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Preface

Most of us feel tremendous excitement, pleasure, and perhaps envy when we watch a close race, match, or performance, focusing on the complex, well-controlled skills evidenced by the players or musicians. In these situations, we marvel at those who must succeed in executing their skill “on the spot”—at how the person with high-level skills is able to excel, sometimes under extreme “pressure” to do so.

This book was written for people who appreciate high-level skilled activity and for those who would like to learn more about how such incredible performances occur. Thus, readers in fields related directly to kinesiology and physical education (such as teaching and coaching) will benefit from the knowledge provided here. But the material extends far beyond these fields and should be relevant for those who study rehabilitation in physical and occupational therapy, as well as for instructors and facilitators of many other areas in which motor skills play an important role, such as music, ergonomics, and the military. The text is intended for beginners in the study of skill and requires little knowledge of physiology, psychology, or statistical methodologies.

The level of analysis of the text focuses on motor *behavior*—the overt, observable production of skilled movements. Of course, there are many scientific areas or fields of study involved in the understanding of this overt skilled behavior. Any skill is the outcome of processes studied in many different fields, such as neurology, anatomy, biomechanics, biochemistry, and social and experimental psychology; and this text could have focused on any number of these fundamental fields. But the focus of the text is broader than

the fundamental fields that support it. The focus is *behavioral*, with the major emphasis on humans performing skills of various kinds. To be sure, we will talk about these other levels of analysis from time to time throughout the book in an attempt to explain what processes or events occur to support these high-level skills. Therefore this text should be appropriate for courses in elementary motor learning and motor performance in a relatively wide group of scientific areas.

Throughout the text, we construct a conceptual model of human performance. The term “model” is used in a variety of ways in many branches of science, and models are found frequently. A model typically consists of a system of parts that are familiar to us; when assembled in a certain way, these parts mimic certain aspects of the system we are trying to understand. One example is the pump-and-pipe model of our circulatory system, in which the heart is represented by a pump and the arteries and veins are pipes of various diameters and lengths. One could actually construct the model (although some models are purely conceptual); such a model could be used in classroom demonstrations or “experiments” on the effects of blood pressure on capillaries of the “hand.”

Our first goal in writing this text was to build a strong, general, conceptual understanding (an overview) of skills. We believe that instructors, coaches, therapists, and trainers, as well as others dealing with the learning or teaching of skills, will profit greatly from such a high-level conceptual understanding of skilled behavior. In striving toward this goal, we have adopted

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