

# Contents

Preface xi

Acknowledgments xv

## PART ONE

# Introduction and Basic Concepts

## 1

<b>CHAPTER 1</b>	<b>Foundations of Exercise Psychology . . . . .</b>	<b>3</b>
	<i>Dualism Versus Monism . . . . .</i>	<i>4</i>
	<i>Biological Foundations . . . . .</i>	<i>6</i>
	<i>Cognitive Foundations . . . . .</i>	<i>6</i>
	<i>Behavioral and Social Foundations . . . . .</i>	<i>7</i>
	<i>Contemporary Exercise Psychology . . . . .</i>	<i>10</i>
	<i>Overview of Physical Activity and Mental Health . . . . .</i>	<i>12</i>
	<i>Overview of Physical Activity Behavior . . . . .</i>	<i>14</i>
	<i>Summary . . . . .</i>	<i>15</i>
	<i>Websites . . . . .</i>	<i>15</i>
<b>CHAPTER 2</b>	<b>Basic Concepts in Exercise Psychology . . .</b>	<b>17</b>
	<i>General Concepts . . . . .</i>	<i>17</i>
	<i>Psychological Constructs . . . . .</i>	<i>18</i>
	<i>Multidimensional Scales . . . . .</i>	<i>23</i>
	<i>Covariance Modeling . . . . .</i>	<i>26</i>
	<i>Defining Physical Activity and Fitness . . . . .</i>	<i>33</i>
	<i>Measuring Physical Activity . . . . .</i>	<i>35</i>
	<i>Behavioral Genetics . . . . .</i>	<i>39</i>
	<i>Research Issues . . . . .</i>	<i>41</i>
	<i>Summary . . . . .</i>	<i>46</i>
	<i>Websites . . . . .</i>	<i>46</i>

<b>CHAPTER 3 Behavioral Neuroscience . . . . .</b>	<b>47</b>
<i>The Neural Network . . . . .</i>	47
<i>Neurotransmitters . . . . .</i>	61
<i>Cellular and Molecular Biology of the Brain . . . . .</i>	69
<i>Animal Models . . . . .</i>	75
<i>Measuring Brain Activity . . . . .</i>	79
<i>Summary . . . . .</i>	91
<i>Websites . . . . .</i>	92

## PART TWO

# Exercise and Mental Health

93

<b>CHAPTER 4 Stress . . . . .</b>	<b>95</b>
<i>Background and Definitions . . . . .</i>	95
<i>Effects of Exercise . . . . .</i>	99
<i>Mechanisms . . . . .</i>	100
<i>Contemporary Views: Exercise Research . . . . .</i>	107
<i>Summary . . . . .</i>	115
<i>Websites . . . . .</i>	116
<b>CHAPTER 5 Affect, Mood, and Emotion . . . . .</b>	<b>117</b>
<i>Definitions of Terms . . . . .</i>	118
<i>A Brief History . . . . .</i>	124
<i>Contemporary Views of Affect and Emotion . . . . .</i>	127
<i>Neuroanatomy of Affect and Emotion . . . . .</i>	129
<i>Factors Influencing the Effects of Exercise on Affect . . . . .</i>	140
<i>Research on Exercise and Affect . . . . .</i>	142
<i>Psychophysiological and Behavioral Assessment . . . . .</i>	146
<i>Mechanisms . . . . .</i>	153
<i>Hazards of Exercise? . . . . .</i>	157
<i>Summary . . . . .</i>	157
<i>Websites . . . . .</i>	158

<b>CHAPTER 6</b>	<b>Anxiety</b> . . . . .	<b>159</b>
	<i>Prevalence and Social Impact</i> . . . . .	159
	<i>Definitions</i> . . . . .	161
	<i>Types of Common Anxiety Disorders</i> . . . . .	162
	<i>Effects of Exercise</i> . . . . .	163
	<i>Psychotherapy</i> . . . . .	175
	<i>Pharmacotherapy</i> . . . . .	175
	<i>Mechanisms</i> . . . . .	177
	<i>Summary</i> . . . . .	182
	<i>Websites</i> . . . . .	183
<b>CHAPTER 7</b>	<b>Depression</b> . . . . .	<b>185</b>
	<i>Prevalence and Social Impact</i> . . . . .	185
	<i>Clinical Description</i> . . . . .	188
	<i>Effects of Exercise</i> . . . . .	191
	<i>Pharmacotherapy</i> . . . . .	207
	<i>Mechanisms</i> . . . . .	207
	<i>Summary</i> . . . . .	218
	<i>Websites</i> . . . . .	219
<b>CHAPTER 8</b>	<b>Exercise and Cognitive Function</b> . . . . .	<b>221</b>
	<i>Definition</i> . . . . .	221
	<i>Measurement</i> . . . . .	222
	<i>Neurophysiological Measures</i> . . . . .	224
	<i>Research</i> . . . . .	225
	<i>Mechanisms</i> . . . . .	232
	<i>Disease States, Exercise, and Cognition</i> . . . . .	234
	<i>Factors That Moderate the Effects of Exercise</i> . . . . .	239
	<i>Issues in Research</i> . . . . .	241
	<i>Summary</i> . . . . .	244
	<i>Websites</i> . . . . .	244
<b>CHAPTER 9</b>	<b>Energy and Fatigue</b> . . . . .	<b>245</b>
	<i>Definitions</i> . . . . .	245
	<i>A Brief History</i> . . . . .	245
	<i>Conceptual Framework</i> . . . . .	246

