

Detailed contents

1	Acute care and sports injury Sports first aid 2 Basic life support 4 Resuscitation of children 8 Advanced cardiac life support 10 Automated external defibrillators 16 Major emergencies in sport 18 The unconscious athlete 19 Choking 20 Management of shock and bleeding 22 Injury management 24 General management plan for acute sports injuries 26 Management of acute soft tissue injury 28 Care of wounds 32 Nonsteroidal anti-inflammatory drugs (NSAIDs) 36 Strains and sprains 40 Ligaments 42 Bone 46 Sports injury in children 50	1
2	Head and face Traumatic brain injury (TBI) 54 Glasgow Coma Scale (GCS) 55 Management of traumatic brain injury 56 Traumatic intracerebral hematomas and contusion 59 Subdural hematoma 60 Epidural hematoma 61 Traumatic subarachnoid hemorrhage 62 Diffuse cerebral swelling 63 Head injury advice card 64	53

Sports concussion	66
Acute concussion management	68
The SCAT2 (Sport Concussion Assessment Tool 2)	70
Return to play	74
Neuroimaging	76
Concussion grading scales	78
Concussion complications	78
Concussion prevention	80
Concussion and the preparticipation exam	81
Pediatric concussions	81
Post-traumatic headache	82
Headaches and sport	84
Epilepsy and sports	88
Fractures	90
Eye injuries	91
Boxing and head injury	92
Paradoxical vocal cord motion (PVCM) or vocal cord dysfunction (VCD)	94
Dental injuries	95
External ear injuries	96

3	Shoulder	97
	Anatomy	98
	History	104
	Examination	106
	Special tests	108
	Nerves	112
	Shoulder disorders	113
	Acute traumatic causes	114
	Nonoperative management of shoulder dislocation	117
	Rehabilitation	118
	Acromioclavicular joint sprains and dislocations	120

	Sternoclavicular joint sprains and dislocations 121	
	Glenoid labrum tears 122	
	Biceps tendon rupture 124	
	Fractures of the shoulder 125	
	Chronic overuse disorders 126	
	Atraumatic causes 134	
<hr/>		
4	Elbow and forearm	137
	History 138	
	Examination 140	
	Special tests 142	
	Medial epicondylitis (golfer's elbow) 143	
	Medial epicondylar apophysitis 144	
	Ulnar collateral ligament injury 145	
	Osteochondritis dissecans and osteochondrosis 146	
	Lateral epicondylitis (tennis elbow) 148	
	Posterolateral rotatory instability 150	
	Acute injuries 152	
	Chronic elbow injuries 156	
<hr/>		
5	Wrist and hand	163
	Epidemiology 164	
	Wrist biomechanics 166	
	Fracture of the distal radius 168	
	Fracture of the scaphoid 170	
	Fracture of the hamate 172	
	Fracture of the pisiform 173	
	Fracture of the fifth metacarpal neck (boxer's fracture) 174	
	Fracture-dislocation of the first metacarpal base (Bennett's or Rolando's fracture) 176	
	Phalangeal shaft fractures 177	
	Dislocation of the carpal bones 178	

	Dislocation of the metacarpophalangeal (MCP) joints	180
	Dislocation of the interphalangeal (IP) joints	181
	Mallet finger	182
	Jersey finger	183
	Boutonniere deformity	184
	Sagittal band rupture (boxer's knuckle)	185
	Ulnar collateral ligament injuries of the thumb MCP joint (skier's thumb)	186
	Other collateral ligament injuries	188
	Carpal tunnel syndrome	189
	Ulnar nerve compression	190
	Other nerve injury syndromes	190
	De Quervain's tenosynovitis	191
	Other tendinopathies	192
	Ganglion	193
	Impaction syndromes	193
	Radial epiphysitis (gymnast's wrist)	194
	Triangular fibrocartilage complex (TFCC) tears	195
	Kienbock's disease	196
6	Spine	199
	History	200
	Examination	202
	Special tests	206
	Diagnosis	208
	Acute spinal injury	211
	Acute injuries of the back in sports	212
	Management of musculoligamentous injuries of the back	213
	Disc disease	214
	Pars interarticularis and spondylolysis	218
	Spondylolisthesis	220
	Scheuermann's disease	223
	Sacroiliac joint	224

