

MUSCLES OF CHORDATES

DEVELOPMENT, HOMOLOGIES, AND EVOLUTION

Chordates comprise lampreys, hagfishes, jawed fishes, and tetrapods, plus a variety of more unfamiliar and crucially important non-vertebrate animal lineages, such as lancelets and sea squirts. This will be the first book to synthesize, summarize, and provide high-quality illustrations to show what is known of the configuration, development, homology, and evolution of the muscles of all major extant chordate groups. Muscles as different as those used to open the siphons of sea squirts and for human facial communication will be compared, and their evolutionary links will be explained. Another unique feature of the book is that it covers, illustrates, and provides detailed evolutionary tables for each and every muscle of the head, neck, and all paired and median appendages of extant vertebrates.

KEY FEATURES

- Has more than 200 high-quality anatomical illustrations, including evolutionary trees that summarize the origin and evolution of all major muscle groups of chordates
- Includes data on the muscles of the head and neck and on the pectoral, pelvic, anal, dorsal, and caudal appendages of all extant vertebrate taxa
- Examines experimental observations from evolutionary developmental biology studies of chordate muscle development, allowing us to evolutionarily link the muscles of vertebrates with those of other chordates
- Discusses broader developmental and evolutionary issues and their implications for macroevolution, such as the links between phylogeny and ontogeny, homology and serial homology, normal and abnormal development, the evolution, variations, and birth defects of humans, and medicine

RELATED TITLES

Diogo, R. et al. – *Understanding Human Anatomy and Pathology: An Evolutionary and Developmental Guide for Medical Students* (ISBN 978-1-4987-5384-5).

Diogo, R. & V. Abdala – *Muscles of Vertebrates: Comparative Anatomy, Evolution, Homologies and Development* (ISBN 978-1-5780-8682-5).

"This book does fill a need and will help students better understand the origins of the muscular system. The broad overview and the developmental perspective are interesting and quite novel."

—Anthony Herrel, *Muséum National d'Histoire Naturelle, Paris*

"There is a real need for atlases like this one; it provides students and researchers with a critical starting point for anatomical studies. Muscular studies are particularly hard, as comparative specimens are hard to find, given that most museums preserve only skins and skulls, and occasionally skeletons."

—Samantha Hopkins, *University of Oregon, Eugene*

"There is a need for this book ... an encompassing work that covers the major chordate clades and focuses on the musculature. This allows readers to compare a wide range of clades all in one place, to see muscle homologies, and assemble a more complete picture of evolutionary changes."

—Anne Burrows, *Duquesne University, Pittsburgh*

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