

should have asked patients with chronic lung disease which profession above all others has educated, treated, and encouraged them to live?

The chapter "Special Challenges" covers a topic of great interest to patients with chronic lung disease and their families, especially: "the Vicious Cycle of Dyspnea." The illustration makes a wonderful presentation of the cycle. In turning the page, however, we find page 342 of the index, not page 242, which would have been a continuation of the discussion on seasonal affective disorder and whatever the next topic was.

Another topic important to the target audience is traveling with oxygen equipment. This section should have received a more prominent place in the chapter, rather than being behind the section on consumer fraud. Diet and nutrition are topics of interest to most people and need to be addressed when caring for someone with any disease process. The authors cover several dietary plans directed more at the person with or trying to prevent cardiac disease. On a couple of occasions the authors mention the idea of nutritional snacks for patients with COPD. A list of suggested types of snacks would have been helpful.

The chapter on emergencies is a quick reference to first aid. Putting the topics in alphabetical order might have made this resource more user-friendly. A concern about the book's suggested handling of shortness of breath was the directive to increase the oxygen liter flow.

Being a caregiver is physically and emotionally demanding, and the authors comprehensively cover both aspects. Part II ends with a chapter on body mechanics for the caregiver. The illustrations and step-by-step instructions are well written. The emphasis on the caregiver was well deserved and could have been amplified by moving the section on caregiver burnout to this same position in Part II. The analogy of caregiving to a race was used throughout the chapter. The suggestions made were simple and augmented by highlighted "tip windows." Author Derr's personal experience as a caregiver assisted this chapter and is a wonderful addition to the guide. The authors mention in the acknowledgments that portions of the book were taken from previous books in the series. This was evident throughout the text, but especially in the section "Respite Time," which uses the word "survivor." Obviously,

some modification of those borrowed passages should have been made.

Part III includes a list of common abbreviations. Medical professionals often speak and write with acronyms, which can be confusing and limit a patient's understanding of the disease process. Some of the acronyms used in the text are not included in the list.

The section "Caregiver Organizations" is a wonderful resource for additional help; it supplements the chapter-by-chapter resource guides that make this book valuable to the caregiver. I think many readers will find the last section, "Glossary," to be their "caregiver bible." The definitions provided are clear and easily understandable and will take some of the mystery and fear out of medical jargon.

This book meets the goals of the authors and the mission of CareTrust Publications, and it meets a caregiver's need for a general resource. However, the specific challenges faced by and the specific information needed by the caregiver of a person with a chronic lung disease would not possibly have been missed had the authors utilized respiratory therapists to review the manuscript.

**JoAnn P Hurd RRT RPSGT
CPFT AE-C**

Chicago Sleep Group
Suburban Lung Associates
Elk Grove Village, Illinois

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Manual of Pulmonary Function Testing, 9th edition. Gregg L Ruppel MEd RRT RPFT FAARC. St Louis: Mosby Elsevier. 2009. Soft cover, illustrated, 512 pages, \$59.95.

Many textbooks enjoy short runs of popularity in respiratory therapy and pulmonary medicine, but only a few span the careers of several generations of clinicians. First published in 1975, Ruppel's **Manual of Pulmonary Function Testing** is one such textbook. It is a "must-have" for respiratory

therapy students, pulmonary function test (PFT) laboratories, and anyone preparing to take the National Board for Respiratory Care PFT examinations. I began my training in respiratory care one year after the publication of the 4th edition (which is still on my bookshelf), and it is an honor to review such a distinguished and important book.

Key components of the book's successful format have carried over to the 9th edition, including learning objectives, interpretive strategies, case studies, and tests for each chapter, which are divided into entry-level and advanced-practitioner categories. Ruppel's changes and additions to the 9th addition were prompted by reader input and in response to evolutionary changes in the field of pulmonary medicine, including American Thoracic Society/European Thoracic Society guidelines, office-based spirometry, and exhaled gas analyzers (eg, nitric oxide). In addition, online learning materials are available at Elsevier's *Evolve* Web site (<http://evolve.elsevier.com>).

Aesthetically, this is a very nice book. It includes 229 illustrations, which successfully depict the intended teaching points. The photographs are in black-and-white, but this does not distract. The index and glossary are comprehensive and useful. The appendices provide predicted regressions and pulmonary function equations.