7	Hip and pelvis	225
	Examination of the hip 226	
	Special tests 232	
	Femur: acute injury 233	
	Growth plate injury 234	
	Femoral neck stress fracture 236	
	Trochanteric bursitis 238	
	Iliotibial band friction syndrome 239	
	Thigh contusion 240	
	Myositis ossificans 242	
	Osteoarthritis (OA) of the hip 244	
	Osteitis pubis 246	
	Sports hernia (Gilmore's groin) 248	
	Groin pain 250	
	Avulsions around the ilium 252	
	Piriformis syndrome 254	
	Snapping hip syndrome 256	
	Hamstring injury 258	
	Obturator nerve entrapment 261	
	Dislocation and subluxation of the hip joint 262	
	Femoroacetabular impingement (FAI) 263	
	Stress fractures of the pubic rami 264	
	Calcific tendinopathy of the hip 264	
	Acetabular labral tears 265	
	Ischial (ischiogluteal) bursitis 265	
	Sacroiliac joint (SIJ) disorders 266	
	Injuries in children 268	
8	Knee	273
	History 274	
	Examination 276	
	Special tests 280	
	Diagnosis of knee injuries 281	
	Medial collateral ligament (MCL) 282	

Rehabilitation after medial collateral ligament sprain 284
Lateral collateral ligament (LCL) 289
Anterior cruciate ligament (ACL) 290
Posterior cruciate ligament (PCL) 292
Meniscal injuries 293
Articular cartilage injury 294
Anterior knee pain 295
Patellar dislocation 296
Hoffa's syndrome 296
Iliotibial band friction syndrome (ITBFS) 297
Patellofemoral pain (syndrome) 298
Patellar tendinopathy 300
Osgood–Schlatter disease 301
Sinding–Larsen–Johannson disease ("jumper's knee") 302
Juvenile osteochondritis dissecans 303
Bipartite patella and patellofemoral pain syndrome 304
Discoid lateral meniscus 305

9	Ankle and lower leg	307
	Examination of the ankle 308	
	Special tests 311	
	Functional tests 311	
	Persistent painful ankle 312	
	Acute ankle sprain 314	
	Rehabilitation after ankle sprain (grade 2) 316	
	Medial ligament injuries 318	
	Syndesmosis sprain 318	
	Fractures 318	
	Lateral ankle pain 320	
	Medial ankle pain 322	
	Anterior ankle pain 324	
	Posterior ankle pain 325	

Shin splints 326
Achilles tendinopathy 328
Achilles tendon rupture 329
Retrocalcaneal bursitis 330
Chronic exertional leg pain 330
Anterior compartment syndrome 331
Posterior compartment syndrome 332
Popliteal artery entrapment 333

10	Foot	335
	Fracture of the calcaneus 336	
	Fracture of the metatarsal bones 337	
	Lisfranc fracture: dislocations 338	
	Fat pad contusion 338	
	Midtarsal joint sprains 339	
	Turf toe 339	
	Hallux rigidus ("footballer's toe") 340	
	Normal walking 341	
	Pronation 342	
	Supination 342	
	Footwear 343	
	Gait analysis 344	
	Plantar fasciitis 346	
	Extensor tendinopathy 348	
	Stress fractures of the calcaneus 348	
	Stress fractures of the navicular 349	
	Stress fractures of the metatarsals 350	
	Jones fracture 351	
	Metatarsalgia 352	
	Morton's (interdigital) neuroma 353	
	Sesamoid injury 354	
	Cuboid syndrome 355	
	Os naviculare syndrome 355	

