In the past 8 years since this book appeared, it is now being recognized globally that vitamin D deficiency is one of the most if not the most prevalent nutritionally related medical condition in the world. The major reason for this is the lack of appreciation that there is very little vitamin D present either naturally or in fortified foods from dietary sources and that it is exposure to sunlight that has been and continues to be the major source of vitamin D for both children and adults worldwide. Vitamin D deficiency will not only prevent children from attaining their genetically programmed maximum height but will also put them at increased risk for having a lower peak bone density as well as increased risk of fracture later in life. In utero, vitamin D deficiency not only increases the risk of the mother having preeclampsia and a caesarian section for birthing but increases the infant’s risk of wheezing disorders. Vitamin D deficiency during childhood is thought to increase risk of the child developing type I diabetes, multiple sclerosis, rheumatoid arthritis, and Crohn’s disease later in life. Vitamin D deficiency in adults not only will cause osteopenia and osteoporosis but increase risk of many deadly chronic diseases including common cancers, autoimmune diseases, heart disease, stroke, and infectious diseases.

As noted in the first edition of this book, vitamin D is a truly remarkable as it is both an essential nutrient and hormone that has a wide variety of biologic effects on the human body that are important for health. The reason that vitamin D plays such a crucial role in maintaining health is in part due to the fact that vitamin D receptors are present in every tissue and cell in the body. It is also known that once vitamin D is made in the skin or obtained from the diet, it undergoes sequential activation steps in the liver to 25-hydroxyvitamin D and kidney to 1,25-dihydroxyvitamin D before it can act on its vitamin D receptor in target tissues. 1,25-Dihydroxyvitamin D not only regulates calcium metabolism, but interacts with its receptor in various cells to regulate cell growth, insulin production, renin production, modulates immune function, and enhances the destruction of the infectious agents and is important for vascular tone and myocardial function.

The goal of the second edition of this book is to provide the reader with a global appreciation of how common vitamin D deficiency is in the world. It explores how vitamin D is able to maintain not only skeletal health but prevent serious chronic diseases. The book also provides a roadmap for how to evaluate patients with vitamin D deficiency and how to appropriately treat them.

As a result of a mountain of new information about the health benefits of vitamin D, the book has been expanded substantially to include many new topics including several chapters identifying vitamin D deficiency epidemics in Asia, Africa, Europe, and the United States. New chapters on the role of vitamin D in preventing type I diabetes, wheezing disorders in young children, cardiovascular disease, type II diabetes,
infectious diseases, and cancers have been added to this book. As a result, the number of chapters in this book has more than doubled from the original 25 to 59 chapters.

The inspiration for the second edition of the Vitamin D: Physiology, Molecular Biology and Clinic Aspects came not only from discussions with medical students, house staff, health-care professionals, internists, dermatologists, basic scientists but also from my interaction with the lay press and from my global travels in response to invitations to provide the latest information concerning the growing vitamin D deficiency epidemic. The second edition brings together leading world experts in various aspects of vitamin D; the same experts who are not only doing cutting edge research in the field of vitamin D, but many are clinicians—scientists who see patients with vitamin D deficiency and all of the serious ramifications. The book is designed and organized not only to be an up-to-date review on the subject, but also to provide medical students, graduate students, health-care professionals, and even the lay public with a reference source for the most up-to-date information about the vitamin D deficiency pandemic and its clinical implications for health and disease. It is hoped that this book will not only stimulate new interest regarding the vitamin D deficiency pandemic, but ignite a grassroots effort to eliminate this insidious deficiency by encouraging worldwide food fortification programs with vitamin D and to educate the public and health-care professionals about the beneficial effect of sensible sun exposure as a major means for satisfying the body’s vitamin D requirement.

ACKNOWLEDGMENTS

I am grateful to all of the hard work and efforts that were made by all of the contributing authors. My thanks to Lorrie Butler and the staff at Humana/Springer for all their help in organizing the book. A special thanks to Dr. Adrianne Bendich, Ph.D, for her helpful comments, guidance, and insightfulness in being series editor of the outstanding Nutrition and Health series.