Locomotion, along with feeding and reproduction, is one of the three key functional capacities of mammals. An understanding of locomotion is imperative to understanding the adaptive evolution, opportunities, and constraints acting on any animal. Comparative analysis of locomotion is an area of widespread interest but the diversity of forms, as well as physiological and behavioral differences, make a comprehensive analysis of all animal forms of less practical value than a focused treatment of a specific, functionally related group, such as the terrestrial mammals. The analysis of the mechanics of locomotion in terrestrial mammals also includes its relationship to, and concepts shared with, human locomotion.

Understanding Mammalian Locomotion: Concepts and Applications formally introduces the emerging perspective of collision dynamics in mammalian terrestrial locomotion, and explains how it influences the interpretation of form and functional capabilities. Edited and authored by leaders in the field, the text brings the reader who is interested in the function and mechanics of mammalian terrestrial locomotion to a sophisticated conceptual understanding of the relevant mechanics and the current debate ongoing in the field.

- Takes a novel approach to terrestrial locomotion by including the energetics of collisions
- Introduces concepts poised to change the perspective and, consequently, the approach of research in terrestrial locomotion, including human locomotion
- A timely synthesis of the 21st century perspective on mammalian locomotion
- Delves into the concepts needed to understand and appreciate the field in a concise manner
- Describes applications of the concepts to real-world situations

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