Contents

	face Alex Edmonds and Gershon Tenenbaum	xi
Abo	out the Editors and Contributing Authors	xvii
Pa	rt I General Biofeedback and Neurofeedback Forwards	1
1	The Use of General Biofeedback in the Pursuit of Optimal Performance Donald Moss and "Sue" Vietta Wilson	2 3
	Introduction	3
	Paradigms in Biofeedback Assisted Optimal Performance Work	4
	The Field of Optimal Performance Psychophysiology	6
	A Brief History	7
	Biofeedback Tools for Optimal Performance: Modalities	7
	Standards for Application	10
	Professional Resources	10
	Conclusion	12
	References	12
2	Performance Enhancement Applications of Neurofeedback Siegfried Othmer and Susan F. Othmer	17
	Introduction	17
	Application to Optimal Functioning	19
	The Role of Assessment	22
	The Reduction to Practice	24
	Professional Preparation	26
	Principal Neurofeedback Approaches	26
	Summary and Conclusion	28
	Resources	29
	References	29

vi Contents

Part II Case Presentations		
3	Case 1 – Bad Shot, Good Shot: Neurofeedback for World Champion or Developing Athlete "Sue" Vietta E. Wilson and Lindsay Shaw	33
	World Champion Archer: Kevin Evans	33
	Using EEG for a Developing Athlete	38
	Long-term EEG Training for Developing Athletes	44
	Summary of Bad Shot, Good Shot	45
	References	45
4	Case 2 – Imagery Assessment and Training with QEEG: What You See Is Not All There Is	47
	"Sue" Vietta E. Wilson and Lindsay Shaw	47
	Introduction	47
	Imagery Definition and Models	47
	Models of Imagery	48
	Assessment of Imagery	49
	EEG and Imagery	51
	The Future of Imagery Assessment	53
	Methodological Issues in Imagery	54
	Clinical Suggestions	55
	Clinical Use of QEEG for the Assessment and Training of Sport Imagery	56 50
	Typical Training Session including Imagery Summary	59 66
	References	67
	References	07
5	Case 3 – Simultaneous Alpha EEG Enhancing and Frontal's Muscle	
	EMG Decreasing: Biofeedback Training for Musical Peak Performance Olga M. Bazanova	71
	Introduction	71
	Background Information of Client	71
	Description of the Presenting Problem	74
	Assessment and Diagnosis	74
	Alpha Activity EEG Analysis	76
	Intervention	78
	Outcomes and Discussion of Findings	89
	References	90
6	Case 4 – The Golfer Who Couldn't Pass the Anxiety Test! D. Jane Arave	94
	Background Information of Client	94
	On Being a "Mental Coach"	95
	Description of the Presenting Problem	95
	Biofeedback and Neurofeedback Protocol – Assessment,	
	Diagnosis, and Training	96

	Contents	vii
	Outcome and Discussion References	105 108
7	Case 5 – Biofeedback for Relaxation Ronald Rosenthal	110
	Introduction Background Information Assessment and Diagnosis Interventions and Results Summary and Conclusions	110 111 112 113 119
	Summary and Conclusions Reference	119
8	Case 6 – The Road to Olympic Medal Boris Blumenstein and Iris Orbach	120
	Background Information	120
	Athlete	121
	Intervention, Equipment, and Measurements	123
	Results and Discussion of Findings	130
	References	132
9	Case 7 – Biofeedback Training at Sea Boris Blumenstein and Iris Orbach	134
	Background Information	134
	Athlete	135
	Equipment, Assessment and Diagnosis	135
	Intervention and Settings	137
	References	143
10	Case 8 – I Thought I Was Relaxed: The Use of SEMG Biofeedback	
10	for Training Awareness and Control Richard Harvey and Erik Peper	144
	Introduction	144
	Lack of Muscle Tension Awareness	145
	Clinically Relevant Findings	147
	Dysponesis	147
	Making the Invisible Visible	149
	Example 1: Improving Health at the Computer	149
	Assessment	150
	Discussion of the Assessment	151
	Training	151
	Example 2: Enhancing Performance Working out in the Gym on an Elliptical Machine	152
	Discovery of Dysponesis	153
	Biofeedback Training to Correct Equipment-related Dysponesis	153
	Performance Benefits of Reducing Shoulder and Arm Dysponesis	155
	Discussion	157
	References	158

