

Book Reviews

Human Growth: Assessment and Interpretation. Alex F. Roche and Shumei, S. Sun (formerly Guo) 250 pp., *Figures Tables, References, Index. Cambridge University Press, The Edingurgh Building, Cambridge CB2 2RU, UK Hard Bound (2004)*

Measurement and interpretation of Human Growth holds an important position in pediatric practice and health assessment between birth and adulthood, particularly in the formulation of public health policies related to children. The assessment and measurement of human growth of an individual or a population is central to the many discipline like Biological Anthropology, Human Biology, Home Science and Medicine. Though the methodology used in this field is established and well defined, it is scattered in the diverse literature. The book "Human Growth: Assessment and Interpretation" provides a comprehensive source material to those who measure and assess human growth. An emphasis to account for the adjusted effect of genes, hormones and substance abuse during pregnancy in the interpretation of growth data is the added advantage in this book. The text of the book is divided into five chapters.

In chapter 1, methodology and equipment used for growth measurements are explained with an emphasis to pediatric health assessment and monitoring. Next the method for the assessment of maturity is explained along with the data source. This chapter also explains the growth charts for general population data as well as the group specific charts. The charts are explained with the percentile plots in the assessment of human growth.

The chapter 2 describes the normal growth patterns during infancy, pre-pubertal and pubertal spurts with an account of the irregularities during these periods of growth. Decanalization, failure-to-thrive and catch-up growth are discussed in details along with the tracking tendency. The various mathematical models with the analysis of their parameters to describe the growth patterns are well presented. The chapter concludes with an idea of predicting adult stature at an early stage

of growth and the use of this target stature for the monitoring of growth of the individual.

Chapter 3, "*determinants of growth*", discusses the factors influencing the human growth such as genetic, family, substance abuse during pregnancy, child care practising, hormonal, nutritional, high altitude and maturity age, which play a vital role in the growth of an individual. A detailed account to adjust the effects of these influences while interpreting the growth data is provided in this chapter.

The chapter 4, "*secular changes in the growth and maturity*", stresses on the need of following the necessary criteria while collecting and interpreting the data pertaining to the estimates of secular changes. The importance of the updates of secular change data for clinical growth assessment has also been explained. The secular changes in size and maturity level with consequences are reviewed with examples. The influences responsible for these secular changes are also discussed.

Chapter 5 explains the significance of growth studies particularly child growth and maturity in relation to adult body size, stature, and functional abilities and diseases effect on growth. The role of anthropometry in the assessment of nutritional status and the possible justification of screening program based on measurement of growth are evaluated.

All chapters in the book are written in a clear manner and are aimed at the professional level of a human growth expert or clinical evaluator.

Overall, *Human Growth: Assessment and Interpretation* has much to offer to the student or beginner as well as to other serious researcher in the field who might be looking to expand their own knowledge on different aspects of measurement and interpretation of human growth. I would highly recommend this book to anyone interested in the field of human growth and development, as a useful addition to their library shelf.

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Courier Forschungsinstitut Senckenberg Walking Upright CFS243: Results of the 13th International Senckenberg Conference *Frankfurt am Main*. Edited by Jens Lorenz Franzen, Meike Köhler and Salvador Moyá-Solá. 154 pp. E. Schweizerbartische Verlagsbuchhandlung (Nägele U. Obesmiller). Shittgast (2003).

Questions about the locomotor history of humans can be answered, in part, by detailed studies of that part of the skeleton, musculature and nervous system involved in locomotor activity, and these have been reflected in this volume.

The section I *Biomechanics of Upright Walking* deals with the physical prerequisites needed in order to facilitate upright walking, and allows for identification of those traits, which have evolved as biomechanical improvement for this kind of locomotion. Special emphasis has been put on the evolutionary role which the forelimbs have played in the development of bipedalism. Biomechanics divulges the fact that energy cost of this locomotion requires minimum oxygen consumption. Thus human walking is remarkably economical of energy consumed as compared to that found in others. Mechanical conditions required for human bipedalism are linked to morphological adaptations. Thus morphological and functional adaptations required by humans to upright walking are also exhibited in the current section.

The section II *From pronogrady or from orthogrady to bipedality* has tried to evaluate the potential capability for bipedalism in non-human primates and has also tried to show how specific modes of bipedalism must be related to mechanical loadings on the skeleton and resultant skeletal features. Osteometric indices have been employed to investigate inter-specific differences in body proportions, and relate those differences to locomotor abilities. The study has compared modern humans, great apes and others to determine traits that separate habitual and obligate bipedal species from quadrupeds and to explain the mechanism of how these traits functionally contribute to the adaptations of bipedal walking. Vertical climbing, critical form of locomotion, is considered preadaptive for hominid bipedalism and has resulted in showing some connection between human bipedalism and vertical climbing in apes. Still it is an often-neglected constructional and functional aspect, particularly with regard to the question: was it pronogrady or orthogrady or

an intermediate stage from which bipedality developed? Since, in this context, living primates were investigated, behavioral studies were also taken into consideration.

In section III *Bipedality in early hominids*, evolution of modes of locomotion to bipedal mode in humans has been analyzed on the basis of the relevant fossils, especially skeletons of the 3.3 my old *Australopithecus* from Sterkfontein and the footprints from Laetoli, Tanzania. These fossils have displayed some interesting insights on arboreal locomotor behavior indicating that bipedalism evolved from arboreal ancestor.

The section IV *The Oreopithecus case* talks about the enigmatic fossil ape *Oreopithecus* from the Tyrrhenian islands of late Miocene times. It shows a mosaic of primitive (ape-like) and derived (human like) features combining bipedality with enhanced manipulative abilities but retaining several features related to vertical climbing. This case may show to what extent similar but not identical conditions result in similar although not identical constructional and functional developments for the specialized locomotor and manipulative adaptations. The known environmental conditions and striking convergences with and differences from early hominids clearly make *Oreopithecus* a key species for understanding human bipedality.

The section V *Reconstructing the evolution of upright walking* describes new methods and approaches to studying the fossil evidences. Palaeontological approach to the evolution of bipedalism in early hominids has greatly improved since twenties with numerous discoveries of hominid post-cranial elements and because of discovery of some complete skeletons. Studies of these fossils have provided information not only on their postures and locomotor repertoires but have also contributed for systematic studies and phylogeny. Role of new methods as well as new ideas in many of the approaches to find insights into the constructional preconditions as well as the evolutionary development of upright gait is noteworthy.

Lack of human like bipedalism among non-human primates is an obstacle to interpret the functional necessity and the structural adaptation concerning the evolution of bipedalism in humans.

This book has tried to meet the need for a comprehensive text that brings up to date details of evolution of locomotion leading to human

bipedalism. Hope that this manual contributes to continuing worldwide efforts to improve research and opens up the insights on evolutionary and other aspects of locomotion. The book has made a contribution to the subject that is long overdue. Besides illustrating the concept and so helping those who wish to apply them in their own studies, the book will be a useful source of reference for those wishing to ask questions of existing theories, concepts on biomechanics, behavioral and other

evolutionary details of human bipedalism. I strongly recommend this book to anyone interested in developments in palaeoanthropology, especially for those who are interested in the issues dealing with the hominization process and origin of upright walking.

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