brachii’s origin at the scapula and insertions below the elbow are brought closer together, and the bicep’s ability to produce force is limited. Alternatively, passive tension refers to when a two-joint muscle is elongated at one joint while carrying out dynamic movement at the other joint. This produces a favorable length–tension relationship, enhancing the muscle’s ability to produce force. For example, the long head of the triceps brachii crosses both the shoulder and elbow joints, carrying out shoulder flexion and elbow extension at these joints, respectively. Because the muscle is shortened during shoulder extension, it is lengthened during shoulder flexion. Thus, performing an exercise in which the shoulder joint is flexed (such as the overhead triceps extension) places the muscle in a position of stretch while carrying out its action at the elbow and consequently allows for greater force production.

**Training Angle**

Muscle fibers contract optimally when placed in direct opposition to gravity along the direction of the fiber. Changing the angle of training at which a muscle is worked best targets the full spectrum of its fibers, allowing for more symmetrical muscular development. Thus, the orientation of fibers in a given muscle must be considered when selecting exercises.

**Movement Plane**

The human body is designed to move in three-dimensional space. To account for this capability, the body can be segmented into sections in terms of three anatomical planes (figure 6.2): sagittal, which divides the body into left and right halves and encompasses flexion and extension; frontal (i.e., coronal), which divides the body into front and back sections and includes abduction, adduction, elevation, depression, inversion, eversion, and lateral flexion; and transverse, which divides the body into top and bottom portions and includes horizontal adduction, horizontal abduction, rotation, pronation, and supination. Note that although these planes are rigidly defined, diagonal movement in all planes is possible depending on the task requirement and individual mobility.

To carry out movement efficiently and effectively, the musculoskeletal system summons muscles based on the directional require-