viii Contents

11	Case 9 – Psychophysiological Assessment and Biofeedback during Official Baseball Games: Procedures, Methodologies, Findings and	
	Critical Issues in Applied Sport Psychology Roland A. Carlstedt	160
	Introduction	160
	A Hierarchical Evidence-based Step-by-Step Ecological Protocol	161
	Primary Higher Order Factors and Their Relevance to Biofeedback Construct Validity of the Carlstedt Protocol Athlete's Profile and Critical	163
	Moments Model of Peak Performance Applying the CP to Elite Youth Team Baseball Players: Assessment,	165
	Intervention and Findings	168
	In-the-Laboratory Psychophysiological Stress Testing	169
	Starting Player Stress Test Responses	170
	Procedures during Official Games: Pre-intervention Phase	172
	Procedures During Official Games: Intervention Phase	173
	The Intervention: "Lock-In"-HRD/HRV Biofeedback Protocol	173
	The "Lock-In" – HRD Biofeedback: Step-by-Step	174
	Critical Moment Analyses	176
	Findings Case Studies: Relationships between Heart Rate Variability Components and Batting Performance and Pre-Intervention vs. Intervention	177
	Batting Performance	179
	Pre-Intervention HRV	181
	Select Case Studies	185
	Summary: Critical Issues in Sport Psychophysiology and Biofeedback	196
	Conclusions	198
	Overview	198
	References	199
12	Case 10 – Performance Anxiety, Biofeedback and the Pianist: Wind Instrument Players are not the only Musicians Affected	
	by Breathing	201
	Tom D. Kennedy and W. Alex Edmonds	201
	Introduction	201
	Background Information of Client	202
	Description of the Presenting Problem	202
	Assessment and Diagnosis	203
	Intervention	208
	Outcomes and Discussion of Findings References	213 216
13	Case 11 – The 400-meter Sprinter Who Ran Too Fast! W. Alex Edmonds	218
	Background Information of Client	218
	Description of the Presenting Problem	219

Contents	ix

	Assessment and Diagnosis Intervention Outcomes and Discussion of Findings References	220 222 227 230
14	Case 12 – Traumatic Brain Injury Recovery: A Neurofeedback-integrative Approach Diane Roberts Stoler	232
	The Brain	232
	Brain Injury	232
	Types of Biofeedback and Neurofeedback	233
	Additional Modalities	235
	Two Case Studies	236
	Case 2: Presenting Problem	240
	Discussion of Findings	244
	Conclusion	245
	Further Reading	245
Par	t III Certification, Equipment, and Future Directions	247
15	Certification and Ethics in Applied Psychophysiology (90876) Phillip A. Hughes and Fred Shaffer	249
	BCIA's Mission	249
	What Certification Means	250
	Recognition of BCIA Board Certification	250
	BCIA Biofeedback Areas	250
	BCIA Certification Programs	250
	Levels of Experience	251
	Who Are BCIA Certificants?	252
	What Is the Value of BCIA Certification?	252
	How Can You Become BCIA Board Certified?	252
	BCIA's Professional Standards and Ethical Principles	252
	Case 1: Coding of Biofeedback Therapy for Insurance Reimbursement	253
	Case 2: Touching	254
	Case 3: Scope of Practice	255
	References	255
16	Psychophysiology: Equipment in Research and Practice Derek T.Y. Mann and Chris M. Janelle	257
	Introduction	257
	Biofeedback and Performance	258
	Neurofeedback and Performance	261
	Biofeedback and Neurofeedback Modalities	262
	Psychophysiological Recording Devices	267
	References	270

X		Contents

17	Future Directions in Applied Psychophysiology: Skills Not Pills Richard Harvey and Erik Peper	275
	Overview	275
	Treating Illnesses that are Caused or Aggravated by Stress,	
	Depression, Anxiety, and Unhealthy Life Patterns	277
	Holistic Whole-Person Views in Applied Psychophysiology	278
	Technological Advances and Applied Psychophysiology	283
	Conceptual Modeling	284
	References	286
Ind	ex	293