Muscles of the Deep Back, Abdominal Wall, and Pelvic Outlet
Laboratory Exercise 22

Background

The deep muscles of the back extend the vertebral column. Because the muscles have numerous origins, insertions, and subgroups, the muscles overlap each other. The deep back muscles can extend the spine when contracting as a group but also help to maintain posture and normal spine curvatures.

The anterior and lateral walls of the abdomen contain broad, flattened muscles arranged in layers. These muscles connect the rib cage and vertebral column to the pelvic girdle.

The muscles of the pelvic outlet are arranged in two muscular sheets: (1) a deeper pelvic diaphragm that forms the floor of the pelvic cavity and (2) a urogenital diaphragm that fills the space within the pubic arch.

Materials Needed

Textbook
Articulated skeleton

Purpose of the Exercise

Review the actions, origins, and insertions of the muscles of the deep back, abdominal wall, and pelvic outlet.

Procedure

1. Label figures 22.1, 22.2, 22.3, and 22.4.
2. Try to locate the abdominal muscles in your own body.
3. Demonstrate the action of the abdominal muscles.
4. Locate the origins and insertions of the abdominal muscles and the muscles of the pelvic outlet in the human skeleton.
5. Complete Parts A and B.
**Figure 22.1** Label the three deep back muscle groups of the erector spinae group. Use the following options: *Iliocostalis* (lateral group), *Longissimus* (intermediate group), *Spinalis* (medial group).

**Figure 22.2** Label the muscles of the abdominal wall.
**Figure 22.3** Label the muscles of the male pelvic outlet.

**Figure 22.4** Label the muscles of the female pelvic outlet.
Part A

Complete the following statements:

1. A band of tough connective tissue in the midline of the anterior abdominal wall called the _______________ serves as a muscle attachment.

2. The _______________ muscle spans from the ribs and sternum to the pubic bones.

3. The _______________ forms the third layer (deepest layer) of the abdominal wall muscles.

4. The action of the external oblique muscle is to ___________________________.

5. The action of the rectus abdominis is to ___________________________.

6. The iliocostalis, longissimus, and spinalis muscles together form the _______________.

Part B

Complete the following statements:

1. The levator ani and coccygeus together form the _______________.

2. The levator ani provides a sphincterlike action in the _______________.

3. The action of the coccygeus is to ___________________________.

4. The _______________ surrounds the base of the penis.

5. In females, the bulbospongiosus acts to ___________________________.

6. The ischiocavernosus extends from the margin of the pubic arch to the _______________.

7. In the female, the _______________ muscles are separated by the vagina, urethra, and anal canal.

8. The action of the superficial transversus perinei is to ___________________________.

9. The coccygeus extends from the coccyx and sacrum to the _______________.

10. The _______________ assists in closing the urethra.