Sever's disease (traction apophysitis calcaneum) 356
Iselin's disease (traction apophysitis affecting base of fifth metatarsal) 357
Traction apophysitis navicular (insertion tibialis posterior tendon) 357
Tarsal coalition 358
Freiberg's disease 359
Kohler's disease 360
Subungual hematoma 361
Ingrown toenails (onychocryptosis) 361

11 Medical issues in athletes 363
Physiology in exercise
What happens when we exercise? 364
Basic principles of training 365
Fitness deterioration with aging 366
Overtraining syndrome 368
Pulmonary issues
Exercise-induced bronchospasm 370
Hematology
Iron deficiency anemia 376
Sickle cell anemia 378
Endocrine issues
Diabetes mellitus 380
Nutrition
Body weight 384
Energy requirements 385
Food and exercise 386
Recovery after exercise 390
Environmental concerns
Exercise and the environment 392
Exercise at altitude 400

12	Cardiovascular Preparticipation screening 406 Sudden cardiac death in athletes 408 Cardiovascular abnormalities in the setting of athletic participation 410 Hypertrophic cardiomyopathy 413 Other congenital defects 414 Congenital coronary artery anomalies 417 Kawasaki disease 417 Valvular disorders 418 Arrhythmias 422 QT syndromes 426 Brugada syndrome 427 Marfan syndrome 428 Other cardiomyopathies 432 Ehlers–Danlos syndrome 433 Coronary artery anomalies 433 Coronary artery disease 434 Commotio cordis 435 The athlete's heart 435 Evaluation of the symptomatic athlete 436 Classification of sports 437 Automated external defibrillators 438 Exercise prescription 439	405
13	Gastroenterology and genitourinary Abdominal injury 442 Winded athlete 443 Rectus sheath hematoma 443 Splenic rupture 444 Liver damage 444 Pancreatic damage 445 Bowel rupture 445 Pancreatitis 446 Appendicitis 446	441

	Diarrhea (“runner’s trots”) 447
	Gastroesophageal reflux disease (GERD, or heartburn) 447
	Renal trauma 448
	Ureteric avulsion 450
	Bladder rupture 450
	Urethral rupture 450
	Injuries of the scrotum and testes 451
	Testicular torsion 451
	Testicular cancer 451
	Renal physiology and exercise 452
14	Infectious diseases 457
	Effects of exercise on immunity 458
	Why are athletes prone to infection? 459
	Upper respiratory infections (URIs) 460
	Common infections 461
	Community-acquired methicillin-resistant <i>Staphylococcus aureus</i> (CA-MRSA) 462
	Infectious mononucleosis 463
	Flu-like infections 464
	Viral hepatitis 465
	Human immunodeficiency virus (HIV) 466
	Travelers’ diarrhea 467
15	Rheumatology 469
	Arthritis overview 470
	Osteoarthritis 472
	Crystal arthropathy 476
	Rheumatoid arthritis 480
	Seronegative spondyloarthropathies 484
	Infectious arthritis 486
	Other arthritis-related conditions 490

16	Dermatology	493
	Problems related to skin trauma	494
	Problems related to environmental exposure	498
	Fungal infections	502
	Bacterial infections	506
	Viral infections	510
	Common causes of dermatitis	514
	Description of terms in dermatology	516
17	The female athlete	519
	Gender and performance	520
	Menstrual cycle	522
	Menarche	524
	Primary amenorrhea	525
	Menstrual irregularities	526
	Progression of exercise-related menstrual changes	527
	Secondary amenorrhea	527
	Treatment of menstrual irregularities	527
	Dysmenorrhea	528
	Premenstrual syndrome	529
	Contraception	530
	Manipulation of the menstrual cycle	532
	Female athlete triad	534
	Pregnancy and exercise	536
	Pelvic pain	540
	Injuries	541
18	Ergogenic aids	543
	Ergogenic aids	544
	Performance-enhancing drugs	546
	Stimulants	550

