

# Book Review

**Clinical Mechanics of the Hand, 3rd ed.** Paul W. Brand, Anne M. Hollister. St Louis, MO: Mosby, 369 pp.

*Clinical Mechanics of the Hand* is intended for clinicians. The hand therapist and the hand surgeon will find the text invaluable. In addition, the authors' approach to functional anatomy of the hand and the upper extremity will surely spark the interest of students of static musculoskeletal anatomy. Medical students will better appreciate the hand's beauty and function after reading the chapter on the mechanics of individual muscles.

The first chapter, which involves terminology, is simplistic and uses nonengineering terms. The physical analogies are at times misleading, especially when the concept of elasticity is conveyed using the rubberband as an example. Nevertheless, the authors must be credited for simplifying various difficult concepts, including stress, strain, and viscoelasticity.

Some of these concepts are reinforced in a chapter on mechanical resistance. Tribologic principles, including the concept of hydrodynamic lubrication, are further presented in lay terms. Moment arms are discussed intelligently, both in terms of mechanical advantage about an axis and also with regard to stability about a particular joint.

The biological response of transferred tendon units, the appropriateness of most commonly used tendon transfers, and the underlying controversies are consistently reinforced throughout the entire text. The Blix curve, the movement of the hand and upper

extremity joints, the axes of motion, and the degrees of freedom are all addressed in appropriate detail.

The chapters on external stress includes the appropriate use of surface tourniquets, the dangers of digital tourniquets, and the adverse mechanics of inappropriate splinting. Proper fabrication techniques for dynamic splints and static progressive splints are further addressed. The section on hand stiffness and adhesions is a practical guide to all surgeons who perform tendon transfers. The practical acts of surgery, such as thorough dissection of the donor motor, atraumatic tunneling methods, and proper suture techniques, are reinforced and elegantly described.

Commonly used tendon transfers for lower and upper motor neuron lesions are addressed in the chapter on the procedures used to restore balance to the hand. Throughout the text, however, the authors consciously make an effort to introduce insightful clinical knowledge with regard to the surgical procedures. A young hand surgeon in training will find the information invaluable, whereas the seasoned veteran will be able to better appreciate what went wrong or why it worked in light of the clinical mechanics presented. In short, the authors successfully present practical information derived both from extensive clinical experience and a thorough literature review.

*Sanjiv H. Naidu, MD, PhD*  
*Orthopaedics and Rehabilitation*  
*MC H089*  
*PO Box 850*  
*Hershey, PA 17033-0850*