

# CONTENTS

<i>List of figures</i>	<i>xi</i>
<i>List of tables</i>	<i>xiii</i>
<i>List of contributors</i>	<i>xv</i>

Physical activity as a mental health intervention in the era of managed care: A rationale <i>Panteleimon Ekkekakis</i>	1
---	---

## PART 1

### **The physical activity "feel-good" effect** 33

*Edited by Panteleimon Ekkekakis*

- 1 Pleasure from the exercising body: Two centuries of changing outlooks in psychological thought  
*Panteleimon Ekkekakis* 35
- 2 Physical activity and reward: The role of endogenous opioids  
*Henning Boecker and Rod K. Dishman* 57
- 3 Physical activity feel-good effect: The role of endocannabinoids  
*Francis Chaouloff, Sarah Dubreucq, Isabelle Matias, and Giovanni Marsicano* 71
- 4 Physical activity and reward: The role of dopamine  
*Justin S. Rhodes and Petra Majdak* 88

<b>PART 2</b>	
<b>Anxiety disorders</b>	<b>103</b>
<i>Edited by Jasper A.J. Smits</i>	
5 The relationship between physical activity and anxiety and its disorders <i>Angela C. Utschig, Michael W. Otto, Mark B. Powers, and Jasper A.J. Smits</i>	105
6 Mechanisms underlying the relationship between physical activity and anxiety: Human data <i>Katharina Gaudlitz, Brigitt-Leila von Lindenberger, Elisabeth Zschucke, and Andreas Ströhle</i>	117
7 Mechanisms underlying the relationship between physical activity and anxiety: Animal data <i>Benjamin N. Greenwood and Monika Fleshner</i>	130
<b>PART 3</b>	
<b>Depression and mood disorders</b>	<b>143</b>
<i>Edited by Lynette L. Craft</i>	
8 Exercise and physical activity in the prevention and treatment of depression <i>Patrick J. Smith and James A. Blumenthal</i>	145
9 Potential psychological mechanisms underlying the exercise and depression relationship <i>Lynette L. Craft</i>	161
10 The neurobiology of depression and physical exercise <i>Michael J. Chen</i>	169
<b>PART 4</b>	
<b>Self-perceptions and self-evaluations</b>	<b>185</b>
<i>Edited by Kathleen A. Martin Ginis</i>	
11 Physical activity and self-perceptions among children and adolescents <i>Lindsay E. Kipp and Maureen R. Weiss</i>	187
12 Physical activity and self-perceptions among adults <i>Peter R. E. Crocker, Carolyn E. McEwen, and Amber D. Mosewich</i>	200
13 Identities, schemas, and definitions: How aspects of the self influence exercise behavior <i>Shaelyn M. Strachan and Diane E. Whaley</i>	212

14	Physical activity and personal agency: Self-efficacy as a determinant, consequence, and mediator	224
	<i>Edward McAuley, Emily L. Mailey, Amanda N. Szabo, and Neha Gothe</i>	
15	Physical activity and body image	236
	<i>Kathleen A. Martin Ginis, Desmond McEwan, and Rebecca L. Bassett-Gunter</i>	
<b>PART 5</b>		
	<b>Cognitive function across the lifespan</b>	<b>247</b>
	<i>Edited by Jennifer L. Etnier</i>	
16	Physical activity: Relations with children's cognitive and academic performance	249
	<i>Jennifer I. Gapin, Lisa A. Barella, and Jennifer L. Etnier</i>	
17	Exercise effects on brain and cognition in older adults	262
	<i>Michelle W. Voss and Kirk I. Erickson</i>	
18	Physical activity, cognitive impairment, and dementia	275
	<i>Laura E. Middleton, Kristine Yaffe, and Deborah Barnes</i>	
19	Exercise and cognitive function: Neurobiological mechanisms	287
	<i>Nicole C. Berchtold and Carl W. Cotman</i>	
<b>PART 6</b>		
	<b>Psychosocial stress</b>	<b>301</b>
	<i>Edited by Mark Hamer</i>	
20	Physical activity, stress reactivity, and stress-mediated pathophysiology	303
	<i>Mark Hamer and Andrew Steptoe</i>	
21	Impact of physical activity on diurnal rhythms: A potential mechanism for exercise-induced stress resistance and stress resilience	316
	<i>Monika Fleshner, Robert S. Thompson, and Benjamin N. Greenwood</i>	
22	Physical activity and stress: Peripheral physiological adaptations	329
	<i>Jacqueline L. Beaudry, Anna D'souza, and Michael C. Riddell</i>	
23	Physical activity, stress, and immune function	342
	<i>Kate M. Edwards and Paul J. Mills</i>	

<b>PART 7</b>		
<b>Pain</b>		<b>357</b>
<i>Edited by Dane B. Cook</i>		
24	The interaction of musculoskeletal pain and physical activity: Human studies <i>Thomas Graven-Nielsen, Henrik B. Madsen, and Lars Arendt-Nielsen</i>	359
25	Effects of physical activity on laboratory pain: Studies on animals <i>Kathleen A. Sluka</i>	372
26	Effects of acute and chronic physical activity on chronic pain conditions <i>Aaron J. Stegner, Morgan R. Shields, Jacob D. Meyer, and Dane B. Cook</i>	387
27	Physical activity and pain: Neurobiological mechanisms <i>Laura D. Ellingson and Dane B. Cook</i>	400
<b>PART 8</b>		
<b>Energy and fatigue</b>		<b>411</b>
<i>Edited by Justy Reed</i>		
28	Effect of acute and regular aerobic physical activity on positive activated affect <i>Justy Reed</i>	413
29	Physical activity and feelings of fatigue <i>Timothy W. Puetz and Matthew P. Herring</i>	422
30	Tired of being sedentary: Physical activity as a treatment goal in patients with chronic fatigue syndrome <i>Jo Nijs, Mira Meeus, Jessica Van Oostenvijck, Kelly Ickmans, Inge van Eupen, and Daphne Kos</i>	440
<b>PART 9</b>		
<b>Addictions</b>		<b>449</b>
<i>Edited by Michael Ussher</i>		
31	Physical activity as an aid in smoking cessation <i>Adrian H. Taylor and Michael Ussher</i>	451
32	Physical activity and alcohol and drug use disorders <i>Ana M. Abrantes, Stephen Matsko, Jessica Wolfe, and Richard A. Brown</i>	465

- 33 The neurobiology of exercise and drug-seeking behavior 478  
*Mark A. Smith and Wendy J. Lynch*

PART 10

**Quality of life in special populations 491**

*Edited by S. Nicole Culos-Reed*

- 34 Role of physical activity in older adults' quality of life 493  
*Steriani Elavsky and Edward McAuley*

- 35 Physical activity and quality of life in cardiovascular and pulmonary diseases 505  
*Charles F. Emery, Risa N. Long, and KayLoni L. Olson*

- 36 Physical activity and psychosocial health among cancer survivors 518  
*Jeffrey Vallance, S. Nicole Culos-Reed, Michael Mackenzie, and Kerry S. Courneya*

- 37 Physical activity and quality of life in multiple sclerosis 530  
*Robert W. Motl*

- 38 Exercise as an adjunct treatment for schizophrenia 541  
*Guy Faulkner, Paul Gorczynski, and Kelly Arbour-Nicotopoulos*

- Postscript 556  
*Panteleimon Ekkekakis*

- Index 559