Each of the 11 chapters begins with a chapter outline, a list of learning objectives for entry-level and advanced practitioners, and key terms. One of my favorite features is the "PFT Tip" teaching vignettes, which offer important insights. Each chapter ends with a bullet-format summary, case studies, self-assessment questions, and a selected bibliography. I prefer textbooks that are referenced in the style of journal articles, and I think this book would be improved by incorporating that format. Throughout the book the writing style is concise and intelligible; however, there are some areas where the text is redundant to the point of distraction. For example, pages 173 and 174 repeat the elementary fact that respiratory frequency can be derived from capnography.

Chapter 1, "Indications for Pulmonary Function Testing," would be more appropriately named "Introduction to Pulmonary Function Testing," since the chapter's content includes not only indications for PFT but also a well organized overview of the types of tests, preliminaries to testing, report layouts, and technologist-adapted protocols.

Chapters 2 through 6 cover the most common tests in PFT laboratories, including spirometry, lung volume determination, basic measures of ventilation, ventilatory control tests, diffusion capacity of the lung for carbon monoxide, and blood gases. As one might expect from Ruppel and this book's contributors, the reader will find all the essential information about the physiologic basis, performance, critique, and interpretation of these core PFTs. That said, there are a few statements that are not completely accurate. All the inaccuracies I found were in the realm of pathophysiology.

For example, Chapter 2 states that a "reduction in inspiratory capacity is consistent with restrictive defects"; however, it should be pointed out that reduced inspiratory capacity is a very important feature of obstructive diseases, such as emphysema.¹ Chapter 2 also states that "obstruction is characterized by a reduction of maximal airflow at all lung volumes." That is not completely accurate, because many patients with obstruction can have normal forced expiratory flow at the start of the maneuver (ie, near the total lung capacity), but the flow rapidly drops below the expected rate as the maneuver continues. There is mention made of that possibility, but not until 12 pages later.

In Chapter 3, case study 3-3 refers to a 9.2%, 100-mL increase in the forced expiratory volume in the first second (FEV₁) as clinically unimportant; however, many patients with chronic obstructive pulmonary disease have clinically important improvements in dyspnea with little or no change in FEV₁.² Perhaps "statistically insignificant" would be a more appropriate description of such FEV₁ changes. It is not clear whether the case studies are real or fictional. I mention this only because case 6-2 describes a

patient with hemolytic anemia, a hemoglobin of 7.4 g/dL, and a concomitant carboxyhemoglobin of 0.3%, which is highly unusual, because hemolysis to the extent that it causes severe anemia should increase carboxyhemoglobin as a consequence of heme breakdown by heme oxygenase.³

Chapter 7 provides an excellent review of the fundamentals of cardiopulmonary exercise testing. This topic can be overwhelming for students and practitioners alike, and I applaud contributor Mottram for explaining a very complex arena of testing with such intelligibility. As pointed out in the preface, readers are encouraged to continue their learning by utilizing the chapter bibliographies. This advice is particularly applicable to this chapter, because Mottram's clear description of the fundamentals of cardiopulmonary exercise testing is made at the cost of little discussion of its intricacies. For example, on page 211 the anaerobic threshold is described to "occur when the energy demands of the exercising muscles exceed the body's ability to produce energy by aerobic metabolism." However, the anaerobic threshold is a complex, poorly understood concept that involves lactate accumulation and can occur even in the presence of abundant intracellular oxygen.⁴

Chapters 8 and 9 review pediatric testing and specialized test regimens (eg, bronchial challenge, exhaled nitric oxide) and provide concise information about testing situations that may not be commonly encountered in many laboratories, which makes this a great book for quick reference.

Chapters 10 and 11 review PFT equipment and quality-control in the PFT laboratory. Ruppel's writing style, insight, and organizational skill make these sometimes ponderously dull topics interesting and even fun to read. I am particularly fond of the

concise, coherent descriptions of how the different pneumotachographs operate. The chapter on quality-control should be mandatory reading for anyone working in or managing a PFT laboratory.

This is a "must-have" book for anyone performing or interpreting PFTs. The \$59.95 price is a bargain, given the wealth of information contained within. I echo the advice from Enright in the book's foreword: "Take this book home and read it chapter by chapter for the first time. Then take it to your office and keep it as a reference."

Jeffrey M Haynes RRT RPFT

Department of Respiratory Therapy

St Joseph Hospital

Nashua, New Hampshire

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