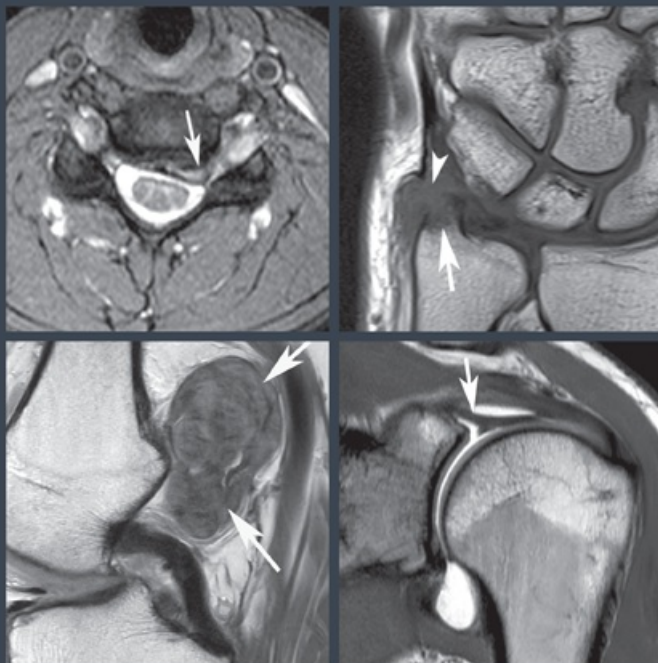


ASIF SAIFUDDIN

# MUSCULOSKELETAL MRI SECOND EDITION



PHILIPPA TYLER • RIKIN HARGUNANI

Foreword by Murali Sundaram

 CRC Press  
Taylor & Francis Group

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EBOOK 

Musculoskeletal MRI

Second Edition

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**CRC Press**  
Taylor & Francis Group  
Boca Raton London New York

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CRC Press  
Taylor & Francis Group  
6000 Broken Sound Parkway NW, Suite 300  
Boca Raton, FL 33487-2742

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Printed on acid-free paper  
Version Date: 20160211

International Standard Book Number-13: 978-1-4822-4780-0 (Pack - Book and Ebook)

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# Dedication

To the Prophet Muhammad (Peace Be Upon Him), who once said to his companions;

“The best of people are those that bring most benefit to the rest of mankind.”

(Daraqutni, Hasan)

Inspired by his words I have made this effort, in the hope that it will be of benefit to my radiology colleagues all around the world, and especially to the patients that they serve.

Asif Saifuddin

# Dedication

For my parents, John and Joy

And for my husband Lester, and for Eleanor, Madeleine and Elisabeth

Philippa Tyler

# Dedication

For my parents, Monica and Lal Hargunani

For my wife, Deeps, and for Anya

Rikin Hargunani

# Foreword

Dr Asif Saifuddin's comprehensive, masterly text on musculoskeletal MRI, first published in 2008, has been updated in this second edition with up-to-date references and 95% of new images, many of which were obtained on 3T magnets.

The format of the text remains the same with bullet points highlighting relevant practical anatomy, clinical scenarios and pertinent MRI findings that guide the interpreter in establishing a diagnosis based on anatomical and pathophysiological considerations.

As in the first edition, the writing is succinct, with the current edition of nine chapters and over 4500 state-of-the-art MR images providing an informative, all-encompassing text that quite superbly covers the axial and appendicular skeleton.

Focal, traumatic, neoplastic, articular and systemic diseases that affect joints, tendons, muscle and marrow where MR imaging makes a contribution to diagnosis and patient care are discussed with equal balance, emphasis and practical information that is applicable in everyday clinical practice.

The layout of the book is such that the information is easy to find and much information is conveyed in the choice of images, aptness of figure legends and accompanying discussion.

There is a wealth of information in this book that would benefit all interpreters of musculoskeletal MRI, irrespective of their subspecialty and familiarity with musculoskeletal MRI.

It is a book that one will not quickly outgrow and should provide many years of service as a reference guide, a refresher just to keep in touch, and an everyday clinically applicable textbook.

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# Preface to the First Edition

'Then We made the Nutfah (the mixture of male and female sexual fluids) into Alaqah (leech, suspended thing, blood clot); then of that Alaqah We made a Mudghah (chewed substance); then We made out of that Mudghah bones and clothed the bones with flesh; then We developed out of it another (independent) creature. So Blessed be Allaah, the best of creators!'

