

EMERGENCIES

EMERGENCIES **IN SPORTS** **MEDICINE**

EDITED BY

Julian Redhead and Jonathan Gordon

A concise guide to the practical
management of sporting emergencies

Features an easy to follow classification
of emergencies

An essential addition to every kit-bag

EMERGENCIES

Emergencies in Sports Medicine

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Preface

Participation in sport and exercise at all levels is recognized as a factor in increasing the medical well being of participants. With the Olympics due in 2012 it is expected that increasing numbers of the population will participate in organized activities.

Healthcare professionals will be expected and encouraged to provide medical care during these events. It is important that these professionals are adequately prepared to provide this care.

A number of excellent courses are available for healthcare professionals to acquire and practice their skills. This text should be viewed as an accompaniment to these courses and to provide immediate access to reliable information at the patients side. The text covers all aspects of the emergencies likely to be encountered and gives important information as to their immediate treatment.

Sport and Exercise Medicine became recognized as a speciality in 2005 with the establishment of a faculty in 2006. Higher specialist training in the speciality began in 2007, with trainees undertaking a 4 year specialist training programme.

The majority of the chapters have been written by trainees within the new speciality, allowing expertise from many different sports to be represented.

We would like to thank them all for their hard work in completing the chapters. We would also like to thank our colleagues within the Emergency Departments for their patience in allowing us to complete the book. The book is dedicated to our wives, Lucy and Julie, and children, Georgina, William, Kate, and Megan.

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Symbols and abbreviations

⚠	warning
💣	controversial topic
▶▶	don't dawdle
▶	important
♀	female
♂	male
#	fracture
🌐	website
A&E	Accident & Emergency
ABC	airway, breathing, circulation
ABPI	ankle-brachial pressure index
AC	acromio-clavicular
ACE-I	angiotensin converting enzyme inhibitors
ACL	anterior cruciate ligament
ACS	acute coronary syndrome
AD	autonomic dysflexia
ADH	anti-diuretic hormone
AED	automated external defibrillator
AF	atrial fibrillation
ALS	advanced life support
AMS	acute mountain sickness
AMPLE	allergy, medications, past medical history, last eaten, events preceding
AP	anteroposterior
AS	ankylosing spondylitis
ATLS	advanced trauma life support
AV	atrioventricular
AVPU	Patient alert, Patient responds to verbal stimulus, Patient only responds to painful stimulus, Patient is unresponsive
bd	twice daily
BLS	basic life support
BM	blood glucose monitor
BNF	British National Formulary
BNFC	British National Formulary for Children
BP	blood pressure
CAD	coronary artery disease

CPR	cardiopulmonary resuscitation
CRP	c-reactive protein
CSF	cerebrospinal fluid
CT	computed tomography
CXR	chest X-ray
DIPJ	distal interphalangeal joint
DKA	diabetic keto-acidosis
DMARDs	disease modifying anti-rheumatic drugs
DPL	diagnostic peritoneal lavage
DVT	deep venous thrombosis
EAC	exercise-associated collapse
EAH	exercise-associated hyponatraemia
ECG	electrocardiogram
ECHO	echocardiogram
ED	Emergency Department
EIA	exercise-induced asthma
ERCP	endoscopic retrograde cholecystic pancreatogram
ESR	erythrocyte sedimentation rate
ET	Endo-tracheal
FAST	focused assessment with sonography for trauma
FBC	full blood count
FDP	Flexor digitorum profundus
FDS	Flexor digitorum superficialis
FOOSH	fall onto an outstretched hand
GCS	Glasgow Coma Scale
GI	gastrointestinal
GMC	General Medical Council
GTN	glyceryl trinitrate
HACE	high altitude cerebral oedema
HAPE	high altitude pulmonary oedema
HATI	human tetanus immunoglobulin
Hb	haemoglobin
HCM	hypertrophic cardiomyopathy
HIV	human immunodeficiency virus
HOCM	hypertrophic obstructive cardiomyopathy
IBD	Inflammatory bowel disease
IgE	immunoglobulin E
IHD	ischaemic heart disease
IM	intramuscular
ITP	idiopathic thrombocytopenic purpura

