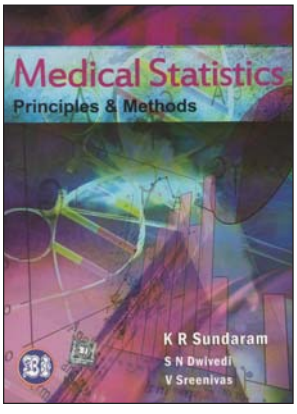
Book Reviews

Medical Statistics—Principles and Methods. K. R. Sundaram, S. N. Dwivedi, V. Sreenivas (eds). B.I. Publications, New Delhi, 2010. *286 pp, Rs 395*. ISBN 978–81–7225–319–6.



Drs Sundaram, Dwivedi and Srinivas have come out with a book with the rather nondescript title of 'Medical Statistics'. Already a large number of texts exist on this subject, all with their own interpretations of the right way to walk mathematically challenged biomedical researchers through the steps of statistics. A search on the popular online bookstore *amazon.com*, using the term 'medical statistics', throws up over 7400 results. A new book, therefore, must have some unique properties to find a place for itself.

This book attempts to provide information on the commonly used statistical techniques and explains their mathematical basis. Almost all the commonly used tests in biomedical research are described, including tests used for epidemiological studies, as are the principles behind the calculation of appropriate sample size, something that is often overlooked by researchers while planning studies and has been given short shrift by some books on medical statistics. There are separate chapters on medical demography, medical records, clinical trials and the principles of evaluating diagnostic tests. The material covered in these chapters is useful.

In the preface, the authors state that this book is targeted at medical students and biomedical researchers. In this endeavour, the book seems to fall well short of expectations. In fact, it would be better understood by statisticians, if one is to go by the amount of algebra and formulae that populate most chapters. In the era of cheap computers and widely available software packages, hardly anyone is likely to use these formulae. The students and researchers whom the authors have in mind want to understand, present and analyse the data to derive a meaningful message rather than grasp the mathematical basis of a particular test. Little attempt has been made to introduce readers to the nuances of understanding data, and how to arrange different types of data, to determine the nature of the analysis required and judge which test would be best suited. This would have been accomplished by providing real-life examples rather than equations. This book, unfortunately, misses out on a great opportunity by omitting to take this approach.

Simple issues such as what is meant by statistical significance, what the various ways to assess this significance are and the arguments for using the p value or confidence interval have not been given the prominence they deserve. Meta-analysis, an important technique that has gained considerable prominence lately, especially in systematic reviews, has been completely overlooked.

The book suffers from poor editing, and the production quality leaves a lot to be desired. The organization of the book is rather unimaginative. One would have expected the table of contents to list subsections for ease of navigation. Instead, the reader has to painstakingly leaf through the pages to find a particular topic, such as the simple chi-square test or *t* test. The uninitiated reader would also struggle with a chapter title like 'Logic of statistical inference' or 'Inference statistical methods'.

The chapter on the use of computers/information technology is grossly inadequate. The descriptions of the selected commercial packages are fairly bland. They do not give one any idea of their relative strengths and weaknesses, or of which ones may be more appropriate for a particular task. The authors seem to have overlooked that the World Wide Web is home to a vast number of free tools that can perform all but the most sophisticated statistical tests. Many have lots of documentation and help the user along. The Web is also a rich resource of 'tips and tricks' for using commercial packages. Also missing is any description of the most commonly used statistical software, MS Excel, even though it is not thought of as one. The writing style is variable throughout the book and it becomes apparent that different chapters have been written by different authors. Grammatical errors dot the book and sentences are often poorly constructed. Paragraph formatting is inconsistent, capital letters pop up in the middle of a sentence, some sentences even beginning with symbols! The colour printing is suboptimal, with a lot of smudges, and the titles are simply unreadable at places. In the review copy, this was a problem in the first 100 pages or so.

In brief, there is a niche in the world of documentation on medical statistics that is still waiting to be filled.

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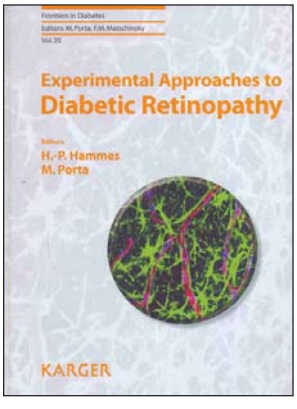
Experimental Approaches to Diabetic Retinopathy. H. P. Hammes, M. Porta (eds). Karger, Basel, 2010. *232 pp, price not mentioned*. ISBN 978–3–8055–9275–8.



Clinicians know how to diagnose lesions in a patient of diabetic retinopathy. Researchers and scientists working in laboratories are involved at a cellular/molecular level in trying to understand the basic processes.