The Quran: Chapter 23; The True Believers, verse 14.

The conception and stages of development of the human embryo, including its musculoskeletal system, were described in The Quran in the 7th Century. Now, over 1400 years later, the remarkable technique of Magnetic Resonance Imaging can show us in the most superb detail the anatomy and pathology of those bones, and 'the flesh that clothes them'.

Asif Saifuddin

London, April 2008



'We will show them Our Signs in the universe, and in their own selves, until it becomes manifest to them that this (The Quran) is the truth.'

The Quran: Chapter 41; verse 53.

[www.quranproject.org](http://www.quranproject.org)



# Acknowledgements

Of course, I must begin by acknowledging my colleagues and co-authors Philippa Tyler and Rikin Hargunani, without whose tremendous input this project could never even have started. When the opportunity arose to produce a 2nd edition of Musculoskeletal MRI, I believed that they had the ability, enthusiasm and dedication for the task. Sixteen months later, they have proven what a wise decision it was to bring them on board. I very much hope that these qualities will stay with them and allow them to take this title on to many more editions in the years to come, so that it may be a source of continued goodness for me long after I have left this place.

As previously, I must acknowledge every member of staff at The Royal National Orthopaedic Hospital. It is the collective excellence of care that is provided by them that results in patients being referred from all over the world, allowing us as radiologists to see what we see and to present it to you. In particular, I would like to mention Dr Roberto Tirabosco, Consultant Histopathologist and Mrs Gill Coghlan, PACS Manager. I would also like to mention Dr Neil Upadhyay for his technical help with the manuscript.

I must acknowledge the Staff of The Scanning Centre at the RNOH, who consistently produce MRI studies of high quality, under the direct supervision of Ms Debbie Fox and the overall departmental management of Mr Tony Turner. Thanks also to Mrs Karen Good for keeping me organised throughout the course of this project.

Outside of this organisation, I would like to mention Prof. Philip Gishen, Clinical Director of Radiology Reporting Online and Dr Charles House, Consultant Musculoskeletal Radiologist, University College London Hospital for allowing a large amount of material to be used from their respective organisations.

Last but not least, I would like to mention all of those radiologists that I have met over the last 6 years, many of whom I did not even know but who had good things to say about the 1st edition. The knowledge that it has been of help to them in their daily practise was a major factor in the decision to proceed with a new edition. If I had to name one of them, it would be my good friend Dr Mohanad Kareem Aftan.

Asif Saifuddin  
January 2016

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# Abbreviations

AA	atlanto-axial
AARS	atlanto-axial rotatory subluxation
ABC	aneurysmal bone cyst
AbDM	abductor digiti minimi
ABER	abduction external rotation
AbH	abductor hallucis
AbPB	abductor pollicis brevis
AbPL	abductor pollicis longus
AC	acromioclavicular (joint) (chapters 1, 7)/adhesive capsulitis
ACI	autologous chondrocyte implantation
ACL	anterior cruciate ligament
AdB	adductor brevis
ADC	apparent diffusion coefficient
AdH	adductor hallucis
ADI	atlanto-dens interval
ADIR	adduction internal rotation
AdL	adductor longus
ADM	abductor digiti minimi
AdM	adductor magnus
AdP	adductor pollicis
AF	annulus fibrosus
AFF	atypical femoral shaft fractures

AHLM	anterior horn of the lateral meniscus
AI	anterior impingement
AII	anterior internal impingement
AIS	anterior inferior iliac spine
AIN	anterior interosseous nerve
AIOS	acquired, instability, overstress, surgery
AIS	anterior intermuscular septum
AITFL	anterior inferior tibiofibular ligament
ALI	anterolateral impingement
ALIF	anterior lumbar interbody fusion
ALL	acute lymphocytic leukaemia (chapters 8, 9)/anterior longitudinal ligament (chapter 9)/anterolateral ligament (chapter 5)
ALPSA	anterior labroperiosteal sleeve avulsion
ALT	atypical lipomatous tumour
ALVAL	aseptic lymphocyte-dominated vasculitis-associated lesion
AMBRI	atraumatic, multi-directional, bilateral, rehabilitation, inferior
AMRI	anteromedial rotatory instability
AMI	anteromedial impingement
AML	acute myeloblastic leukaemia
AOL	anterior oblique ligament
AP	anteroposterior
APC	anterior process calcaneal
APL	abductor pollicis longus
AS	ankylosing spondylitis

