

# Preface

This text attempts to provide a clear and straightforward account of the biochemistry underlying the physiological functions of different cells, tissues or organs essential for human life. The approach highlights the contribution that functional biochemistry makes to health and, when it is disturbed, to ill health and disease. It attempts to link biochemistry, medical education and clinical practice. Structural biochemistry and molecular biology are kept to a minimum in favour of a focus on the dynamic aspects of biochemistry and its immediate importance for health.

Unfortunately, in many medical or biomedical programmes, biochemical education has been reduced to the presentation of basic facts. It is the aim of this book to provide the link between these facts and medical practice to achieve a more complete biochemical education. Each topic is presented in one complete section or one chapter, which can be studied independently, unencumbered by extraneous material. Nonetheless, cross-references between topics are emphasised to help the student appreciate the common biochemical principles underlying health and disease.

Both authors and the editorial assistant have collaborated on each chapter; there have been no other contributors. Since the authors are not expert in all areas, much research in journals, reviews and books has been undertaken. The challenge faced has therefore been the same as that faced by every student entering a field for the first time and for this reason the authors hope to have been better placed to clarify the biochemistry which underlies physiology and pathology.

Background material necessary to tackle the core of each topic is provided in the introduction to each section or chapter. Students, including graduates, who are entering courses in medicine or the biomedical sciences, and who have limited knowledge of biochemistry, physiology or pathology, should find these introductions of particular value. Our approach should also help students who are

taking courses which involve problem-based learning or who are preparing seminars. We hope, too, that it might be of use to physicians, surgeons and academics in understanding the biochemical background of illness and disease and help them to prepare lectures, reports and grant applications.

The manner in which biochemical and physiological knowledge and ideas are presented should help the student to develop the skills of critical analysis, debate issues and even challenge some of the dogmas in biomedicine. Such opportunities are not always available when there is overdependence on electronic sources of information.

The topics covered in this book are presented in five Sections:

- Introduction
- Essential topics in dynamic biochemistry
- Essential metabolism
- Essential processes of life
- Serious diseases

Problems of ill health are discussed in most of these Sections, including fatigue, allergies, nutritional deficiencies, AIDS, chronic fatigue syndrome, Creutzfeldt-Jacob disease, malaria, neurological and eating disorders, tuberculosis, cancer and the deadly trio: atherosclerosis, hypertension and heart attack. The conditions of obesity, diabetes mellitus and disorders of fat metabolism are included in the on-line Appendices to allow full discussion and the clarification (and correction) of important aspects. The Appendices can be found on the companion website for the book – visit [www.wiley.com/go/newsholme/biochemistry](http://www.wiley.com/go/newsholme/biochemistry). The reader will also find here a compilation of the book's figures and a full list of the References referred to throughout the text.

Eric A. Newsholme  
Tony R. Leech