

Genetic Effects on Environmental Vulnerability to Disease

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This book is a must-read for those who study gene-environment interaction in complex phenotypes. The entire text is dedicated to this topic, providing both a review of methodological considerations and examples of identified gene-environment interactions in a wide array of phenotypes.

In the first four chapters, the authors remind us of the difference between statistical and biological concepts of interaction and argue that gene-environment interaction is not a mere statistical concept, but is a real and common phenomenon. As expected, the authors discuss methodological challenges and call for large and well-powered studies, but they also stress careful attention to measurement error, notwithstanding the difficulty in obtaining the most precise measures of genes and environment. Collectively, there is an overall emphasis on careful study of biological explanations for observed gene-environment interactions, involving forging relationships with scientists of varying expertise. The authors advise that basic biology is influenced by both genes and environment, stressing a probabilistic view over a deter-

ministic view with regard to the nature of genetic effects on disease risk.

Scientists working in the behavioral and psychiatric diseases will be delighted with many examples of this type throughout the book, but others who study cardiovascular phenotypes, metabolic syndrome, diabetes, breast cancer, infectious disease, and asthma may also relate to the examples and learn something new. Also included is a chapter on framing and public health policy as it relates to the study of gene-environment interaction. The authors remind us that the hope of studying gene-environment interaction lies in identifying new and potentially modifiable risk factors that are, therefore, of public health significance.

Very few books are dedicated to a discussion of gene-environment interaction. *Genetic Effects on Environmental Vulnerability to Disease* provides thought-provoking considerations for ongoing data analyses, as well as challenges inherent in studying gene-environment interactions for aid in the design of future epidemiologic studies.

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