ASAD	arthroscopic subacromial decompression
ASII	anterosuperior internal impingement
ASIS	anterior superior iliac spine
ASPS	alveolar soft part sarcoma
ASTFL	anterosuperior tibiofibular ligament
ATA	anterior tibial artery
ATCCS	acute traumatic central cord syndrome
ATFL	anterior talofibular ligament
At-Oc	atlanto-occipital
ATTL	anterior tibiotalar ligament
AVF	arteriovenous fistulae
AVM	arteriovenous malformation
AVN	avascular necrosis
BA	bacillary angiomatosis
BB	bone contusions/bone bruises
BCF	benign compression fracture
BCG	bacillus Calmette-Guérin
BF	biceps femoris
BFT	biceps femoris tendon
BHAGL	bony HAGL
BHT	bucket-handle tear
BLC	biceps-labral complex
BMN	bone marrow necrosis

BMO	bone marrow oedema
BMOS	bone marrow oedema syndrome
BMP	bone morphogenic protein
BNCT	benign notochordal cell tumour
BOLD	blood-oxygen level dependent
BP	brachial plexus
BPI	brachial plexus injury
BPOP	bizarre parosteal osteochondromatous proliferation
BPTB	bone-patellar tendon-bone
bSSFP	balanced steady state free precession
BVCF	benign vertebral compression fractures
CA	coraco-acromial
CACI	collagen-covered autologous chondrocyte implantation
CB	chondroblastoma
CC	coracoclavicular
CCCS	clear cell chondrosarcoma
CCJ	craniocervical junction
CCMC	common carpometacarpal
CCSST	clear cell sarcoma of soft tissue
CECS	chronic exertional compartment syndrome
CEO	common extensor origin
CES	cauda equina syndrome
CET	common extensor tendon
CFL	calcaneofibular ligament

CFO	common flexor origin
CFT	common flexor tendon
CHD	coracohumeral distance
CHII	cervical high-intensity intramedullary
CHL	coracohumeral ligament
CID	carpal instability dissociative (chapter 3)/concealed interstitial delamination (chapter 1)
CIND	carpal instability nondissociative (type)
CK	creatinine kinase
CLC	collateral ligament complex
CLL	chronic lymphocytic (lymphoid) leukaemia
CLUMP	chondral lesions of unknown malignant potential
CMC	carpometacarpal
CMCJ	carpometacarpal joint
CMF	chondromyxoid fibroma
CML	chronic myeloid leukaemia (chapter 8)/cuneometatarsal ligament (chapter 6)
CMP	chondromalacia patellae
CMT	Charcot Marie Tooth (disease)
CN	calcaneonavicular
CNL	calcaneonavicular ligament
CNS	central nervous system
CPN	common peroneal nerve
CPP	calcium pyrophosphate
CPPD	calcium pyrophosphate deposition



CRMO	chronic recurrent multifocal osteomyelitis
CRP	C-reactive protein
CRPS	complex regional pain syndrome
CS	chondrosarcoma
CSA	cross-sectional area
CSD	closed spinal dysraphism
CSF	cerebrospinal fluid
CSM	cervical spondylotic myelopathy
CSS	cervical spinal stenosis
CT	carpal tunnel (chapter 3)/computed tomography
CTL	capito-third ligament
CTS	carpal tunnel syndrome (chapters 2, 3)/ cubital tunnel syndrome (chapter 2)
DA	diaphyseal aclasis
DCE	dynamic contrast enhanced
DCSA	dural cross-sectional area
DDD	degenerative disc disease
DDH	developmental dysplasia of the hip
DDP	dorsal defect of the patella
DEFT	driven equilibrium Fourier transform
DESS	double-echo steady-state
DF	desmoplastic fibroma
DFSP	dermatofibrosarcoma protuberans
dGEMRIC	delayed gadolinium enhanced MRI of cartilage