	Dietary ergogenic aids <i>554</i>	
	Prohibited drugs <i>558</i>	
	Drug testing <i>560</i>	
	Future concerns <i>561</i>	
19	Physical therapy and rehabilitation <i>563</i>	
	Physical therapy <i>564</i>	
	Principles of rehabilitation <i>566</i>	
	Physical therapy examination and screening <i>568</i>	
	Therapeutic modalities <i>570</i>	
	Manual therapy <i>572</i>	
	Stretching <i>574</i>	
	Balance and proprioception <i>576</i>	
	Muscle performance <i>578</i>	
	Plyometrics <i>582</i>	
	Sports-specific fitness tests and training <i>584</i>	
	Orthotics <i>586</i>	
20	Radiology <i>587</i>	
	Imaging modalities <i>588</i>	
	General pathology <i>590</i>	
	Hip and pelvis <i>602</i>	
	Knee <i>608</i>	
	Lower leg and ankle <i>614</i>	
	Foot <i>616</i>	
	Shoulder <i>620</i>	
	Elbow <i>626</i>	
	Wrist and hand <i>630</i>	
	Head and spine <i>636</i>	
	Pediatric imaging <i>644</i>	
21	Sports psychology <i>653</i>	
	Introduction <i>654</i>	
	Motivation and sports performance <i>656</i>	

	Emotional control and sports performance <i>658</i>
	Anxiety, arousal, and stress and sports performance <i>660</i>
	Self-confidence and sports performance <i>662</i>
	Commitment and sports performance <i>664</i>
	Attentional focus and sports performance <i>666</i>
	Injury and sports <i>668</i>
22	The team physician <i>671</i>
	Team physician definition <i>672</i>
	The qualifications of a team physician <i>673</i>
	The medical kit <i>674</i>
	Basic medical equipment <i>676</i>
	Essential drugs and medications <i>678</i>
	Security and insurance issues <i>680</i>
	Team travel <i>682</i>
	Managing your medical service <i>686</i>
	Multi-sport events <i>696</i>
	The holding camp <i>697</i>
	The games <i>698</i>
	The return home <i>699</i>
	Professional and ethical considerations <i>700</i>
	Organizing a major sporting event <i>702</i>
23	Procedures <i>707</i>
	Joint injection overview <i>708</i>
	Shoulder <i>710</i>
	Glenohumeral joint <i>710</i>
	Acromioclavicular joint <i>711</i>
	Subacromial bursitis <i>712</i>
	Biceps tendonitis <i>713</i>
	Elbow <i>714</i>
	Elbow joint <i>714</i>
	Lateral epicondylitis <i>715</i>

Medial epicondylitis	716
Olecranon bursitis	717
Hand/wrist	718
First carpometacarpal joint	718
Carpal tunnel	719
Trigger finger	720
De Quervain's tenosynovitis	721
Hip	722
Trochanteric bursitis	722
Hip pointer	723
Proximal iliotibial band	724
Knee	726
Intra-articular joint—supine lateral	726
Intra-articular joint—seated lateral	727
Intra-articular joint—medial	728
Pes anserine bursitis	729
Prepatellar bursitis	730
Distal iliotibial band	731
Ankle/foot	732
Ankle joint	732
Sinus tarsi	733
Tarsal tunnel	734
Plantar fasciitis	735
First metatarsophalangeal joint	736
Morton's neuroma	737
Joint aspiration	738
Shoulder	740
Elbow	741
Knee	742
Ganglion cyst aspiration, injection	744
Trigger point injection	746
Peripheral intravenous access	748
Compartment testing (exertional)	750
Laceration repair	754

Auricular hematoma aspiration/incision
("cauliflower ear") 756

Abscess incision and drainage 760

Ingrown toenail removal 762

Subungual hematoma drainage 765

Epistaxis control 766

Tooth avulsion management 767

Common joint reductions 768

Casting, splinting, and taping 770

Office spirometry 774

Treadmill testing 778

Index 783