It is the understanding of the basic pathophysiological processes that leads to an understanding of the clinical course of diabetic retinopathy. It also lays the foundation for the development of newer modalities of treatment, which may be of use therapeutically in the future. The classical recent example was the discovery of the role of vascular endothelial growth factors

(VEGF) and other molecules in the process of angiogenesis and capillary permeability. This led to the development of anti-VEGF agents and their role in the management of vascular diseases, including diabetic retinopathy.

This book provides that interface between the 'lab' and the 'patient' and hence, would be of interest both to clinician involved in the actual management of a patient of diabetic retinopathy and researchers interested in the basic processes involved. In fact, the clarity with which this book is written may even motivate the clinician to get involved in basic research so as to 'understand better' and 'do better'.

The bibliography provided at the end of each chapter is quite exhaustive and inclusive.

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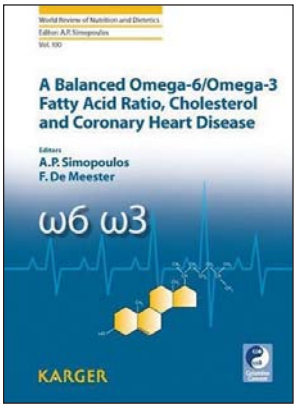
A Balanced Omega-6/Omega-3 Fatty Acid Ratio, Cholesterol and Coronary Heart Disease. World Review of Nutrition and Dietetics. Vol. 100. A. P. Simopoulos, F. De Meester (eds). Karger AG, Basel, 2009. *126 pp, € 111.50, US$ 156.* ISBN 978–3–8055–9224–6.



Since the 1960s, the relationships among dietary lipids, serum cholesterol and coronary heart disease (CHD) have been widely investigated. Among dietary lipids (triglycerides, phospholipids and cholesterol) and their constituents (saturated fatty acids [SFAs], monounsaturated fatty acids [MUFAs] and polyunsaturated fatty acids [PUFAs]), PUFAs, which comprise the two non-interchangeable ω-6 and ω-3 families, are essential dietary components for human health. The hundredth volume of World Review of Nutrition and Dietetics includes 10 papers which were presented at the 6th International Congress on 'The Columbus Concept', held in October 2008. According to 'The Columbus Concept', proper functioning of blood cholesterol is related to the presence of essential nutrient characteristics of wild foods, and modern chronic degenerative diseases have a strong relationship with the dramatic changes that have occurred in the past 150 years in the distribution of essential nutrients, namely, essential fatty acids (ω-6 and ω-3 families), essential amino acids, vitamins and minerals.

The first paper provides an overview of the evolutionary aspects of diet, and discusses the need to return to a balanced ω-6: ω-3 ratio (1:1) and for dietary intake of cholesterol in amounts consistent with those during the pre-agricultural era. However, these aspects have also been covered in several other reviews, including the earlier volumes of World Review of Nutrition and Dietetics. The next two papers discuss the fast determination of fatty acids in whole blood collected from the fingertip, and the applications of such collection in investigating fatty acid status in population groups in order to define the risk of CHD and other diet-related chronic diseases. These papers justify the use of ω-6 and ω-3 fatty acid status as a surrogate indicator of CHD risk in the population. The subsequent presentations provide an overview of the current data, which suggest that, contrary to the widely held view, dietary cholesterol is not a risk factor for or cause of CHD. Since eggs contain nutrients which are associated with lower cardiovascular disease risk, it has been concluded that efforts to reduce dietary cholesterol and eggs should not be a part of an effective package for cardiovascular disease risk intervention.

A new perspective on 'Cholesterol and skeletal muscle health' and the discussion on the possible unintended consequences of aggressive cholesterol control open new research dimensions which would expand our understanding to prevent and treat a wide range of diseases associated with skeletal muscle disuse and dysfunction, including CHD, obesity and diabetes. A critique of past and present studies on the causal link between elevated blood cholesterol and the risk of CHD, and recent cholesterol-lowering drug trials, which have not shown any significant beneficial effects on the primary end-points, seem to suggest that there may be no benefit from limiting dietary cholesterol intake or lowering serum cholesterol values below a certain limit and call for a full reappraisal of the cholesterol theory. In fact, these papers provide an update of the discussions in an earlier volume.

Atherosclerosis is a special type of systemic chronic inflammation which results in several acute changes, including lipid deposition. Recent research documents that inflammatory markers such as C-reactive protein improve the identification of patients at increased risk for CHD events. The subsequent paper discusses 'The Columbus Concept' in the light of new data on the role of inflammatory markers on chronic diseases. However, the statement 'Cholesterol is healthy' is provocative and warrants further research. The last paper, on 'The Columbus Concept addressing chronic diseases', is an excellent overview which concludes that currently chronic diseases are treated for their symptoms. However, the approach should be to prevent these diseases by reducing high levels of ω-6 highly unsaturated fatty acids (HUFA: 75% of total fatty acids) in the blood to desirable levels (HUFA: 25% of total fatty acids). These discussions have opened new research vistas in wide disciplines and populations across the world, and could improve our understanding of diet-related prevention of chronic diseases.

