Exercise Endocrinology, a review

Citation for published version (APA):

Document status and date:
Published: 01/01/2004

DOI:
10.1016/j.physbeh.2003.08.014

Document Version:
Publisher's PDF, also known as Version of record

Document license:
Taverne

Please check the document version of this publication:
- A submitted manuscript is the version of the article upon submission and before peer-review. There can be important differences between the submitted version and the official published version of record. People interested in the research are advised to contact the author for the final version of the publication, or visit the DOI to the publisher's website.
- The final author version and the galley proof are versions of the publication after peer review.
- The final published version features the final layout of the paper including the volume, issue and page numbers.

Link to publication

General rights
Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal.

If the publication is distributed under the terms of Article 25fa of the Dutch Copyright Act, indicated by the “Taverne” license above, please follow below link for the End User Agreement:
www.umlib.nl/taverne-license

Take down policy
If you believe that this document breaches copyright please contact us at:
repository@maastrichtuniversity.nl
providing details and we will investigate your claim.

Download date: 17 Sep. 2023
Book review

Exercise Endocrinology
Katarina T. Borer, Human Kinetics, Champaign, IL 2003, USA

This book describes how hormones and messengers of the autonomic nervous system affect human biology before, during, and after exercise. After general chapters on hormones and neurotransmitters, the focus is on the involvement in specific functions that affect exercise including the regulation of body temperature, fluid balance, and fuel supply. Additionally, there is a focus on interactions of exercise with biological rhythms and reproduction. The value of the book is its consistency thanks to the one-author instead of the multiauthor approach. Combined with the broad area covered, it automatically implicates a limitation with respect to critical evaluation of the significance of the various citations. The book requires basic knowledge of physiology and exercise at the life science bachelor level. It can be highly recommended for master students in movement sciences and others as an introduction to the endocrinology of exercise. It is more of a textbook with a review of the literature than an introduction to research where the author dares to hint at critical issues.

The titles of chapters like ‘Regulation of body fluids during exercise,’ ‘Hormonal regulation of fuel use in exercise,’ and ‘Endocrinology of biological rhythms and exercise’ suggest a problem-oriented approach as we nowadays see a lot in the university teaching system. However, the content of the chapters is structured in the more traditional way, trying to give a complete coverage of aspects involved. The pay off, of course, is inevitably simplification of explanations. I cannot resist mentioning a few on exercise and the nutrient partitioning between structure and storage. The food quotient (FQ) is not the ratio of oxidative carbon dioxide produced and oxygen consumed when a representative sample of diet is combusted in a bomb calorimeter (p. 145) but in the body, where part of the food energy is not converted to metabolizable energy but lost in feces and urine. On the same page, it is stated that exercise- and training-induced increases in metabolic rate usually, but not always, counteract fasting-induced suppression of metabolism. This was and still is a hot topic in obesity research. In a meta-analysis on the effect of exercise, with or without dieting, on the body composition, there was only a marginal difference between the two treatments [Garrow and Summerbell. Eur J Clin Nutr (1995) 49, 1–10]. Aerobic exercise causes a modest loss of weight without dieting as correctly concluded on page 143. Exercise provides some conservation of lean body mass by dieting, probably by maintaining glycogen and water, i.e., not an increased fat loss by an increased metabolic rate as expected. Also, the statements that obese individuals are hypoactive and underweight individuals behave hyperactive (p. 143) are too simple. Obese individuals often have an increased activity-induced energy expenditure. However, even when they spent similar amounts of energy in physical activity, they can do less than normal-weight individuals because of the increased energy cost of moving a larger body mass [Ekelund et al. Am J Clin Nutr (2002) 76, 935–941]. Also, in human subjects in daily life, undereating is associated with a reduced and not an increased physical activity, possibly through a declined physical capacity [Bouten et al. Med Sci Sports Exerc (1996) 28, 967–973].

The application of endocrinology in exercise necessarily limits the readership. Indeed, most examples are taken from the literature on exercise and more specifically on endurance exercise. One wonders why, as phenomena included like hypertension, metabolic syndrome, energy balance, and obesity are linked to our current sedentary society but not necessarily solved with high intensity or endurance exercise. A change from a sedentary to a more physically active lifestyle could already have pronounced effects through mechanisms as illustrated. In some chapters, habitual physical activity is mentioned instead of sustained high intensity exercise levels, but according to the index, it is only mentioned three times where exercise is used throughout all chapters.

All nine chapters have a short and clear introduction on the area covered and the link with other chapters in the book. Each chapter has a substructure with separate headings as explained as well. Thanks to the consistency with one author, there is one list with nearly 3000 references! What I was missing is a summary at the end of each chapter. There was only one at the end of chapter two on the role of the autonomic nervous system in exercise. Fortunately, the index facilitates access to the broad spectrum of subjects treated under the simple title ‘exercise endocrinology.’ Overall, I would recommend the book, as mentioned above, for master students in movement sciences and others as an introduction to endocrinology of exercise.

Klaas R. Westerterp
Department of Human Biology,
University Maastricht, P.O. Box 616, Maastricht, 6200 MD The Netherlands
E-mail address: k.westerterp@hb.unimaas.nl
Tel.: +31-43-3881628; fax: +31-43-3670976

doi:10.1016/j.physbeh.2003.08.014