DHVS	discogenic hemivertebral sclerosis
DICL	dorsal intercuneiform ligaments
DIP(J)	distal interphalangeal joint
DISH	diffuse idiopathic skeletal hyperostosis
DISI	dorsal intercalated segment instability
DLS	degenerative lumbar scoliosis
DM	diabetes mellitus
DMD	Duchenne muscular dystrophy
DMI	diabetic muscle infarction
DOMS	delayed onset muscle soreness
DP	distal phalanx
DPN	deep peroneal nerve
DR	dorsal roots
DRG	dorsal root ganglia
DRL	dorsal radial ligament
DRU(J)	distal radio-ulnar (joint)
DTI	diffusion tensor imaging
DTML	deep transverse metacarpal ligament (chapter 3)/deep transverse metatarsal ligament (chapter 6)
DVT	deep vein thrombosis
DWI	diffusion weighted imaging
ECRB	extensor carpi radialis brevis
ECRL	extensor carpi radialis longus
ECU	extensor carpi ulnaris

ED	extensor digitorum
EDB	extensor digitorum brevis
EDC	extensor digitorum communis
EDL	extensor digitorum longus
EDM	extensor digiti minimi
EFD	elastofibroma dorsi
EFS	extraforaminal stenosis
EG	eosinophilic granuloma
EHB	extensor hallucis brevis
EHE	epithelioid haemangioendothelioma
EHL	extensor hallucis longus
EI	extensor indicis
EIP	extensor indicis proprius
ELIF	extreme lateral interbody fusion
EMG	electromyography
EMH	extramedullary haematopoiesis
EPB	extensor pollicis brevis
EPL	extensor pollicis longus
ER	erector spinae
ERA	enthesitis-related arthritis
ES	Ewing sarcoma
ESOS	extraskelatal osteosarcoma
ESR	erythrocyte sedimentation rate
ET	extensor tendon

EXT1	encoding exostosin 1
FA	femoral artery (chapter 4)/fractional anisotropy (chapter 8)
FABS	flexion, abduction, supination
FADIR	flexion-adduction-internal rotation
FAI	femoroacetabular impingement
FBI	fresh blood imaging
FBSS	failed back surgery syndrome
FCD	fibrous cortical defect
FCL	fibular collateral ligament
FCR	flexor carpi radialis
FCRL	flexor carpi radialis longus
FCU	flexor carpi ulnaris
FD	fibrous dysplasia
FDAL	flexor digitorum accessorius longus
FDB	flexor digitorum brevis
FDG	fluorodeoxyglucose
FDL	flexor digitorum longus
FDM	flexor digiti minimi
FDMB	flexor digiti minimi brevis
FDP	flexor digitorum profundus
FDS	flexor digitorum superficialis
FFE	fast-field echo
FH	femoral head

FHB	flexor hallucis brevis
FHL	flexor hallucis longus
FJ	facet joint
FLAIR	fluid-attenuated inversion recovery
FN	femoral nerve
FOP	fibrodysplasia ossificans progressiva
FOPE	focal peri-physeal edema
FOV	field of view
FP	fat pad
FPB	flexor pollicis brevis
FPL	flexor pollicis longus
FR	flattening ratio
FS	fat suppressed/foraminal stenosis (chapter 9)
FSE	fast spin echo
FT	flexor tendon
FTRCT	full-thickness rotator cuff tear
FV	femoral vein
GCSF	granulocyte colony stimulating factor
GCT	giant cell tumour
GCTTS	giant cell tumour of tendon sheath
GHL	glenohumeral ligament
GI	gastrointestinal
GLAD	glenolabral articular disruption

GLOM	glenoid labral ovoid mass
GM	gluteus maximus
GRE	gradient echo
GT	greater trochanter
GTPS	greater trochanteric pain syndrome
GU	genitourinary
GV	glenoid version
HAART	highly active anti-retroviral treatment
HADD	hydroxyapatite deposition disease
HAGL	humeral avulsion of the glenohumeral ligament
HASTE	heavily T2 weighted 3D turbo spin echo
HD	Hodgkin's disease
HGSOS	high-grade surface osteosarcoma
HH	hook of hamate
HIN	hypertrophic inflammatory neuropathy
HIV	human immune deficiency virus
HIZ	high intensity zone
HME	hereditary multiple exostoses
HR	hallux rigidus
HSS	hemispherical spondylosclerosis
HV	hallux valgus
IAP	inferior articular process
IBD	inflammatory bowel disease
IBM	inclusion body myositis

