Preface

Today's massage, bodywork, and fitness professionals are increasingly becoming members of the healthcare team. These professionals collaborate with physicians, physical therapists, occupational therapists, chiropractors, nurse care managers, attorneys, insurance companies, and other healthcare providers. Professionals must have a clear understanding of muscle and joint function beyond simple actions. This allows them to communicate clearly, maintain credibility, and obtain reimbursement for therapeutic work. The emerging requirement for "outcome-based" justification of treatments further supports the need for a thorough understanding of the body in motion.

Functional Anatomy was written to help students of human movement and bodywork understand how anatomical structures work together to create motion. Developing an understanding of the body in all of its complex synchronicity is critical for students of massage and bodywork. These careers require the therapist to create concise and effective treatment plans. Fitness and sports professionals are routinely called upon to analyze complex movement patterns in order to maximize the athlete's performance and prevent injury.

Beyond these pragmatic benefits, an understanding of functional anatomy develops heightened intellectual and artistic appreciation of the human body in motion. With a deep understanding of structure–function relationships, we begin to see the client's body as a living, breathing, *moving* marvel. *Functional Anatomy: Musculoskeletal Anatomy, Kinesiology, and Palpation for Manual Therapists* can assist you in exploring the structures and anatomical relationships responsible for movements such as walking, running, lifting, and throwing. You will be guided through activities that involve inspecting, touching, and moving these structures, enabling you to create a solid, three-dimensional image of the human body and its movement potential.

ORGANIZATION AND CONTENT

The chapters in *Functional Anatomy* are organized to build anatomical regions "from the ground up." This means deeper structures are identified first, and then structural layers are added. This organization helps readers understand the relationship between static structures such as bones, ligaments, and joint capsules and dynamic functions of muscles. Muscles are presented from superficial to deep to develop systematic palpation skills. *Functional Anatomy* also groups muscles together functionally. For example, the latissimus dorsi and teres major are located next to each other in the body, have a common insertion, and perform the same actions. Because of this, they are considered sequentially in Chapter 4.

The first three chapters in the book describe how the body is put together and how it achieves movement. In Chapter 1, the basic structures and systems of the body, the text's organization of the layers of the human body, and the language of anatomy and movement are discussed and explored. Chapter 2 provides an in-depth investigation of bones and joints, including their basic structure, various shapes and functions, classification, and location of the different types in the body. Chapter 3 delves into skeletal muscles, including their functions, properties, fiber directions and types, the different types of contractions they create, and how they are regulated. After studying these introductory chapters, you should understand the basic structures of the body and methods for creating movement. You will also have developed a language for discussing these concepts.

Each of the remaining six chapters explores a specific region of the body. These chapters follow a consistent template, with the same type of information occurring at the same place in each chapter. This predictability will help you locate any topic within a given chapter quickly and easily.

The recurring elements in the first half of each chapter include, in order:

- competency-based objectives
- overview of the region
- surface anatomy
- skeletal structures
- bony landmark palpation
- muscle attachment sites
- joints and ligaments
- superficial muscles of the region
- deep muscles of the region
- special structures located in the region (other than bones, ligaments, and muscles)
- movements allowed by the region's joints
- passive and resisted range of motion techniques

This opening section is followed by a set of one- or two-page profiles of each muscle pertinent to that region. Profiles include an illustration of the muscle showing its origin, insertion, and fiber arrangement and direction. Text descriptions of the muscle attachments, actions, and innervations are located next to this image. The profile also includes a description of the muscle's functional anatomy; that is, the relationships it has with other muscles, how it works in the body beyond its actions, and common imbalances or dysfunctions associated with it. Finally, the profile explains in simple, easy-to-follow steps how to palpate and fire the muscle against resistance. A photograph shows proper positioning of the practitioner and client, as well as the pertinent bony landmarks and muscle features. The simple, consistent design of each muscle profile

ensures ease of use in the classroom or lab, as well as for studying and quick reference.

