
Contents

Introduction	1
Articular Cartilage Biology	3
■ Chondrocytes	3
■ Collagen	3
■ Proteoglycans	3
■ The subchondral bone plate	5
Etiology of Articular Cartilage Lesions	7
■ Trauma	7
■ Malalignments	8
■ Meniscus	9
■ Instability	11
■ Osteochondrosis dissecans (OD)	12
■ Osteoarthritis	15
■ Rheumatoid arthritis	16
■ Genetic factors	16
■ Obesity	16
■ Cartilage tumors	16
■ Microtrauma	17
Diagnostics	19
■ Clinical examination	19
■ Radiography	19
■ Magnetic resonance tomography	20
■ Classification of articular cartilage lesions and criteria for choosing appropriate therapy	22
– Localization	22
– Concomitant injuries	22
– Defect size/Containment	22
– Radiography/MRT	26

Conservative Treatment	27
Conservative Treatment of Articular Cartilage Defects	29
■ Drug treatment	29
– Non-steroidal anti-inflammatory drugs (NSAID)	29
– Neuraceuticals	30
■ Physical therapy	32
– Physiotherapy	32
– Bandages and orthosis for the treatment of gonarthrosis	33
– Electrotherapy	34
– Pulsed signal therapy	34
– Ultrasound	35
– Magnetic fields	35
– Extracorporeal shock wave therapy	35
<hr/>	
Operative Treatment	37
Operative Treatment of Articular Cartilage Defects	39
■ Refixation of detached cartilage fragments	39
■ Joint lavage/cartilage shaving/débridement	44
■ Bone marrow stimulation techniques (drilling, abrasion, microfracture)	44
■ Augmented microfracture techniques	48
■ Osteochondral transplantation	48
■ Autologous chondrocyte transplantation (ACT)	55
■ Autologous chondrocyte transplantation (ACT) – New procedures	60
■ Correctional osteotomies	66
■ Implantation of non-resorbable cartilage replacements	70
Additional Reading	73
<hr/>	
Appendix	77
■ Scores for the evaluation of therapy results after treatment of articular cartilage defects (selection)	79
Important Analytic Methods	115
■ Histology	115
■ Immunohistochemistry	116
■ Polymerase chain reaction (PCR)	117
Subject Index	119