

CONTENTS

Preface ix

Color Plates 1–6 Following Chapter 16

Color Plates 7–12 Following Chapter 27

PART I: PROBLEMS AND PREVENTION 1

- 1 / Anecdotal Observations 3
by Joseph S. Torg
- 2 / An Epidemiologic View 15
by Kenneth S. Clarke
- 3 / Impact Standard for Protective Equipment 28
by Voigt R. Hodgson
- 4 / Standards for Protective Eye Guards 44
by Michael Easterbrook
- 5 / Intracranial Injuries Resulting From Boxing 55
by Allan J. Ryan
- 6 / Position Statement of the American Medical Association on Boxing: Analysis
and Perspective 72
by Robert C. Cantu
- 7 / Trampoline-Induced Cervical Quadriplegia 85
by Joseph S. Torg
- 8 / The Epidemiologic, Biomechanical, and Cinematographic Analysis of
Football-Induced Cervical Spine Trauma and Its Prevention 97
by Joseph S. Torg
- 9 / Fatalities From Intracranial and Cervical Spine Injuries Occurring in Tackle
Football: 1945–1988 112
by Frederick O. Mueller
- 10 / Injuries to the Cervical Spine and Spinal Cord Resulting From
Ice Hockey 124
by Charles H. Tator
- 11 / Head and Spinal Injuries Associated With Equestrian Sports: Mechanisms
and Prevention 133
by William H. Brooks and Doris Bixby-Hammett

12 / Cervical Spine Injuries Resulting From Winter Sports	142
<i>by David C. Reid and Linda A. Saboe</i>	
13 / Injuries to the Cervical Spine and Cord Resulting From Water Sports	157
<i>by Joseph S. Torg</i>	
14 / Spinal Cord Injuries in Football-Rugby Union, Rugby League and Australian Rules	174
<i>by Thomas K.F. Taylor and Myles R.J. Coolican</i>	
15 / Legal Aspects of Athletic Injuries to the Head and Cervical Spine	199
<i>by Daniel Patterson</i>	
PART II: INTRACRANIAL INJURIES	211
16 / Anatomy of the Brain and Its Coverings	213
<i>by Robert J. Johnson</i>	
17 / Field Evaluation and Management of Intracranial Injuries	225
<i>by Joseph J. Vegso and Joseph S. Torg</i>	
18 / Head Injury Mechanisms	232
<i>by Thomas A. Gennarelli</i>	
19 / Radiographic Evaluation of the Skull and Facial Bones	241
<i>by Helene Pavlov</i>	
20 / Computed Tomography and Magnetic Resonance Imaging for Evaluation of Head Trauma	256
<i>by Caren Jahre, Helene Pavlov, and Michael D.F. Deck</i>	
21 / Cerebral Concussion and Diffuse Brain Injuries	270
<i>by Thomas A. Gennarelli</i>	
22 / Football-Induced Mild Head Injury	283
<i>by Wayne M. Alves</i>	
23 / Focal Intracranial Hematoma	305
<i>by Leonard A. Bruno</i>	
24 / Criteria for Return to Competition After a Closed Head Injury	323
<i>by Robert C. Cantu</i>	
PART III: BRACHIAL PLEXUS INJURIES	331
25 / Anatomy of the Innervation of the Upper Extremity	333
<i>by Carson D. Schneck</i>	
26 / Injuries to the Brachial Plexus	338
<i>by Elliott B. Hershman</i>	
PART IV: CERVICAL SPINE AND CORD INJURIES	369
27 / Anatomy of the Cervical Spine and Its Related Structures	371
<i>by Robert J. Johnson</i>	
28 / Radiographic Evaluation of the Cervical Spine and Related Structures	384
<i>by Helene Pavlov</i>	

- 29 / Computed Tomography and Magnetic Resonance Imaging of Cervical Spine Trauma 412
by Caren Jahre, Helene Pavlov, and Michael D.F. Deck
- 30 / Field Evaluation and Management of Cervical Spine Injuries 426
by Joseph J. Vegso and Joseph S. Torg
- 31 / Mechanisms and Pathomechanics of Athletic Injuries to the Cervical Spine 438
by James C. Otis, Albert H. Burstein, and Joseph S. Torg
- 32 / Upper Cervical Spine Injuries (C1 and C2) 457
by Steven G. Glasgow
- 33 / Middle Cervical Spine Injuries (C3 and C4) 469
by Joseph S. Torg and Helene Pavlov
- 34 / Management of Lower Cervical Spine Injuries (C4-C7) 491
by Marvin R. Leventhal
- 35 / Axial Load "Teardrop" Fracture 516
by Joseph S. Torg and Helene Pavlov
- 36 / Cervical Spinal Stenosis With Cord Neurapraxia and Transient Quadriplegia 533
by Joseph S. Torg and Colleen M. Fay
- 37 / Exercise Conditioning of the Spinal Cord-Injured Patient via Functional Electrical Stimulation 553
by Roger M. Glaser
- 38 / Rehabilitation of Cervical Spine, Brachial Plexus, and Peripheral Nerve Injuries 556
by Joseph J. Vegso
- 39 / Criteria for Return to Contact Activities After Cervical Spine Injury 589
by Joseph S. Torg and Steven G. Glasgow
- PART V: FACIAL, ORAL, AND EYE INJURIES 609**
- 40 / Diagnosis and Management of Maxillofacial Injuries 611
by Steven D. Handler
- 41 / Diagnosis and Management of Oral Injuries 635
by Martin S. Greenberg and Philip S. Springer
- 42 / Diagnosis and Management of Injuries to the Eye and Orbit 650
by Alexander J. Brucker, David M. Kozart, Charles W. Nichols, and Irving M. Raber
- Index 671