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The second part of this book focuses on the fundamental anatomy of skeletal muscle tissue. It is important to understand the normal microscopic and macroscopic structure of skeletal muscle and the underlying physiological and pathological processes before focusing on distinct neuromuscular disorders.

The first chapter (Chap. 9) provides a detailed description of the normal microscopic anatomy and ultrastructure of skeletal muscle tissue. In addition, the basic reactions of muscle tissue and histopathological findings to pathological processes are described.

Not all of the readers may be familiar with muscle imaging and macroscopic muscle imaging anatomy. Therefore, Chap. 10 provides a thorough topographical guideline for identifying muscles involved in neuromuscular disorders.

Detailed muscle images of the neck, shoulder, upper extremity, trunk, and lower extremity muscles are presented. The “normal” macroscopic muscle anatomy on magnetic resonance imaging (MRI) is not homogeneous and depends on the topographical distribution of several muscle groups. The aim of this chapter is to provide assistance for differentiating between “normal” and pathological muscle appearances on MRI. This chapter should help the reader easily identify certain muscles and muscle groups, which leads to recognizing an anatomical involvement pattern in neuromuscular disorders during one’s daily clinical practice.

The histopathological and clinical effects of aging on skeletal muscle tissue, commonly called “sarcopenia,” can result in similar changes in the regional muscle mass, muscle function, and muscle imaging. These changes must be distinguished from changes due to pathological conditions. To address this clinically and radiologically important phenomenon, the “normal aging” process of the striated muscle tissue is described in Chap. 11. The complex (patho)physiological mechanism—including many interacting factors such as hormones, nutrition, and physical activity—are discussed. In addition, the effects of “normal aging” on regional muscle mass, muscle fiber size and number, and the clinical consequences with respect to muscle power, strength, and endurance are comprehensively summarized.

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