This book is informative, and covers topics which have relevance to both developing and developed countries. The text is lucid and clear, and the tables and illustrations are good. The bibliography of each presentation includes adequate references. This volume of World Review of Nutrition and Dietetics Series should be of interest to biomedical scientists, physicians and researchers working in the field of diet-related chronic disease (cardiologists, epidemiologists, nutritionists, dieticians), the food industry, government and policy-makers. It is a good reference book for libraries in biomedical research organizations.

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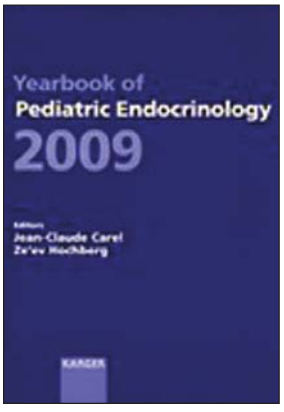
Yearbook of Pediatric Endocrinology. Jean-Claude Carel, Zeev Hochberg (eds). Karger, Basel, 2009. *250 pp, € 50/US$ 70*. ISBN 978–3–8055–9231–4.



The editors of any yearbook have a difficult task, as they must choose only a small number of publications from among a mind-boggling number of worthwhile ones in basic and applied research. The current editors have risen to the occasion admirably. They have lent their considerable scholarship to the book, and provided perspective with clarity and a simple style, bringing out the take-home message from even the most complex articles on genetics and physiology. The chief editors of this 2009 volume (the sixth in the series), Zeev Hochberg from Israel and Jean-Claude Carel from France, have gathered together a team of associate editors, each of whom is an accomplished physician researcher. Together, these experts from the European Society for Paediatric Endocrinology have brought emphasis on different areas. Thus, there is something here for everyone. The clinician will find citations on new therapies and evidence-based practice, while the basic scientist will have plenty to excite him or her.

Prominent among the citations this year were publications dealing with eating behaviour and energy metabolism; genes in pituitary development and hypophysitis; genes involved in the causation of thyroid cancer as well as thyroid development; value of screening for cancer among children previously receiving irradiation; the natural course of subclinical hypothyroidism in (120 000!) children; propylthiouracil-related hepatic failure; oxytocin as an anabolic hormone; experimental protocols on parathormone use in childhood hyperparathyroidism; vitamin D treatment for toddlers; several papers on fertility (including production of offspring from a germ-line stem cell line derived from neonatal mouse ovaries, and long term spermatogonial survival after cryopreservation and xenotransplantation); the CBX2 gene and disorder of sex development; a consensus statement on the treatment of precocious puberty; puberty and contraception for young people with disability; value of very low-dose adrenocorticotrophic hormone stimulation test; reprogramming of adult pancreatic exocrine cells to beta cells; and importance of a glucose-regulated preproinsulin epitope in beta cell death.

As is evident from the above, all the broad areas of endocrinology have been covered. In addition, this year the chief editors paid homage to the 150th anniversary of Darwin's *Origin of Species* by including articles on genes and populations, ranging from the genetic diversity of pygmies to the completely artificial synthesis of a *Mycoplasma* genome from 25 overlapping fragments of DNA by the Venter Institute. I found the papers dealing with the genetic basis of psychoneuroendocrinology extremely fascinating. 'Epigenetic regulation of the glucocorticoid receptor in human brain associates with childhood abuse', 'The benefit of enriched environment during young age on later memory and learning can be passed on transgenerationally (!)' and similar other nuggets of knowledge made the task of this book review a rewarding experience for me rather than a chore. I unreservedly recommend this book to all those interested in a guided tour of the latest in the field, including paediatric endocrinologists, endocrinologists, paediatric teachers with a special interest in endocrinology, geneticists, and all teachers and researchers in the field of biological sciences.

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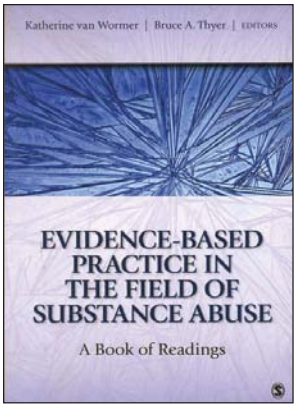
Evidence-based Practice in the Field of Substance Abuse: A book of readings. Katherine van Wormer, Bruce Thyer (eds). Sage Publications, California, 2010. *299 pp, US$ 39.95*. ISBN 978–1–4129–7577–3.



