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Nota di contenuto	Biological Mechanics of the Heart Valve Interstitial Cell -- Endothelial Mechanotransduction -- The Role of Proteoglycans and Glycosaminoglycans in Heart Valve Biomechanics -- On the Unique Functional Elasticity and Collagen Fiber kinematics of Heart Valve Leaflets -- Tricuspid Valve Biomechanics: A Brief Review -- Measurement Technologies for Heart Valve Function -- Calcific Aortic Valve Disease: Pathobiology, Basic Mechanisms, and Clinical Strategies -- Remodeling Potential of the Mitral Heart Valve Leaflet -- Molecular and Cellular Developments in Heart Valve Development and Disease -- Mechanical Mediation of Signaling Pathways in Heart Valve Development and Disease -- Tissue Engineered Heart Valves -- Decellularization in Heart Valve Tissue Engineering -- Novel Bioreactors for Mechanistic Studies of Engineered Heart Valves -- Bioprosthetic Heart Valves: From a Biomaterials Perspective -- Computational Modeling of Heart Valves: Understanding and Predicting Disease --

Biomechanics and Modeling of Tissue-Engineered Heart Valves --
Fluid–structure interaction analysis of bioprosthetic heart valves: the
application of a computationally-efficient tissue constitutive model --
Towards Patient-Specific Mitral Valve Surgical Simulations.

Sommario/riassunto

This book covers the latest research development in heart valve biomechanics and bioengineering, with an emphasis on novel experimentation, computational simulation, and applications in heart valve bioengineering. The most current research accomplishments are covered in detail, including novel concepts in valvular viscoelasticity, fibril/molecular mechanisms of tissue behavior, fibril kinematics-based constitutive models, mechano-interaction of valvular interstitial and endothelial cells, biomechanical behavior of acellular valves and tissue engineered valves, novel bioreactor designs, biomechanics of transcatheter valves, and 3D heart valve printing. This is an ideal book for biomedical engineers, biomechanics, surgeons, clinicians, business managers in the biomedical industry, graduate and undergraduate students studying biomedical engineering, and medical students.
