Book Review

Epidemiologic Methods in Physical Activity Studies
Edited by I-Min Lee, Steven Blair, JoAnn Manson, and Ralph S. Paffenbarger, Jr.


Epidemiologic Methods in Physical Activity Studies is a unique addition to the field of physical activity research. The opening chapter provides an overview of the post–World War II beginnings of current physical activity research in public health, with a focus on the methodological challenges that the field faced early on and some of the solutions developed at the time. This chapter sets the stage for the first section of the book, which walks the reader through the underlying principles and methodological considerations of current physical activity research by using examples from well-known and large-scale epidemiologic studies. The methodology section is followed by one presenting current epidemiologic evidence on the health effects of physical activity. A final section addresses promotion of physical activity.

Section I, “Epidemiologic Methods,” is a thorough and thought-provoking overview of the rapidly evolving field of physical activity and inactivity measurement and of data analytic techniques. The basic concepts of energy expenditure, time spent in physical activity, levels and types of physical activity, and the way in which they are conceptualized are laid out handily, where appropriate in table form, and are explained in depth, making this an excellent companion for physical activity researchers and students alike. This section also provides an excellent, data-driven examination of the pros and cons of objective versus subjective measures of physical activity. Validity and reliability of various measurement methods are discussed, and the tutorials in research design will enable the most rigorous assessments of reliability and validity. Perhaps the most important public health issue in physical activity is the question of dose–response associations: How much and what type of physical activity is enough to accrue different health benefits? The book carefully explores existing, well-designed research that pulls apart the different effects of energy expenditure, time spent in various levels of physical activity, mode of accrual of physical activity (such as length of bouts), and the role of genetics in individual responses to physical activity. Each chapter acquaints the reader with the important terminology, examines data from existing large-scale studies, and offers excellent tutorials on rigorous research design and data analyses. The last chapter on physical activity surveillance reviews key components of such surveillance and describes the main surveillance tools used in the United States, although the book was completed prior to the release of data from the first large-scale physical activity surveillance effort to use accelerometry to measure physical activity (1).

Section II, “Epidemiologic Data,” is a natural extension of the first and is an excellent resource for researchers and educators alike. This section provides a methodologically rigorous overview of main findings on physical activity and health outcomes from large-scale epidemiologic studies. First, data on physical activity and fitness and delayed mortality are presented. Then, epidemiologic data on physical activity; fitness; and the prevention of cardiovascular disease, cancer, and type 2 diabetes are given. Evidence for the efficacy of physical activity and fitness in weight control efforts is presented with precision and attention to possible confounders. The section ends with chapters showing the data on physical activity, acute cardiac events, and musculoskeletal injury.

The first chapter of section III, “Promoting Physical Activity,” details the evolution of physical activity recommendations. Unfortunately, this book went to press before the new guidelines were released (2). However, the chapter on development of the recommendations remains an interesting and informative read. The final chapter ties the book together by offering logic models, heuristics, and a brief overview of evaluation strategies for physical activity promotion efforts.

This book provides a comprehensive introduction to the field of epidemiologic methods in physical activity research as well as the public health implications of increasing inactivity in US populations. It is an excellent resource for experienced as well as new investigators, doctoral students, and public health practitioners.

ACKNOWLEDGMENTS
Conflict of interest: none declared.

REFERENCES

Donna Spruijt-Metz (e-mail: dmetz@usc.edu)
Department of Preventive Medicine, Keck School of Medicine, University of Southern California, Alhambra, CA 91801

DOI: 10.1093/aje/kwp058; Advance Access publication April 9, 2009