This book, published in October 2009, is authored by Katherine van Wormer, Professor of Social Work, University of Northern Iowa in Cedar Falls, who works primarily in the area of women in prison and treatment for alcoholism (*http://www.uni.edu./vanworme/bio.html*). She is also the author of 14 other books on substance abuse and social work. Her co-author, Bruce Thyer, is Professor of Social Work, Florida State University, as well as the founding and continuing editor of the journal *Research on Social Work Practice.* Dr Thyer has authored/co-authored over 200 articles in peer-reviewed journals in the fields of social work, psychology, psychiatry, behaviour analysis and evaluation, as well as over 50 book chapters and about 20 books in these areas (*http://www.sagepub.com/editorDetails.nav?contribled=502289*).

This book is a collection of previously published journal articles which give the reader a glimpse into the diverse factors involved in evaluating the evidence base behind treatment decisions. The issue the book focuses on has been topical in recent times.

As the name explicity states, this is a 'book of readings' and not a textbook or comprehensive treatise. It is designed more as a supplementary text for courses on substance use disorder and for courses on evidence-based practice (EBP) in the field of substance use disorders. The editors comment that 'educators might find this collection can serve as a gateway to introduce students (advanced undergraduates and graduate students) to the importance of consulting research findings as an ongoing practice in the mental health profession'.

The typeface of the book is clear and easy to read, and it has minimal to no printing errors. The referencing is done properly. The book is organized into 5 major sections. At the beginning of each section is an overview to guide the reader, followed by some published articles. Each article has its own abstract, journal date of publication, and complete and proper references. The first

section, 'Introduction to evidence-based practice', consists of two readings that provide the reader with a general introduction to the topic of EBP. The first, by this volume's two editors, provides a general outline of the 5-step process of EBP, and attempts to clarify what this model does say versus what it is not about. The second is a review article by Gambrill and presents a much more comprehensive review of EBP. The second section on 'Assessment of substance abuse' endeavours to explain the process of assessing the reliability, consistency and validity of various available screening and rating tools. To exemplify the point, the editors have included two papers, of which validating the Alcohol Use Disorder Identification Test (AUDIT) in persons having a serious mental illness makes for particularly interesting reading.

Section three deals with 'Gender and culturally based interventions' and sensitizes the reader to various gender and sociocultural factors that might affect the outcome of substance use disorders. The importance of shaping treatment interventions to the special needs of clients, and needs based on gender and cultural differences are emphasized throughout. The first article, by Kubiak, explores the relationship between post-traumatic stress disorder and substance abuse in men and women on parole. In the second article, Johansson and Kempf–Leonard explore Howell's risk factors for serious and chronic delinquency in adolescents. The third article looks into the validity of a culturally specific drug and interventions for HIV prevention among Hispanic immigrants. The remaining two articles in the section focus on women abusing alcohol and women who are victims of intimate partner violence.

Section four, on 'Treatment issues and innovations', is the most interesting section of the book. It starts with an article by Hser, Longshore and Anglin which reviews the research literature on the natural course and trajectory of drug use and recovery over the course of life. Another important article in this section is that on the National Institute of Drug Abuse (NIDA) evidence-based recommendations on 'Treatment approaches for drug addiction'. Two other articles deal with 'motivational interviewing' and the section ends with a detailed account of the use of the illicit drug methamphetamine. Methamphetamine is discussed to highlight the need for basic behavioural investigations for newer drugs for which consensus treatment protocols have not yet emerged. The last section focuses on the broader issues of 'policy considerations'. The article by Wormer on harm reduction and how harm reduction concepts, when put into practice, can become controversial makes for interesting reading. The other two articles in the section deal with policy issues like housing for homeless people with substance use disorder and mental illness, and secondary prevention strategies for low-risk clients. In their concluding essay, the editors report that the poor success rates of the outcome of treatment for substance use disorders are mostly a myth reinforced by the mass media. Current research has provided evidence that better outcomes are possible if treatment protocols are sensitive to the needs of the client. However, the major challenge lies in translating research findings into clinical practice and EBP seems to be the way forward.

The readability of the book varies from article to article. Some articles are very lucid and contain exhaustive data. It would have been helpful had there been brief discussions by the authors on why a certain article had been included and what the learning focus of the article is. Better articles on a topic, e.g. the Cochrane database review on the topic, followed by the meaning of positive and negative findings, and the shortcomings of such reviews in clinical practice, would have been more thought-provoking and promoted learning. Landmark articles on the topics might have been included. There are questions at the end of each section, but only a few. A more comprehensive list of questions would have facilitated a detailed critical analysis of the articles provided.

Overall, although the book encourages a theoretical understanding of the concept of EBP, a detailed analysis of the articles would have helped to translate the theoretical knowledge into the development of critical appraisal skills. There is a useful section at the end that provides a listing of websites in the field of substance use disorders that provide scientific evidence. To conclude, the book is not essential reading, but forms good additional reading material for students, academicians and clinicians working in the field of substance use disorders.

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