realized the thinking mode of holistic integrative medicine might be the key to breaking the bottleneck in the development of ophthalmology. Therefore, I eagerly consulted Academician Fan right after the meeting and read related literature to gain a better understanding of this concept. Later, under his guidance, we held the “First Integrative Ophthalmology Conference” in October 2013.

At the meeting, Academician Fan illustrated the theory of integrative medicine with clear outline, interspersing with extensive quotations as well as witty remarks, and won applause from all the participants; experts on ophthalmology, internal medicine, surgery, neurology, radiology, endocrinology, oncology, and gynecology; as well as professors in biomedical research. For the first time, ophthalmology was discussed from different perspectives with the thinking mode of integrative medicine. The meeting was a complete success and prompted the Chinese Ophthalmological Society and the Beijing Ophthalmological Society to organize the “First Integrative Glaucoma Conference” in June 2014, which further elaborated the integrated diagnosis and treatment strategies of glaucoma. With the consent of attendees, the book, *Integrative Ophthalmology*, a compilation of discussions presented at the previous two conferences, was finished with the joint effort of our team and those who have passion in promoting the development of integrative ophthalmology.

Through nearly 1 year’s exploration, combined with the enlightenment from applying the thinking mode of integrative medicine in digestive and psychiatric departments, we set the definition of “integrative ophthalmology” (IO) as the pathogenesis, treatment, or specific problems of long-term subdivided eye diseases which should be investigated, studied, and analyzed systematically and holistically and should be adjusted and sublimated considering the impact of the society, environment, and mental state, so as to make it a new system more suitable for the treatment of ophthalmology.

The book consists of nine parts. The first part is an introduction, which discusses the definition and thinking mode of integrative medicine and integrative ophthalmology in detail. The

second part, intracranial and intraocular pressure gradient-related diseases, systematically integrates and discusses the diseases related to the brain and eyes. The third part expounds the relationship between eye diseases and the factors associated with life activities such as circadian rhythm, physiopathology, exercise, environment, and mental state. The fourth to ninth parts, respectively, carries out integrative analysis on systemic tumors and eye tumors, cardiovascular disease and eye disease, internal medicine and eye disease, immune system and eye disease, surgery and eye disease, gynecology, obstetrics, and eye disease.

This book is the first of its kind to apply the thinking mode of integrative medicine to ophthalmology, while some parts of this book might not be able to express the essence of integration. We could not pursue perfection in the first time but will do it in continuous enhancement and progress. Therefore, in this book, some parts will be inspiring, while some parts will be inadequate which we hope will be refined in the second and third editions.

The process of improvement and optimization of the book is also the process of popularization and application of integrative ophthalmology. I believe that integrative ophthalmology is the key to the development of ophthalmology.

Beijing, China
March 20, 2019

Ningli Wang

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