physiology is broad; it covers more than the pulmonary aspects and contrasts acute and chronic mountain sickness and adaptations. The immunology chapter revisits some of the topics covered in the first few chapters on the anatomy and ultrastructure.

Three chapters are devoted to disease processes. The one on acute lung injury (Chapter 19) briefly (in just 14 pages) discusses pathology, clinical presentation, and therapy, although the bibliography is extensive. Asthma and emphysema are the only diseases that have their own chapters. The one on asthma discusses from genetics to therapy, based on the accumulated knowledge of the inflammatory process. For emphysema the discussion ranges from epidemiology to animal models, and ends with a model of how the lung may respond to disease. Other disease processes are not discussed specifically, although they are mentioned in other chapters; for example, the chapter on exercise discusses the response in restrictive lung disease, and the last chapter discusses some restrictive diseases such as asbestosis and silicosis.

The last chapter, "Inhaled Noninfectious Toxicants and Their Effects on the Lung," covers the physics and physiology of particle deposition and briefly discusses various occupational lung diseases.

The strength of the book lies in its novel organization; however, that organization could be confusing to a novice. It would be a great resource for a student researching a topic, because of the extensive bibliographies in most (but not all) of the chapters.

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Mechanical Ventilation and Weaning. Jordi Mancebo MD, Alvar Net MD, and Laurent Brochard MD, editors (Update in Intensive Care Medicine, Jean-Louis Vincent MD PhD, series editor). Berlin: Springer-Verlag. 2003. Soft cover, illustrated, 378 pages, $49.95.

Many concepts in mechanical ventilation have evolved a great deal in the last 10 years. One of the most controversial subjects is weaning from and discontinuation of mechanical ventilation, about which our knowledge is nebulous at best, with several articles showing conflicting results. Weaning is considered more an art than a science, with most clinicians determining for themselves what works best.

Most of the book's contributors are very well known in the field of mechanical ventilation. Since many of the studies on mechanical ventilation and weaning have come from across the Atlantic, it is only appropriate that 24 of the book's 38 contributors are from Europe.

The book's contents are divided into: general aspects of mechanical ventilation; pathophysiology of weaning (including conditions leading to weaning failure); and recommendations on how to wean patients. The section addressing general aspects of mechanical ventilation includes a description of assisted modes of mechanical ventilation, and both established ventilation modes (controlled modes) and novel approaches such as proportional assist ventilation, tracheal gas insufflation, and closed-loop systems.

The section on pathophysiology of weaning failure discusses the imbalance between capacity and load, enumerating various conditions that affect capacity and load. The reasons for weaning failure encompass critical illness polyneuropathy and myopathy, and there is a section on cardiac failure unmasked by the weaning process. Also discussed are the role of tracheostomy in facilitating weaning and reducing the work of breathing imposed by the endotracheal tube.

The data on weaning, relevant to the clinical setting, are presented in a very cogent manner. Balancing the risks of premature extubation with the risks of prolonged intubation, and the respiratory indices of weaning, with their interpretative criteria and limitations, are put in context. A separate chapter deals with the causes and interpretation of rapid, shallow breathing.

The book's discussion of the importance of recognizing patient-ventilator asynchrony in various clinical states and strategies to alleviate patient-ventilator asynchrony form the basis for the discussion of initiating weaning. As much as 40% of the time on mechanical ventilation is spent on weaning. The chapter discussing the aggressive and conservative approach on when to start weaning and how to proceed with weaning is, therefore, pertinent. There is considerable controversy about the best technique for ventilator weaning, and this is put in perspective by comparing pertinent prospective, randomized, controlled trials. Appropriate clinical algorithms to facilitate discontinuation of mechanical ventilation and extubation are discussed in depth. The contribution of nonphysician health care professionals in implementing weaning algorithms is stressed. A description of noninvasive positive-pressure ventilation and its rather controversial role in facilitating weaning and extubation is elaborated. This is followed by discussion of the expanded role of noninvasive ventilation on breathing pattern, gas exchange, work of breathing, and nosocomial pneumonia.

The book is designed to be an exhaustive review of the science of weaning. Whenever possible, it uses physiologic principles to elucidate mechanisms and clarify concepts. The chapters are very pertinent and are designed to be useful in clinical practice. The presentation of data is meticulous and uses evidence-based principles. Most of the chapters are less than 20 pages, which makes it easy to assimilate the topic. Most of the graphs and tables are self-explanatory and easy to comprehend.

The discussion is relevant to and complements the American College of Chest Physicians' evidence-based guidelines for weaning and discontinuing ventilatory support.[1] Controversial topics are objectively discussed, with the contributors' opinions frequently expressed.

The book is designed for pulmonologists, intensivists, and respiratory therapists who have a good fund of knowledge in pulmonary physiology. Some of the chapters rely on principles of physiology to discuss the topic and thus make for difficult reading. There are a few grammatical and editing errors, and unconventional wordings such as "exacerbated chronic respiratory failure," and "as much as 40% of the time under mechanical ventilation was related to weaning," and "making weaning as 'delicate' as possible." However, in general the chapters are written well.

I enjoyed reading the book and found it useful in my clinical practice.

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REFERENCE

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