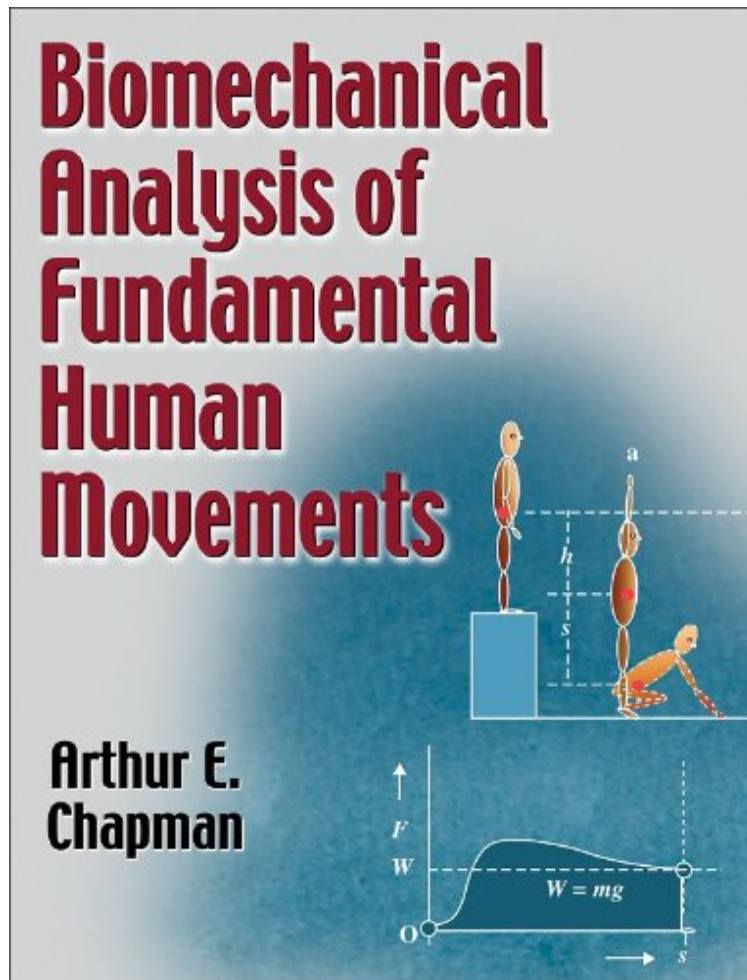


# Biomechanical Analysis of Fundamental Human Movements

Arthur Chapman

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**Arthur Chapman : Biomechanical Analysis of Fundamental Human Movements** before purchasing it in order to gauge whether or not it would be worth my time, and all praised Biomechanical Analysis of Fundamental Human Movements:

0 of 0 people found the following review helpful. Useful BookBy Midwest BoomerI purchased this book to learn more about the biomechanics of walking. It is easy to read and understand, even for a lay-person. The book is well-illustrated and includes a helpful, detailed index.0 of 0 people found the following review helpful. Five StarsBy RandiVery happy the is in good nick thank you0 of 0 people found the following review helpful. Good idea, but flawed execution.By Adeste FidelesThis book could be excellent if the author and editors would fix one thing, namely the referencing, or lack thereof. Having a text that focuses on movement in this way is a great idea, and something that is sorely needed in the field. However, the fact that the text includes almost nothing in the way of references for each

chapter is frustrating. For example, I used this text to put together a graduate course in Biomechanics last year. The problem? I wanted to have students go deeper into the material by looking at research articles on the various topics and sub-topics covered in the text. The text however, includes very little in the way of references for the information it contains, and in most cases, it simply includes something at the end of the chapter suggesting another text if the reader wants more information. The text should be revised to include detailed references throughout the chapters and a reference list at the end of each chapter, as is appropriate for an upper level text, so that: 1) people know the sources for the information and claims which are made; and. 2) professors can assign readings easily to support the material being presented in the text.

