

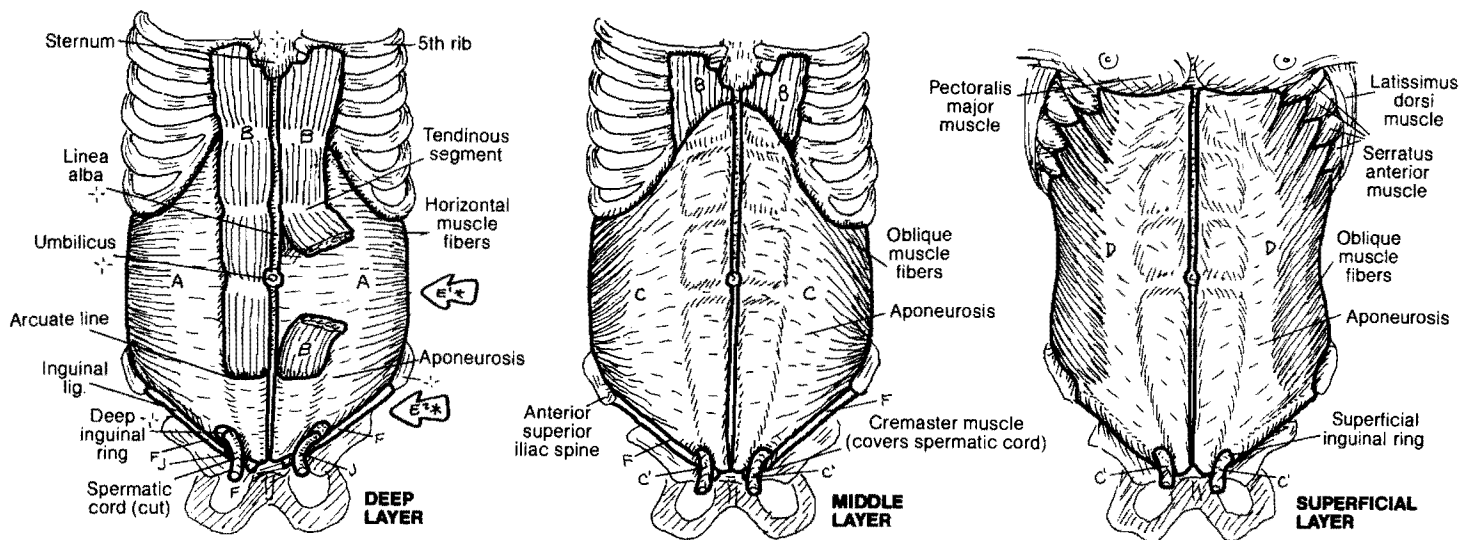
V. MUSCULAR SYSTEM / TORSO

MUSCLES OF ANTERIOR ABDOMINAL WALL & INGUINAL REGION

CN: Use a dark color for J and bright ones for B and I. (1) Color the 3 layers of the abdominal wall. (2) Color the sheath of the rectus abdominis in gray. Color the two locational arrows in this and the upper illustration. (3) Beginning with J and K, and followed by H, color the coverings of the spermatic cord.

ANT. ABDOMINAL WALL:
TRANSVERSUS ABDOMINIS^A
RECTUS ABDOMINIS^B
INTERNAL OBLIQUE^C
EXTERNAL OBLIQUE^D

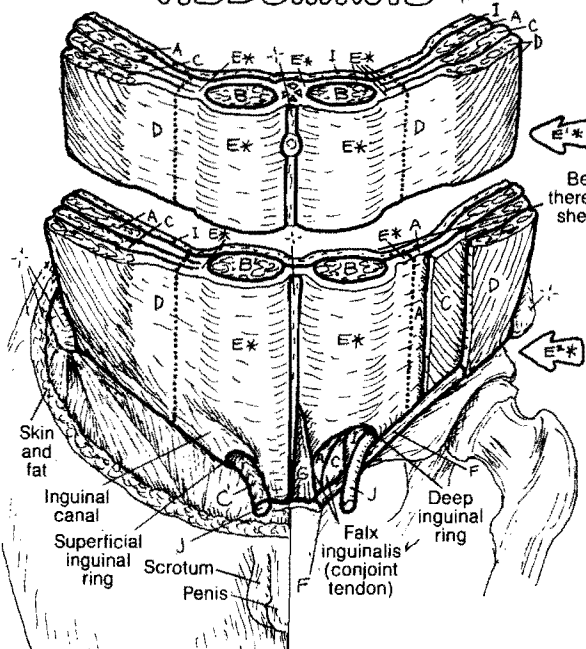
The anterior abdominal wall consists of three layers of flat muscles, the tendons (aponeuroses) of which interlace in the midline, and a vertically oriented pair of segmented muscles which are ensheathed incompletely by the aponeuroses of the three flat muscles (*sheath of the rectus abdominis*). The flat muscles arise from the lateral aspect of the torso (inguinal ligament, iliac crest, thoracolumbar fascia, lower costal cartilages, ribs). The lowest fibers of *external oblique* roll inwardly to form the *inguinal ligament*. These three muscles act to compress the abdominal contents during expiration, urination, and defecation. They assist in maintaining pressure on the curve of the low back, resisting "sway back" (excess lumbar lordosis) and extension of the low back.



Each segmented *rectus abdominis* muscle arises from the pubic crest and tubercles and inserts on the lower costal cartilages and xiphoid process (sternum). They are flexors of the vertebral column. The *sheath of the rectus abdominis* varies in its extent, running from deep to superficial from below upward, as illustrated. Below the arcuate line, no muscle contributes to its posterior layer (E²); in the middle, all three flat muscles contribute equally to the sheath (E¹); above, the anterior sheath is formed from external oblique; posteriorly, the rectus contacts the costal cartilages.

The *inguinal region* is the lower medial portion of the abdominal wall. Herein exists the inguinal canal with its inner (deep inguinal ring) and outer (superficial inguinal ring) openings, and the resident *spermatic cord* (ductus deferens and testicular vessels and nerves) in the male and the round ligament of the uterus in the female. In its apparent "migration" from the abdominal cavity through the inguinal canal into the scrotum during the last months of fetal development, the testis and spermatic cord push through (not perforate) and carry with them each layer of abdominal wall they traverse, much as a finger might push through four layers of latex to form a four-layered finger glove. Each of these layers constitutes a *covering of the cord*. The inguinal canal is a site of relative structural weakness in both males and females, and the abdominal wall here is subject to protrusions (inguinal hernia) from intra-abdominal fat and intestines, indirectly through the deep ring or directly through the wall near the superficial ring.

SHEATH OF RECTUS ABDOMINIS^{E*}



INGUINAL REGION:
INGUINAL LIG.^F
CREMASTER MUS.^{C'}
PYRAMIDALIS MUS.^D
PERITONEUM^H
TRANSVERSALIS FASCIA^I
SPERMATIC CORD^J
TESTIS/EPIDIDYMIS^K