ITU	intensive therapy unit
IV	intravenous
JVP	jugular venous pressure
LAT	lignocaine, adrenaline, and tetracaine
LIF	left iliac fossa
LMA	laryngeal mask airway
LOC	loss of consciousness
LV	left ventricle
MCL	medial collateral ligament
MD	muscular dystrophy
MDU	Medical Defence Union
MI	myocardial Infarction
MILS	manual in-line immobilization
MRI	magnetic resonance imaging
MS	multiple sclerosis
MTP	metatarso-phalangeal
NAI	non-accidental injury
NCEPOD	National Confidential Enquiry into Patient Outcome and Death
NP	nasopharyngeal
NPA	nasopharyngeal airway
NSAID	non-steroidal anti-inflammatory drug
OGTT	oral glucose tolerance test
OP	oropharyngeal
OPA	oropharyngeal airway
OPT	orthopantomogram
ORIF	open reduction internal fixation
PaCO ₂	partial pressure of CO ₂
PaO ₂	partial pressure of O ₂
PCL	posterior collateral ligament
PEA	Pulseless electrical activity
PEF	peak expiratory flow
PEFR	peak expiratory flow rate
PIPJ	proximal interphalangeal joint
PMHx	past medical history
po	by mouth
pr	per rectum
PTE	pulmonary embolism
PU	pass urine
RA	rheumatoid arthritis

RBC	red blood cell count
RIF	right iliac fossa
RTA	road traffic accident
RTP	return to play
RUQ	right upper quadrant
SAH	subarachnoid haemorrhage
SARS	severe acute respiratory syndrome
SBP	systolic blood pressure
SC	subcutaneous
SCAT	Sport Concussion Assessment Tool
SCD	sudden cardiac death
SIGN	Scottish Intercollegiate Guidelines Network
SOB	shortness of breath
STI	soft tissue injury
SUFE	slipped upper femoral epiphysis
SVT	supraventricular tachycardias
TB	tuberculosis
VF	ventricular fibrillation
VT	ventricular tachycardia
WADA	world antidoping agency
WBC	white blood cell count
WBGT	wet bulb globe temperature index

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Planning and preparation

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Introduction

To fail to prepare is to prepare to fail.

This adage is relevant not only to sporting success, but also when considering planning of medical cover for a sporting event. This chapter outlines the major issues to consider when preparing to cover a sporting event focusing particularly on anticipation and planning for the management of life- and limb-threatening sporting emergencies together with common accident and emergency presentations in a pre-hospital sporting setting.

'There is no place for a token medical presence at sporting events'. This statement issued by the MDU (Medical Defence Union, UK) illustrates the change in attitude over recent years with regard to doctors covering all standards and levels of sporting competition. In previous years, many doctors, physiotherapists, and allied health professionals would volunteer to cover a range of sporting events despite inadequate training, equipment, and personnel. With the development of sport and exercise medicine as a specialty in its own right, the bar is now set considerably higher for doctors and physiotherapists covering these events. The risk of being sued if things go wrong is significant. More importantly, all medical personnel covering sporting events have an ethical responsibility and duty of care to the participants to be properly trained and to make sure they have access to the necessary emergency equipment.

There are many things to take into consideration when agreeing to cover a sporting event and we will cover each one in turn:

Type of sport

Clearly, the type of sport being covered will influence the nature and frequency of injuries seen, and the medical cover, personnel, and equipment required.

In sports, such as motorsport and horse racing, for example, participants are more likely to sustain significant traumatic injuries and there is a requirement to provide personnel and equipment to manage a range of life- and limb-threatening emergencies.

In sports like rugby and football (soccer, American, Gaelic, Australian Rules), again, significant and minor trauma is commonly seen, although athletes also frequently present with over-use type injuries and acute muscle, tendon, and ligamentous injuries.

Sports such as professional boxing and martial arts may see an increased incidence of bleeding and head injuries, whilst diving, rugby, and equestrian see a higher incidence of spinal injuries.

Other sports such as cricket, golf, tennis, swimming, and track and field events, the incidence of life- and limb-threatening emergencies is significantly less. In these non-contact sports, a broad range of over-use type injuries are more commonly seen, but this is not to say that the more significant traumatic/orthopaedic and life-threatening problems do not also occur.