

Second Edition



HUMAN BIOLOGY

An Evolutionary and Biocultural Perspective

EDITED BY SARA STINSON
BARRY BOGIN
DENNIS O'ROURKE

 WILEY-BLACKWELL



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Cover: A Medieval European winter camp (drawing by Susan Carroll). The biocultural nature of human existence is depicted in this scene. Human biology is best explained by a combination of evolution and an understanding of the interaction between human biology and culture (a biocultural approach). Human ancestors originally evolved in the tropics and this means that the human species is not biologically well adapted to extreme cold. We deal with cold-behaviorally and culturally—we wear clothing, build shelters, and make fires. Even so, human populations living in cold climates have some ability to make biological adjustments to keep their hands warm in extreme cold, such as increasing blood flow to the fingers (called vasodilation). This helps with activities, such as the chopping wood and cooking, which in the times before modern gloves required that hands be exposed for fine manipulation. Cold induced vasodilation is a response that probably results from evolutionary adaptations to long term exposure to cold and from our ability to modify biology and behavior during our lifetime, our plasticity. The foods that human eat, the stages in our life cycle, and our energetic requirements are among the other aspects of human biology depicted in this scene that are best explained by an evolutionary and biocultural perspective.

PREFACE

This book is a collaborative effort by members of the Human Biology Association (www.humbio.org) to provide an introduction to the field of human biology. Human biology deals with understanding the extent of human biological variability, with explaining the mechanisms that create and pattern this variability, and with relating it to health, disease, and the social issues that concern all individuals today. Human biology relies heavily on an evolutionary perspective to explain variation through space and time, but also considers the effect that human culture has had on our biology, a biocultural perspective, to be crucial.

This book covers the major areas of human biology: genetic variation, variation related to climate, infectious and noninfectious diseases, stress, growth, aging, and demography. Each chapter is written by an authority in the field in order to provide expert coverage of these topics. Boxed text within the chapters explains the methods that human biologists use. Important terms are defined in the glossary, with each glossary term appearing in bold type the first time it is used in a chapter. Each chapter of this book begins with a list of “big questions” related to the topic of the chapter. It is the hope of all the chapter authors that when readers finish this text, they will be able to add their own lists of “big questions.” Indeed, perhaps readers will be able to make such lists well before completing all chapters. A set of recommended readings at the end of each chapter directs students to sources that will provide a good introduction to the topics covered in the book.

We thank the members of the Human Biology Association for their continuing enthusiastic support of this project and all of the reviewers who so generously gave of their time to review the chapters in this volume. Special thanks are due to Deb Crooks, chair of the Human Biology Association Publications Committee, for her proficient management of the review process. Melissa Yanuzzi at Wiley-Blackwell and Stephanie Sakson at Toppan Best-set Premedia Limited ably oversaw the production of the book. At Wiley-Blackwell, our thanks go to our editors, Thomas Moore and Karen Chambers, and editorial assistant, Anna Ehler, for their assistance and patience.

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INTRODUCTION

Human Biology: An Evolutionary and Biocultural Perspective

SARA STINSON, BARRY BOGIN, DENNIS O'ROURKE,
and REBECCA HUSS-ASHMORE

INTRODUCTION

What Are the Big Questions?

What is human biology and what do human biologists study? What constitutes the shared biology of people and other nonhuman species? What are the novel characteristics of the human species, and can the time of origin and the reasons for the evolution of these new and novel features be determined? What biological differences are there among and within living human populations, and how are these differences the product of both evolution over generations and **plasticity** during an individual's lifetime? These are several of the “big questions” in the field of human biology. This book summarizes current research aimed at answering these questions.

The major points of this chapter are the following:

- (1) Human biology is a well-defined discipline.
- (2) Human biology is founded on an evolutionary perspective.
- (3) The recognition of different types of biological adaptation, including processes of plasticity in development and behavior, is at the core of human biology.
- (4) A biocultural and cross-cultural perspective is a unifying principle of all human biological research and thinking.