IC	iliac crest
ICN	inferior calcaneal nerve
IDDM	insulin dependent diabetes mellitus
IER	inferior extensor retinaculum
IFI	ischiofemoral impingement
IFS	ischiofemoral space
IG	inferior gamellus
(P/A)IGHL	(posterior/anterior band) inferior glenohumeral ligament
IIM	idiopathic inflammatory myopathies
IL	iliopsoas muscle/interleukin (chapter 7)
ILAR	International League of Associations for Rheumatology
ILL	iliolumbar ligament
IM	interosseous membrane
IMCL	intermetacarpal ligament
IMT	inflammatory myofibroblastic tumours
IP	interphalangeal
IPR	inferior peroneal retinaculum (chapter 6)/ inferior pubic ramus (chapter 4)
IPS	ischio pubic synchondrosis
IR	inversion recovery
ISL	interspinous ligaments
IT	ischial tuberosity
ITB	iliotibial band
IV	intravenous

IVC	inferior vena cava
IVD	intervertebral disc
IVF	intervertebral foramen
JAMRIS	juvenile arthritis MRI scoring system
JIA	juvenile idiopathic arthritis
KFS	Klippel-Feil syndrome
KHE	kaposiform haemangioendothelioma
LA	limpoma arborescens
LBP	low back pain
LC	lateral cuneiform
LCH	Langerhan's cell histiocytosis
LCL	lateral collateral ligament
LD	latissimus dorsi
LF	ligamentum flavum
LFCN	lateral femoral cutaneous nerve
LG	lateral gastrocnemius
LGCOS	low-grade central osteosarcoma
LGFMS	low-grade fibromyxoid sarcoma
LHBT	long head biceps tendon
LHN	localised hypertrophic neuropathy
LIGA	lateral inferior geniculate artery
L/M/IS	lateral/medial intermuscular septa
LM	lateral malleolus (chapter 6)/lateral masses (chapter 9)/lateral meniscus (chapter 5)



LMMC	lipomyelomeningocele
LN	lymph node
LON	lipomatosis of nerve
LPL	long plantar ligament
LPN	lateral plantar nerve
LR	lateral recess (chapter 9)/local recurrence (chapter 8)
LRS	lateral recess stenosis
LSMFT	liposclerosing myxofibrous tumour
LSH	lumbosacral hood
LSP	lumbosacral plexus
LSS	lumbar spinal stenosis
LST	lumbosacral trunk
LSTV	lumbosacral transitional vertebrae
LT	lesser trochanter
LTI	lateral trochlear inclination
LTL	lumotriquetral ligament
LUCL	lateral band of UCL
MACI	matrix-assisted autologous chondrocyte implantation
MARS	metal artefact reduction
MAVRIC	multi-acquisition variable-resonance image combination
MC	medial cuneiform (chapter 6)/ metacarpal (chapter 3)
MCL	medial collateral ligament
MCN	medial calcaneal nerve
MCP(J)	metacarpophalangeal (joint)

MD	Madelung deformity
MDCT	multi-detector CT
MDI	multi-directional instability
MF	multifidus
MFC	medial femoral condyle
MFH	malignant fibrous histiocytoma
MFL	meniscofemoral ligaments
MG	medial gastrocnemius
MGHL	middle glenohumeral ligament
MHE	multiple hereditary exostoses
MM	multiple myeloma
MMC	meningomyelocele
MN	median nerve
MO	myositis ossificans
MoM	metal-on-metal
MP	middle phalanx
MPFL	medial patellofemoral ligament
MPN	medial plantar nerve
MPNST	malignant peripheral nerve sheath tumour
MPR	multi-planar reconstruction
MPS	mucopolysaccharidoses
MR	magnetic resonance
MRA	MR arthrography

MRCT	malignant round cell tumours
MRI	magnetic resonance imaging
MRM	MR myelography
MT	metatarsal
MTB	mycobacterial TB
MTC	magnetisation transfer contrast
MTP(J)	metatarsophalangeal (joint)
MTSS	medial tibial stress syndrome
NC	neurogenic claudication
NF1/2	neurofibromatosis-1 /-2
NHL	non-Hodgkin's lymphoma
NHO	neurogenic heterotopic ossification
NIC	neuroma in continuity
NOF	non-ossifying fibroma
NP	nucleus pulposus
NPV	negative predictive value
NSAIDs	non-steroidal anti-inflammatory drugs
NSF	nephrogenic systemic fibrosis
OA	osteoarthritis
OB	osteoblastoma
OBPP	obstetric brachial plexus palsy
ObE	obturator externus
ObI	obturator internus