Unlike previous biomechanics texts that have taken a mechanical concept and identified activities in which the concept is implicated, *Biomechanical Analysis of Fundamental Human Movements* takes a contrary approach by focusing on the activities and then identifying the biomechanical concepts that best facilitate understanding of those activities. Superbly illustrated with more than 140 figures depicting the critical points of biomechanical analysis, this two-color text is an invaluable tool for those pursuing the study of advanced quantitative biomechanics. It presents a clear introduction to the principles that underlie all human motion and provides a complete study of fundamental human movements and their components. Teachers of human movement, safety equipment designers, rehabilitation specialists, and students performing advanced research in the area of human biomechanics will appreciate the scientific and mathematical focus in the text. This focus allows readers to gain an understanding of human biomechanics that will enhance their ability to estimate or calculate loads applied to the body as a whole or induced in individual structures. *Biomechanical Analysis of Fundamental Human Movements* begins with a discussion of the principles of biomechanics and then continues into more advanced study involving the mechanical and mathematical bases for a range of fundamental human activities and their variations, including balance, slipping, falling, landing, walking, running, object manipulation, throwing, striking, catching, climbing, swinging, jumping, and airborne maneuvers. Each activity is analyzed using a specific seven-point format that helps readers identify the biomechanical concepts that explain how the movements are made and how they can be modified to correct problems. The seven points for analysis are aim, mechanics, biomechanics, variations, enhancement, safety, and practical examples that move from the simple to the more complex. More than 140 figures illustrate the points of analysis throughout the text, providing readers with a clear depiction of both the mechanics and mathematics involved in human movements. The logical and sequential presentation of concepts in *Biomechanical Analysis of Fundamental Human Movements* is complemented by pedagogical elements that reinforce and expand the readers' understanding. Within each chapter, key points and highlight boxes summarize critical information, and recommended readings provide easy access to related reference material. For quick reference, students can refer to the glossary and the appendix containing a guide to key symbols representing mechanical variables and mechanical formulae. In addition, the text features more than 60 problems with answers, categorized by mechanical concept, for readers to test their understanding of biomechanical analysis. *Biomechanical Analysis of Fundamental Human Movements* provides a complete understanding of this branch of human biomechanics using mechanical, mathematical, and biological definitions and concepts. Its focus on fundamental human activities develops advanced analytical skills and provides a unique and valuable approach that facilitates mastery of a body of information and a method of analysis applicable to further study and research in human movement.

About the Author Arthur E. Chapman, PhD, is professor emeritus in the School of Kinesiology at Simon Fraser University in Burnaby, British Columbia, Canada, where he has taught and researched since 1970. Chapman has published more than 35 articles and presented more than 45 papers for refereed conferences, seminars, and workshops throughout the world. His research interests have included validation and modification of mechanical models of human muscle by means of direct observation in vivo and the mechanical properties of squash balls, rackets, and shoes and their implications for manufacturing and strategy in the game. His current interest is in computer simulation of control and performance of sporting movements, kinematic and kinetic criteria of skills involving gross body movements, and the modeling of human bodily motion using external inputs of force and internal inputs of muscle force. At Simon Fraser University, Chapman has served as a member of the University Ethics Committee as chair of the Departmental Safety Committee and chair of the Human Movement Stream for the Undergraduate Curriculum Committee. Chapman is a past member of the Canadian Association of Sports Sciences and a founding member of both the Canadian Society of Biomechanics and the International Society of Biomechanics. Between 1997 and 2000 Chapman served as an interviewer for the University of British Columbia Medical Admissions Board. As a biomechanist, he has served as an expert witness in numerous court cases throughout Canada providing human biomechanical analysis of automobile accidents, sports injuries, trips, and falls. Chapman received his PhD in biomechanics in 1975 from the University of London, England. A 1965 Fulbright scholar, Chapman was also selected as the Rosenstadt Research Professor for the University of Toronto in 1992. Chapman has been involved in rugby and track and field at a representative level and at an A level in squash. Currently he is a daily average golfer who declares

to be improving.