	<i>Measurement</i> . . . . .	246
	<i>Mechanisms</i> . . . . .	255
	<i>Summary</i> . . . . .	257
	<i>Websites</i> . . . . .	257
<b>CHAPTER 10</b>	<b>Sleep</b> . . . . .	<b>259</b>
	<i>Sleep Disturbances</i> . . . . .	259
	<i>Prevalence and Impact of Sleep Disturbances</i> . . . . .	260
	<i>A Brief History</i> . . . . .	261
	<i>Definitions</i> . . . . .	262
	<i>Measurement</i> . . . . .	264
	<i>Research on Exercise and Sleep</i> . . . . .	265
	<i>Mechanisms</i> . . . . .	273
	<i>Summary</i> . . . . .	274
	<i>Websites</i> . . . . .	275
<b>CHAPTER 11</b>	<b>Exercise and Pain</b> . . . . .	<b>277</b>
	<i>Definitions</i> . . . . .	277
	<i>Measurement</i> . . . . .	278
	<i>Scope and Impact of Chronic Pain</i> . . . . .	279
	<i>Neurobiological Basis of Pain</i> . . . . .	280
	<i>Pain During and After Acute Exercise</i> . . . . .	283
	<i>Effects of Exercise Training</i> . . . . .	287
	<i>Summary</i> . . . . .	293
	<i>Websites</i> . . . . .	293
<b>CHAPTER 12</b>	<b>Self-Esteem</b> . . . . .	<b>295</b>
	<i>The Self-System</i> . . . . .	295
	<i>Theories and Models</i> . . . . .	298
	<i>Factors Influencing Self-Esteem</i> . . . . .	299
	<i>Measurement</i> . . . . .	302
	<i>Exercise and Self-Esteem</i> . . . . .	307
	<i>Mechanisms</i> . . . . .	313
	<i>Distorted Body Image and Exercise</i> . . . . .	314
	<i>Summary</i> . . . . .	318
	<i>Websites</i> . . . . .	319

## PART THREE

# The Psychology of Physical Activity Behavior

321

<b>CHAPTER 13</b>	<b>Correlates of Exercise and Physical Activity . . . . .</b>	<b>323</b>
	<i>Classification of Correlates . . . . .</i>	<i>324</i>
	<i>Issues in Research . . . . .</i>	<i>342</i>
	<i>Summary . . . . .</i>	<i>343</i>
	<i>Websites . . . . .</i>	<i>344</i>
<b>CHAPTER 14</b>	<b>Theories of Behavior Change . . . . .</b>	<b>345</b>
	<i>Behaviorism . . . . .</i>	<i>346</i>
	<i>Cognitive Behaviorism . . . . .</i>	<i>348</i>
	<i>Social Cognitive Theory . . . . .</i>	<i>349</i>
	<i>Bandura's Self-Efficacy Theory . . . . .</i>	<i>351</i>
	<i>Theory of Planned Behavior . . . . .</i>	<i>353</i>
	<i>Self-Determination Theory . . . . .</i>	<i>354</i>
	<i>Stage Theories . . . . .</i>	<i>356</i>
	<i>Other Theories Applied to Exercise and Physical Activity . . . . .</i>	<i>360</i>
	<i>Issues in the Application of Theories of Exercise Behavior . . . . .</i>	<i>365</i>
	<i>Summary . . . . .</i>	<i>367</i>
	<i>Websites . . . . .</i>	<i>367</i>
<b>CHAPTER 15</b>	<b>Interventions to Change Physical Activity Behavior . . . . .</b>	<b>369</b>
	<i>Overview . . . . .</i>	<i>369</i>
	<i>Intervention Context . . . . .</i>	<i>370</i>
	<i>Specific Strategies . . . . .</i>	<i>382</i>
	<i>Environment and Policy-Based Interventions . . . . .</i>	<i>395</i>
	<i>Why Can't We Keep People Active? Mediators and Intervention Effectiveness . . . . .</i>	<i>396</i>

<i>Summary</i> . . . . .	399
<i>Websites</i> . . . . .	399
<b>CHAPTER 16 Perceived Exertion</b> . . . . .	<b>401</b>
<i>A Brief History</i> . . . . .	402
<i>Psychophysics and Perceived Exertion</i> . . . . .	404
<i>Comparing People</i> . . . . .	410
<i>Signals to Perceived Exertion</i> . . . . .	412
<i>Sensory Nervous System</i> . . . . .	413
<i>Physiological Mediators</i> . . . . .	419
<i>Psychological and Sociocultural Influences</i> . . . . .	427
<i>Perceived Exertion: The Final Common Pathway</i> . . . . .	430
<i>Practical Use of Ratings of Perceived Exertion</i> . . . . .	432
<i>Summary</i> . . . . .	438
<i>Websites</i> . . . . .	439
Glossary	441
Bibliography	455
Index	515
About the Authors	526