Mechanical Engineering

PRINCIPLES OF BIOMECHANICS

RONALD L. HUSTON

Research and study in biomechanics have grown dramatically in recent years, to the extent that students, researchers, and practitioners in biomechanics now outnumber those working in the underlying discipline of mechanics itself. Filling a void in the current literature on this specialized niche, **Principles of Biomechanics** provides readers with a solid grasp of the fundamentals and the enabling procedures of this rapidly expanding field, placing a sharp focus on dynamic phenomena in the area of whole-body biomechanics.

Beginning with a review of gross human anatomy and a summary of basic terminology, the book emphasizes biodynamic modeling and the analysis of human body models. Topics covered include:

- Various methods of analysis, including elementary mathematics, elementary mechanics, and the fundamental concepts of the mechanics of materials
- The modeling of biosystems, tissue biomechanics, biodynamics, kinematics, kinetics, and the inertial properties of human body models
- Sample applications of biodynamic models in activities such as lifting, maneuvering in space, walking, swimming, and crash victim simulation

With numerous professionals in a range of areas entering this field daily, there is a pressing need for a book that captures for a wide audience the principles of biomechanics analysis. Readily accessible to those with only a basic background in engineering fundamentals, mathematics, and physics, this text enables readers to understand virtually all areas of human body dynamics ranging from simple movements to optimal motions to accident victim dynamics.

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