

# Preface

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Although the influence of nutrition on health is obvious, its critical role in the care of patients is not as widely recognized. In caring for patients, more attention is often paid to the role of drug therapy. The field of clinical nutrition actually overlaps with the field of pharmacotherapy at several points, but none more clearly than at the interaction of drug and nutrient. A drug–nutrient interaction is considered the result of a physical, chemical, physiologic, or pathophysiologic relationship between a drug and nutrient(s)/food that is deemed significant when the therapeutic response is altered or the nutritional status compromised. We felt that a current reference book on this subject was long overdue, so we have put together this *Handbook of Drug–Nutrient Interactions*.

The handbook is intended for use by physicians, pharmacists, nurses, dietitians, nutritionists, and others, in training or in clinical practice, to better manage drug–nutrient interactions in their patients. This topic is particularly timely with so much attention being paid to the issue of patient safety in the current health care delivery system. Although a number of manuals exist that provide extensive lists of documented and potential drug–nutrient interactions, this handbook takes a scientific look behind many of those interactions, examines their relevance, gives recommendations, and suggests specific areas requiring research. This handbook provides clinicians with a guide for use in understanding, identifying, or predicting, and ultimately preventing or managing significant adverse drug–nutrient interactions to optimize patient care. We hope this handbook challenges clinicians to become more aware of potential drug–nutrient interactions, document them regularly, and carry out research projects to clarify their mechanisms and clinical significance. Much more needs to be known about drug–nutrient interactions than is currently appreciated. Some topics have yet to amass enough information to allow inclusion in a chapter; others are as yet unanticipated. For example, how long will it be before genetic engineering allows relatively inexpensive production of certain pharmaceuticals by plants? Without placing a value judgment on that notion, it becomes clear that the issue of drug–nutrient interactions has moved past the problems of how to time drug administration around meals.

The book begins with a perspective on the topic (Chapter 1), and is followed by overviews of drug disposition, nutrient disposition, and enzyme systems involved in both drug and nutrient metabolism (Chapters 2–4). These chapters allow the reader, regardless of discipline, to gain a sense of the topic and the underlying foundation that is needed in the remainder of the book. Two chapters discuss the effect of nutritional status on drug disposition and effect (Chapters 5–6), a topic often overlooked. The next group of chapters discusses the influence of food, nutrients, and non-nutrient dietary components on drug disposition and effect (Chapters 7–12). Given the widespread use of dietary supplements, interactions with drugs and with nutrients by this diverse group of substances—some of which behave more like drugs than nutrients—these chapters are most relevant. The influence of medications on nutrient status is presented both generally and in regard

to specific groups of drugs or nutrients (Chapters 13–17). Another set of chapters discusses drug–nutrient interactions that are relevant to various stages of the life cycle or to specific patient groups or conditions (Chapters 18–26).

There is no one best way to approach drug–nutrient interactions, and we have included some topics not typically considered in such a presentation. Clearly, not every documented drug–nutrient interaction identified in vitro, ex vivo, in animal models, or in human studies is covered. Not discussed are the sequential interactions between nutrients, disease and drugs (e.g., micronutrients impacting HIV disease, which then influences drug disposition). One multifaceted topic deserving of discussion, but not included, is the set of interactions involving parenteral nutrition, in terms of both the effect on drug disposition and the impact of each nutrient or combination of nutrients on each other and on concurrently infused drugs. However, parenteral drug–nutrient interactions could fill an entire book. Overlap is almost unavoidable in a book on drug–nutrient interactions, but we have tried to avoid major sections of redundancy. For example, although the chapter on interactions involving folate mentions the antiepileptics, a chapter entirely devoted to antiepileptic interactions follows. Similarly, the interactions involving grapefruit juice are touched on in several chapters, but a more in-depth discussion is reserved for the chapter dedicated to that topic. The more detailed chapter on the elderly is in part related to the historic relevance of drug–nutrient interactions in this group.

What we have attempted to provide is a bit more than a listing of common interactions. The authors, some having spent many years with their subject matter, provide a framework for understanding many of the more common, and some less common, drug–nutrient interactions, including the mechanisms and clinical approaches to their management. We hope that this *Handbook of Drug–Nutrient Interactions* helps make the case that the issue of drug–nutrient interactions is a significant one for clinicians and researchers alike. We are grateful to the authors for their work, and excited about this compilation, although we are looking forward to new information on drug–nutrient interactions as it continues to emerge. We would welcome comments from readers that will help improve the breadth, depth, and quality of this book and the care of patients.

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