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Introduction; 4.2 Mechanical forces in guiding differentiation and extracellular matrix production; 4.3 Mechanical stimuli for tissue regeneration; 4.4 Methods of introducing mechanical stimuli; References; Part Two - Individual musculoskeletal tissues; 5 - Bone tissue engineering; 5.1 Introduction; 5.2 Traditional concepts in bone tissue engineering; 5.3 Current and new strategies for engineered bone: discussion and examples; 5.4 Bone tissue engineering challenges and a vision for the future
5.5 The development challenges of an engineered bone product Acknowledgments; References; 6 - Cartilage tissue engineering; 6.1 Introduction; 6.2 Cartilage anatomy, physiology, and injury; 6.3 Current treatment options; 6.4 Tissue engineering considerations; 6.5 Conclusions; References; 7 - Ligament tissue engineering; 7.1 Introduction; 7.2 Ligament composition and structure; 7.3 Ligament mechanical properties; 7.4 Ligament injuries and their current clinical outcomes; 7.5 Options for surgical ligament replacement; 7.6 Summary; References; 8 - Tendon tissue engineering; 8.1 Introduction 8.2 Tendon structure and function 8.3 Tendon injury and degeneration; 8.4 Tendon healing; 8.5 Current treatment: the traditional approach; 8.6 Tissue engineering approach; 8.7 Scaffolds; 8.8 Materials selection; 8.9 Nanofibers; 8.10 Mechanical stimulation; 8.11 Cells; 8.12 Growth factors; 8.13 Gene therapy; 8.14 Future trends; 8.15 Conclusions; Acknowledgments; References; 9 - Meniscus tissue engineering; 9.1 Structure, anatomy, and function of the meniscus; 9.2 Meniscus injury and repair; 9.3 Meniscus replacement; 9.4 Conclusions; References; 10 - Muscle tissue engineering; 10.1 Introduction 10.2 Skeletal muscle tissue

Sommario/riassunto

Repair and regeneration of musculoskeletal tissues is generating substantial interest within the biomedical community. Consequently, these are the most researched tissues from the regeneration point of view. Regenerative Engineering of Musculoskeletal Tissues and Interfaces presents information on the fundamentals, progress and recent developments related to the repair and regeneration of musculoskeletal tissues and interfaces. This comprehensive review looks at individual tissues as well as tissue interfaces. Early chapters cover various fundamentals of biomaterials and scaffolds, types of c
