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Nota di contenuto	Introduction -- Bone Composition, Metabolism and Bone Disease -- Bone Imaging for Osteoporosis Assessment -- Bone Density and Mechanical Property -- Multilevel Biomechanics of Hip Fracture -- Risk of Fall -- Low-Trauma Accident Fall and Impact Force -- Finite Element Modeling of Femur Stresses/Strains Induced by Impact Force -- Measurements of Hip Fracture Risk -- Preliminary Clinical Studies.
Sommario/riassunto	Fall-induced hip fracture is an epidemic health risk among elderly people. This book presents an image-based multilevel modeling approach to understanding the biomechanics involved in fall-induced hip fracture. By hierarchically integrating a body-level dynamics model, a femur-level finite element model, and a local bone failure model, the biomechanics approach is able to simulate all stages in sideways falls and to incorporate all biomechanical variables affecting hip fracture. This book is useful for clinicians to accurately evaluate fracture risk, for biomechanical engineers to virtually test hip protective devices, and for

biomedical students to learn image-based biomechanical modeling techniques. This book also covers: Biomechanical viewing on bone composition, bone remodeling, and bone strength Bone imaging and information captured for constructing biomechanical models Bone mechanical testing and mechanical properties required for biomechanical modeling .