A section discussing the functional aspects of the body region follows the muscle profiles. This section includes information on synergist and antagonist relationships and a photo essay called *Putting It in Motion*, which explores the structure–function relationships involved during activities of daily living and sport.

Every chapter of the book closes with a concise summary, review questions, and study activities. The latter includes specific exercises aimed at kinesthetically engaging the covered material.

FEATURES

Functional Anatomy will guide you to a deeper understanding of the structure and function of the human body by engaging not only your mind, but also your other senses. Features include dynamic, colorful visuals, kinesthetic exercises to enhance your palpatory skills, and individual and group activities. Each region of the body is explored from the inside out to enhance understanding of structural relationships and movement possibilities. Simple, easy-to-follow instructions for palpation of bony landmarks and each muscle profiled are provided.

Functional Anatomy recognizes that you may be experiencing the challenges of learning a new language. To help you in acquiring this new language, we include within each muscle profile a guide to correct pronunciation of the muscle name. The student CD also includes an auditory guide to pronunciation, so you can hear proper pronunciation of each muscle profiled.

A *Synergist/Antagonist* table is included in each regional chapter. A photograph of a specific body motion, such as flexion or extension, is accompanied by a list of all muscles that contribute to that motion. Each motion is paired with its opposite in order to help you appreciate balanced muscle relationships.

Each regional chapter also discusses and illustrates passive and resisted range of motion procedures for assessing normal joint function. This is included to help you physically access the specific structures identified in this text.

As mentioned earlier, each regional chapter contains a section called *Putting It in Motion*, which identifies and explains specific actions that contribute to motions we use in daily activity or in sports. The photographs of these movements are enhanced to show the pertinent muscle groups driving the action. This feature is linked to the animations on the student resource site, which further explore some of these movements.

The *Try This* activity located at the end of each chapter includes a simple, kinesthetic activity that engages one or more key concepts identified in the chapter. Easy-to-follow steps are listed, as well as any special equipment that may be needed. For example, the *Try This* in Chapter 1 instructs readers to verbally position or move a partner in ways described on cards they create. This activity engages multiple senses and encourages correct use of anatomical terms and concepts.

The student resource site for this text has been developed alongside this manuscript in order to ensure strong connections between the special features of the book, student study materials, and teacher resources. Although the text is a stand-alone product, it can be greatly enhanced when used in conjunction with the companion student resource site at thePoint.lww.com/cael. Features of the resource site include animated videos that correspond with the *Putting It in Motion* segment in each regional chapter. These animations sequentially reveal muscle functions during common activities such as walking, jogging, standing, and throwing. Other features include video footage of palpation, study questions for self-assessment, unlabeled illustrations of regions of the skeleton, a Stedman's audio glossary of the muscles profiled, and searchable full text online. You can use these to label bones and bony landmarks, and/or to add your own drawings of soft-tissue structures such as ligaments, muscles, and special structures. The inside front cover of the text contains more details including the passcode you will need to gain access to the Web site. In addition to the student resources, instructors will also have access to lesson plans, Power Point presentations, and Brownstone Test Generator.

DESIGN

The design of *Functional Anatomy* creates a user-friendly, predictable, and interactive experience for readers. The text and art are arranged to allow quick-reference for study as well as maximum usability during classroom activities such as guided palpation exercises. Specific icons identify where these activities are located and when they are linked to the ancillary materials. All of these features will help you develop competency in the key skills identified in each of the chapter objectives.

FINAL NOTE

I hope that *Functional Anatomy* helps you discover new and exciting things about the human body. It is intended to enhance your personal and classroom experience and engage you in exploring how the body works. I encourage you to try as many of the activities as possible, utilize the learning tools provided, and embark upon your educational journey with wonder and curiosity.

Please contact me at functionalbook@hotmail.com with any comments or suggestions about this book. My students have always been both an inspiration and my toughest critics, and I wish for that to continue. Your perceptions, responses, and experiences with this text are valuable and I am interested in what you have to share. In the meantime, thank you and enjoy.

– Christy Cael

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