

---

# Contents

<b>1 Whiplash: An Interdisciplinary Challenge</b> . . . . .	1
A. Cesarani, C.F. Claussen, and D.C. Alpini	

## Part I General Aspects

<b>2 Epidemiology of Whiplash-Associated Disorders</b> . . . . .	13
F. Ioppolo and R.S. Rizzo	
<b>3 Functional Anatomy</b> . . . . .	17
C.L. Romanò, A. Mondini, S. Brambilla, and F. Ioppolo	
<b>4 Kinematics and Dynamics of the Vehicle/Seat/Occupant System Regarding Whiplash Injuries</b> . . . . .	27
P.L. Ardoino and F. Ioppolo	
<b>5 Whiplash Lesions: Orthopedic Considerations</b> . . . . .	43
E. Meani, S. Brambilla, A. Mondini, C.L. Romanò, and F. Ioppolo	
<b>6 Neurology of Whiplash</b> . . . . .	55
G. Meola, E. Bugiardini, and E. Scelzo	
<b>7 Radiological Evaluation</b> . . . . .	65
A. Bettinelli, M. Leonardi, E.P. Mangiagalli, and P. Cecconi	

## Part II Pathophysiology

<b>8 The Vestibulo-vertebral Functional Unit</b> . . . . .	77
D.C. Alpini, G. Brugnoli, A. Cesarani, and P.M. Bavera	
<b>9 Pathophysiology of Whiplash-Associated Disorders: Theories and Controversies</b> . . . . .	89
M. Magnusson, M. Karlberg, C. Mariconda, A. Bucalossi, and G. Dalmazzo	

<b>10</b>	<b>The Contribution of Posturology in Whiplash Injuries</b> . . . . .	95
	P.M. Gagey, D.C. Alpini, and E. Brunetta	
<b>11</b>	<b>Whiplash-Associated Autonomic Effects</b> . . . . .	107
	R. Boniver, D.C. Alpini, and G. Brugnoli	
<b>12</b>	<b>Whiplash-Associated Temporomandibular Disorders (TMDs)</b> . . . . .	117
	E. Brunetta	
<b>13</b>	<b>Whiplash and Sport</b> . . . . .	127
	M. Albano, D.C. Alpini, and G.V. Carbone	
<b>14</b>	<b>Whiplash Associated Somatic Tinnitus (WAST)</b> . . . . .	139
	D.C. Alpini, A. Cesarani, and A. Hahn	
 <b>Part III Evaluation</b>		
<b>15</b>	<b>Anamnesis and Clinical Evaluation of Whiplash-Associated Equilibrium Disturbances (WAED)</b> . . . . .	153
	A. Cesarani, D.C. Alpini, D. Brambilla, and F. Di Berardino	
<b>16</b>	<b>Whiplash Effects on Postural Control</b> . . . . .	165
	M. Magnusson and A. Hahn	
<b>17</b>	<b>Static Posturography and Whiplash</b> . . . . .	171
	P.L. Ghilardi, A. Casani, B. Fattori, R. Kohen-Raz, and D.C. Alpini	
<b>18</b>	<b>Dynamic Posturography</b> . . . . .	185
	S. Barozzi, B. Monti, D.C. Alpini, and F. Di Berardino	
<b>19</b>	<b>The Cervico-Cephalic Interaction</b> . . . . .	197
	D.C. Alpini, V. Mattei, D. Riva, and F. Di Berardino	
<b>20</b>	<b>Neurotology in Whiplash Injuries: Vestibulo-ocular Reflexes and Visuo-vestibular Interaction</b> . . . . .	213
	L.M. Odkvist, A. Cesarani, and F. Di Berardino	
<b>21</b>	<b>Vestibular Evoked Potentials in Relapsing Paroxysmal Positional Vertigo</b> . . . . .	223
	F. Di Berardino, D.C. Alpini, L. Pugnetti, V. Mattei, and B. Franz	
<b>22</b>	<b>Whiplash Effects on Brain: Voluntary Eye Movements</b> . . . . .	233
	M. Spanio, S. Rigo, and D.C. Alpini	

<b>23 Whiplash Effects on Brain: Optokinetic Nystagmus and Visuo-Vestibular Interaction</b> . . . . .	241
A. Salami, M.C. Medicina, and M. Dellepiane	
<b>24 Abducting Interocular Ophthalmoplegia After Whiplash Injuries.</b> . . . .	251
D.C. Alpini, A. Cesarani, and E. Merlo	

#### **Part IV Treatment**

<b>25 Pharmacological Treatment of Whiplash-Associated Disorders (WAD)</b> . . . . .	259
E.A. Pallesstrini, E. Castello, G. Garaventa, F. Ioppolo, and F. Di Berardino	
<b>26 Physiotherapy of Neck, Back and Pelvis</b> . . . . .	269
I. Odkvist, L.M. Odkvist, S. Negrini, and C. Mariconda	
<b>27 Manual Medicine in Whiplash-Associated Disorders (WAD)</b> . . . . .	281
G. Brugnoni, C. Correggia, and C. Mariconda	
<b>28 Rehabilitation Strategy According to the Quebec Classification</b> . . . . .	291
S. Negrini, P. Sibilla, S. Atanasio, and G. Brugnoni	
<b>29 Whiplash-Associated Equilibrium Disturbances (WAED) Rehabilitation: Vestibular Re-education and Vestibular Rehabilitation</b> . . . . .	305
D.C. Alpini, A. Cesarani, and F. Di Berardino	
<b>30 Vestibular Electrical Stimulation</b> . . . . .	315
A. Cesarani, D.C. Alpini, and E. Filippini	
<b>31 The Neurophysiological Basis of Vestibular Electrical Stimulation</b> . . . . .	321
M. Osio, L. Brunati, G. Abello, and A. Mangoni	
<b>32 Ski Trainer Oscillating Platform: Proprioceptive Reeducation</b> . . . . .	327
M. Savini, D.C. Alpini, and A. Cesarani	
<b>33 Visual Feedback Postural Control Re-education</b> . . . . .	333
D.C. Alpini, A. Cesarani, M. De Bellis, R. Kohen-Raz, and D. Riva	
<b>34 Neurorehabilitation of Ataxia</b> . . . . .	343
M. Forni	

---

<b>35</b>	<b>Rehabilitation in Polytrauma</b> . . . . .	<b>351</b>
	E. Spadini	
<b>36</b>	<b>Acupuncture and Chinese Medicine: Cervical Disorders and Chronic Pain</b> . . . . .	<b>355</b>
	G. Garozzo	
<b>37</b>	<b>Acupuncture and Chinese Medicine: Equilibrium Disorders</b> . . . . .	<b>373</b>
	P.L. Ghilardi, C. Borsari, A. Casani, L. Bonuccelli, and B. Fattori	
 <b>Part V Conclusive Remarks</b>		
<b>38</b>	<b>Management and Treatment of WAD Patients: Conclusive Remarks</b> . . . . .	<b>383</b>
	D.C. Alpini, G. Brugnoli, and A. Cesarani	
	 <b>Index</b> . . . . .	 <b>401</b>

## Whiplash Injuries

### Diagnosis and Treatment

Alpini, D.C.; Brugnoli, G.; Cesarani, A. (Eds.)

2014, XIV, 404 p. 114 illus., 26 illus. in color., Hardcover

ISBN: 978-88-470-5485-1