Pediatric Fitness
Pediatric Fitness

Secular Trends and Geographic Variability

Volume Editors

Grant R. Tomkinson, Adelaide
Timothy S. Olds, Adelaide

49 figures, and 39 tables, 2007
Contents

VII Foreword
Doll-Tepper, G. (Berlin)

VIII Contributors

1 Introduction
Tomkinson, G.R.; Olds, T.S. (Adelaide)

5 Aerobic Fitness: What Are We Measuring?
Armstrong, N.; Welsman, J.R. (Exeter)

26 Anaerobic Fitness Tests: What Are We Measuring?
Van Praagh, E. (Aubièrè)

46 Secular Changes in Pediatric Aerobic Fitness
Test Performance: The Global Picture
Tomkinson, G.R.; Olds, T.S. (Adelaide)

67 Physical Fitness of Children and Adolescents in the
United States: Status and Secular Change
Malina, R.M. (Stephenville, Tex.)

91 Fitness of Canadian Children: Range from Traditional Inuit to
Sedentary City Dwellers, and Assessment of Secular Changes
Shephard, R.J. (Toronto, Ont.)
Contents

104 Who Are the Eurofittest?
Tomkinson, G.R.; Olds, T.S. (Adelaide); Borms, J. (Brussels)

Jüirimäe, T. (Tartu); Volbekiene, V. (Kaunas); Jüirimäe, J. (Tartu);
Tomkinson, G.R. (Adelaide)

143 Evolution and Variability in Fitness Test Performance of Asian Children and Adolescents
Macfarlane, D.J. (Hong Kong); Tomkinson, G.R. (Adelaide)

168 Secular Changes in Aerobic Fitness Test Performance of Australasian Children and Adolescents
Tomkinson, G.R.; Olds, T.S. (Adelaide)

183 Prevalence, Trends and Environmental Influences on Child and Youth Physical Activity
Salmon, J.; Timperio, A. (Burwood)

200 Evolution of Maximal Oxygen Uptake in Children
Rowland, T.W. (Springfield, Mass.)

210 Distributional Changes in the Performance of Australian Children on Tests of Cardiorespiratory Endurance
Dollman, J.; Olds, T.S. (Adelaide)

226 Declines in Aerobic Fitness: Are They Only Due to Increasing Fatness?
Olds, T.S.; Ridley, K.; Tomkinson, G.R. (Adelaide)

241 Subject Index
In the conduct of scientific research, the testing of a theory often generates additional questions or identifies gaps in information that require further study. Research into the fitness of young people has been no exception. If fitness of children is declining, why is it doing so? when did it start happening? are they still fit enough? and for practical purposes, what can we do about it?

Pediatric Fitness – Secular Trends and Geographic Variability provides us with a comprehensive, worldwide overview of changes in children’s fitness levels over previous decades and while the volume does not aim to provide an answer for what can be done about declining levels, it is thorough in its compilation of international data, which paints a very apparent picture.

Given the current international spotlight on overweight and obesity, this book will contribute greatly to the evidence base and the argument surrounding the impact that physical activity, or inactivity, has. Policy makers, practitioners, providers and even parents, will benefit from the information presented as it can be used as a tool for advocacy and support.

I, as President of the International Council of Sport Science and Physical Education (ICSSPE), commend the authors and editors for compiling such an extensive body of research which can support future decision-making processes. ICSSPE welcomes and encourages the sharing of research, seeing it as a vital component of development of all aspects of sport, sport science and physical education.

Gudrun Doll-Tepper  
ICSSPE President
Contributors

Neil Armstrong
University of Exeter, Exeter (UK)
N.Armstrong@exeter.ac.uk

Jan Borms
Vrije Universiteit Brussel, Brussels
(Belgium)
jborms@skynet.be

James Dollman
University of South Australia,
Adelaide (Australia)
james.dollman@unisa.edu.au

Jaak Jürimäe
University of Tartu, Tartu (Estonia)
jaakj@ut.ee

Toivo Jürimäe
University of Tartu, Tartu (Estonia)
toivoj@ut.ee

Duncan Macfarlane
University of Hong Kong,
Hong Kong (Hong Kong)
djmac@hku.hk

Robert Malina
Tarleton State University, Bay City,
Tex. (USA)
rmalina@wcnet.net

Timothy Olds
University of South Australia,
Adelaide (Australia)
tim olds@unisa.edu.au

Kate Ridley
Flinders University, Adelaide
(Australia)
kate.ridley@flinders.edu.au

Thomas Rowland
Bay State Medical Center, Bay City,
Tex. (USA)
Thomas.Rowland@bhs.org
Referees

The chapters in this volume have undergone peer review by an international expert committee consisting of the following members:

Lars Bo Andersen, Oslo  
Neil Armstrong, Exeter  
Georges Baquet, Lille  
Michael Beets, Corvallis, Oreg.  
Cora Craig, Toronto, Ont.  
David Docherty, Victoria, B.C.  
James Dollman, Adelaide  
Robert Duffield, Bathurst  
Frank Fu, Hong Kong  
Michael Hamlin, Christchurch  
Beth Hands, Fremantle  
Sang-Jo Kang, Seoul  
Luc Léger, Montreal, Qué.  
Duncan Macfarlane, Hong Kong  
Robert Malina, Stephenville, Tex.  
Geraldine Naughton, Sydney  
Timothy Olds, Adelaide  
Kate Ridley, Adelaide  
Ann Rowlands, Exeter  
Grant Tomkinson, Adelaide  
Niels Wedderkopp, Ringe