OC	occipital condyles (chapter 1)/ osteochondroma (chapter 1, 8)
OCC	osteitis condensans claviculi
OCD	osteochondral defect (chapter 1)/ osteochondritis dissecans (chapters 2, 4-6)
OFD	osteofibrous dysplasia
OI	os intermetatarseum
OLF	ossification of the ligamentum flavum
OLT	osteochondral lesions of the talus
OM	osteomyelitis
OMERACT Outcome Measures in Rheumatoid Arthritis Clinical Trials	
OMML	oblique meniscomeniscal ligament
ON	osteonecrosis/obturator nerve (both chapter 4)
OO	osteoid osteoma
OpDM	opponens digiti minimi
OPL	oblique popliteal ligament
OPLL	ossification of the posterior longitudinal ligament
OS	osteosarcoma
OSD	open spinal dysraphism (chapter 9)/ Osgood-Schlatter disease (chapter 5)
PA	peroneal artery (chapter 8)/popliteal artery (chapter 5)
PAINT	partial articular-side tear with intrasubstance extension
PASTA	partial articular-side supraspinatus tendon avulsion
PBL	primary bone lymphoma
PBT	peroneus brevis tendon
PCCL	plantar calcaneocuboid ligament

PCHA	posterior circumflex humeral artery
PCI	peroneal calcaneus internus
PCL	posterior cruciate ligament
PD	Paget's disease
PD-GCT	Paget's disease-giant cell tumour
PDW	proton density weighted
PES	periosteal Ewing sarcoma
PET	positron emission tomography
PF	plantar fascia
PFFD	proximal focal femoral deficiency
PI	posterior impingement
PID	prolapsed intervertebral disc
PJP	Pneumocystis jirovecii pneumonia
PIML	posterior intermalleolar ligament
PIN	posterior interosseous nerve
PIP(J)	proximal interphalangeal (joint)
PIS	posterior intermuscular septum
PITFL	posterior inferior tibiofibular ligament
PL	palmaris longus (chapters 2, 3, 8)/ patellar length (chapter 5)
PLC	posterior ligamentous complex (chapter 9)/posterolateral corner (chapter 5)
PLF	posterolateral lumbar fusion
PLIF	posterior lumbar interbody fusion
PLL	posterior longitudinal ligament
PLT	peroneuslongus tendon

PM	pectoralis minor
PMFC	posteromedial femoral condyle
PML	pisometacarpal ligament
PMMRL	posterior medial meniscus root ligament
PNET	primitive neuro-ectodermal tumour
PNST	peripheral neural sheath tumor
POD	post-operative discitis
POL	posterior oblique ligament
POLPSA	posterior labrocapsular periosteal sleeve avulsion
POMI	posteromedial impingement
POS	parosteal osteosarcoma
PP	proximal phalanx
PPP	palmoplantar pustulosis
PPV	positive predictive value
PQ	pronator quadratus
PR	paradoxical reaction
PRI	posterolateral rotatory instability
PRS	post-radiation sarcoma
PRUJ	proximal radio-ulnar joint
PRV	polycythaemia rubra vera
PS	piriformis syndrome
PsA	psoriatic arthropathy
PSEES	primary spinal extradural Ewing sarcoma

PSII	posterolateral internal impingement
PsT	psoas tendon
PSTFL	posterolateral tibiofibular ligament
PT	peroneal tendon (chapter 6)/pronator teres (chapters 2, 8)
PTA	posterior tibial artery
PTCCJ	pseudotumour of the cranio-cervical junction
PTFJ	proximal tibiofibular joint
PTFL	posterior talofibular ligament
PTM	post-traumatic myelomalacia
PTMO	post-traumatic MO
PTRCT	partial-thickness rotator cuff tear
PTS	Parsonage-Turner syndrome (chapter 1)/ post-traumatic syringomyelia (chapter 9)
PTTL	posterior tibiotalar ligament
PV	popliteal vein
PVA	pagetic vertebral ankylosis
PVNS	pigmented villonodular synovitis
PVO	pyogenic vertebral osteomyelitis
QCSI	quantitative chemical shift imaging
QF	quadratus femoris
QFS	quadratus femoris space
QL	quadratus lumborum
QP	quadratus plantae
QSS	quadrilateral space syndrome

