

BOOK REVIEW

BIOMECHANICS: PROBLEM SOLVING FOR FUNCTIONAL ACTIVITY

Susan L. Roberts and Sharon A. Falkenburg

Mosby-Year Book Inc., 1992, St. Louis, MO. 194 pp. \$23.95.

Biomechanics: Problem Solving for Functional Activity was written for occupational therapists. It is a comprehensive text on biomechanics principles and their application to the human body. Roberts and Falkenburg have designed this book so that it elucidates biomechanical concepts and their application to functional activity.

The book is divided into four parts. Part one is an overview of the philosophy of biomechanics. It is presented as a frame of reference used in occupational therapy practice as it relates to the musculoskeletal system. One chapter reviews the layout of the book, guiding the reader through each of its chapters and explaining how to use it. Part two is devoted to vocabulary and basic concepts. It offers a brief review of anatomical terms that describe position and movement of the nervous and musculoskeletal systems. Concepts from physics that apply to human movement are also described, including terms of measurement and relationship. Part three presents the grammar of biomechanics. This includes a comprehensive description and illustration of gravity, force, torque, and problems of movement and force equilibrium. Part four reviews the application of

biomechanics to the human body including head and trunk, the upper extremity, and the lower extremity. Each of these body segments is presented with its anatomical composition, movement ranges, and functions. These concepts are further illustrated with sample problems and solutions specific to each body segment. These chapters are followed by a list of appendixes that briefly review mathematics, trigonometric functions, body segment parameters, English and metric equivalents, commonly used biomechanic formulas, occupational standards and guidelines, and anatomy.

Roberts and Falkenburg's book gives the reader a step-by-step approach to understanding biomechanics as it relates to functional activity. The structure and progression of the book make for a logical and easy-to-follow text. The authors' use of practice problems to illustrate concepts and ideas helps to give the reader a practical and clear understanding of the material presented. In addition, readers are guided through the solution of these problems, which enables them to learn and apply these biomechanical principles with greater understanding. Catherine A. Trombly comments in this book that "Roberts and Falkenburg have made a major contribution to the advancement of occupational therapy by capturing into the practice of occupational therapy the physical and mathematical concepts that underlie the 'rules of practice' and the mechanisms that underlie normal neuromusculoskeletal function."

Carl M. Bettencourt, OTR/L