RA	rheumatoid arthritis
RBC	red blood cell
RCI	radiocarpal instability
RCL	radial collateral ligament
RCT	rotator cuff tendon (tear)
RF	radiofrequency
RFO	rectus femoris origin
RhF	rheumatoid factor
RI	rotator interval
RIC	rotator interval capsule
RLTL	radiolunotriquetral ligament
RMG	retromalleolar groove
RMO	regional migratory osteoporosis
RMT	ratio of meniscus to tibia
RNV	radial neurovascular bundle
RS	Reiter's syndrome
RSCL	radioscaphocapitate ligament
RSD	reflex sympathetic dystrophy
RSSL	radioscapholunate ligament
RT	radiotherapy (chapter 8)/repetition time (chapters 3, 5)
RTA	road traffic accident
SA	sacral ala (chapter 9)/subacromial (chapters 1, 7)/subclavian artery (chapter 8)
SAP	superior articular process



SAPHO synovitis, acne, palmoplantar pustulosis, hyperostosis and osteitis

SBC simple bone cyst

SC spinal cord (chapter 9)/sternoclavicular (chapter 1)

ScA scalenus anterior

SCD sickle cell disease

SCFE slipped capital femoral epiphysis

SCI spinal cord injury

SCIWORA spinal cord injury without radiographic abnormality

SCL scaphocapitate ligament

ScM scalenus medius

SCM split cord malformation

SCPS superior corner of the pubic symphysis

ScTH scapulothoracic

SD standard deviation (chapter 1)/ subdeltoid (chapters 1, 7)

SE spin echo

SeC semispinalis capitis

SED spondyloepiphyseal dysplasia

SEH spinal epidural haematoma

SEL spinal epidural lipomatosis

SEMAC slice encoding for metallic artefact correction

SER superior extensor retinaculum

SG superior gamellus

SGA subcutaneous granuloma annulare

SGHL	superior glenohumeral ligament
SH	sacral hiatus
SI	sacroiliitis (chapter 9)/signal intensity (all chapters)
SIF	subchondral insufficiency fracture
SIJ	sacro-iliac joints
SIL	sacroiliac ligament
(D/V)SIL	(dorsal/ventral) sacro-iliac ligaments
SIPIL	sacro-iliac part of the ILL
SLAC	scapholunate advanced collapse
SLAP	superior labral anteroposterior
SLD	scapholunate dissociation
SLE	systemic lupus erythematosus
SLL	scapholunate ligament
SM	semimembranosus
SMA	superior mesenteric artery
SMTCL	semimembranosus-tibial collateral ligament
SN	sciatic nerve (chapter 4)/sural nerve (chapter B)
SNAC	scaphoid non-union advanced collapse
SNR	signal-to-noise ratio
SOC	synovial osteochondromatosis
SONK	spontaneous osteonecrosis of the knee
SP	sacral plexus (chapter 4)/spinous process (chapter 9)
SpA	spondyloarthropathies
SPAIR	spectral attenuated inversion recovery

SpC	splenius capitis
SPECT	single photon emission CT
SPGR	spoiled gradient recalled acquisition
SPIR	spectral pre-saturation with inversion recovery
SPR	superior peroneal retinaculum (chapter 6)/superior pubic ramus (chapter 4)
SpT	spinalis thoracis
SRL	short radiolunate ligament
SS	synovial sarcoma
SSCM	split spinal cord malformation
SSH	spinal subdural haematoma
SSL	supraspinous ligament
SSV	short saphenous vein
ST	semitendinosus (chapter S)/soft tissue (chapter B)
STL	sacrospinous ligament
STIR	short T1 inversion recovery
STML	superficial transverse metatarsal ligament
STS	sinus tarsi syndrome (chapter 6)/ soft-tissue sarcomas (chapter 8)
STTL	scaphotrapezio-trapezoidal ligament
SV	subclavian vein
T1W	T1 weighted
T2W	T2 weighted
TA	tibialis anterior
TAFA	trochlear articular facet asymmetry