

## Muscles of the Core

PSK 4U

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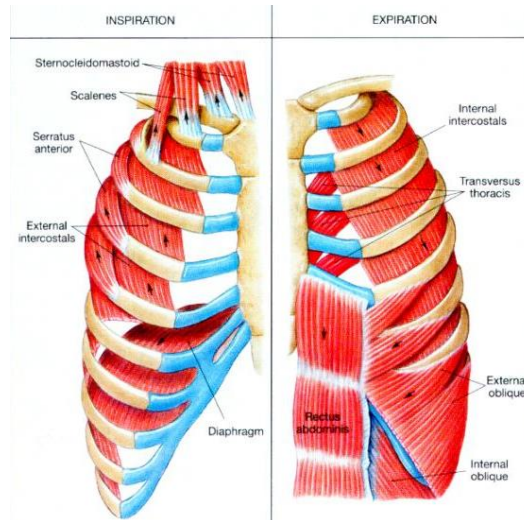
### Intercostal Muscles

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- ▶ Run between the ribs
- ▶ Provide shape and movement for chest wall
- ▶ External intercostals: aid in both quiet (passive) and forced inhalation
- ▶ Internal intercostals: aid in forced expiration
- ▶ Fibres of internal and external intercostals run in opposite directions

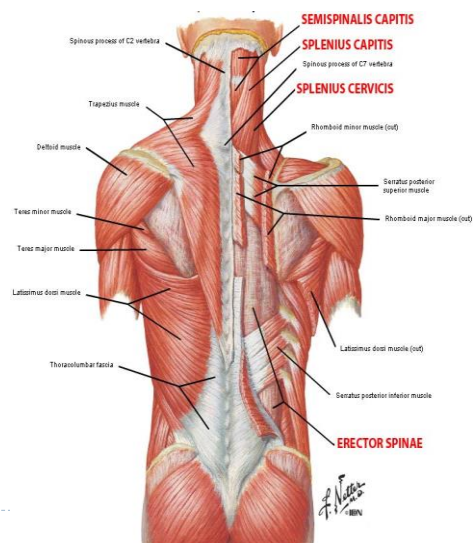


## Thoracic Cage



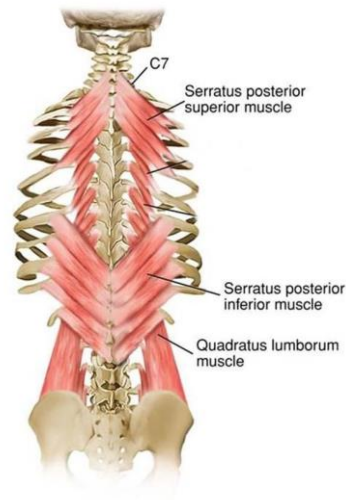
## Serratus Posterior Superior

- ▶ OR: nuchal ligament, spinous processes C7-T3
- ▶ INS: 2-5 rib (upper border)
- ▶ ACT: elevation of ribs to aid in respiration
- ▶ INN: ventral rami T1-T5



## Serratus Posterior Inferior

- ▶ Links thoracic and lumbar regions (from a muscular standpoint)
- ▶ Origin: T11-L2, supraspinal ligament
- ▶ Insertion: ribs 9-12
- ▶ Action: aids in trunk extension and rotation by pulling lower ribs backward and downward; aids forced exhalation
- ▶ Innervation: intercostal
- ▶ T9-T12

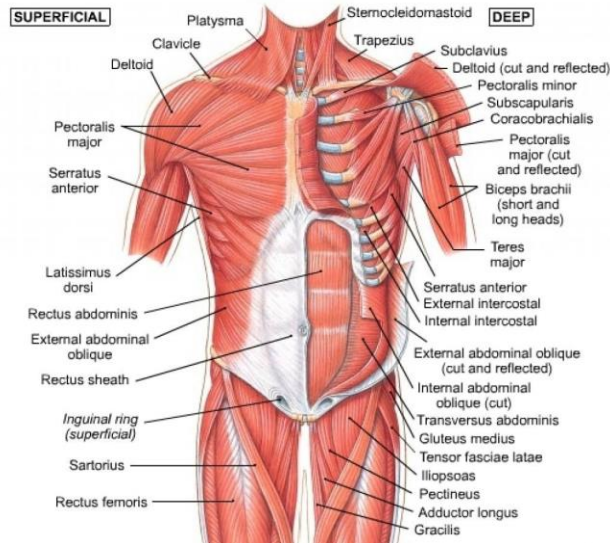


## Abdominal Muscles

- ▶ Rectus Abdominis: paired muscles on anterior abdominal wall separated by linea alba (white line) of connective tissue
- ▶ Functions to aid in posture, help respiration, keeps internal organs in place, creates intra-abdominal pressure (ex: when lifting)
- ▶ External oblique: largest, most superficial muscle of lateral anterior abdomen
- ▶ Aids in control of intra-abdominal pressure



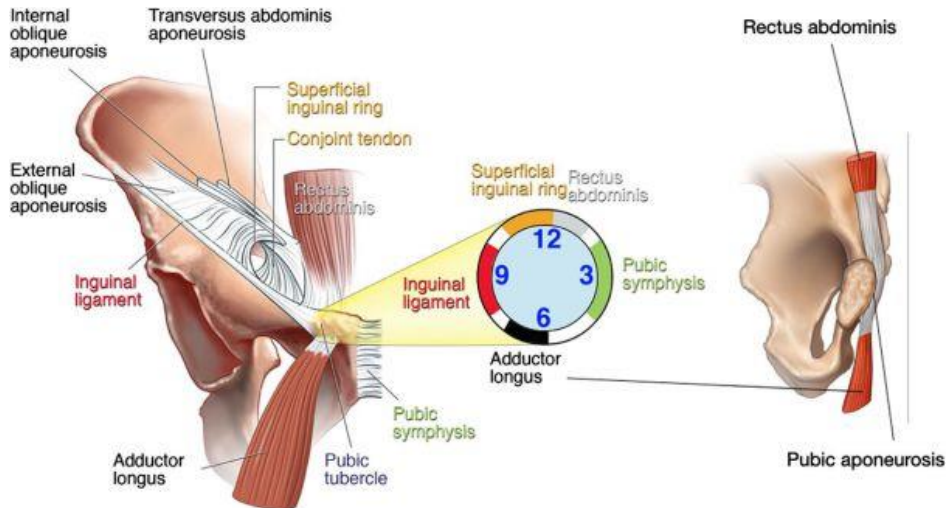
## Core Muscles



## Superficial Inguinal Ring

- ▶ Forms the superficial opening of the inguinal canal (different contents in men vs. women)
- ▶ In “athletic pubalgia” (sports hernia) conditions, the ring dilates
- ▶ This can be problematic particularly if contents of the abdominal cavity protrude through the inguinal ring
- ▶ Various muscles of the abdomen and upper leg can be involved in sports hernia... to be discussed in injuries unit.
- ▶ At times hernias can be palpated
- ▶ Some require specific treatment or diagnosis by a physician

## Groin Pain Indicators

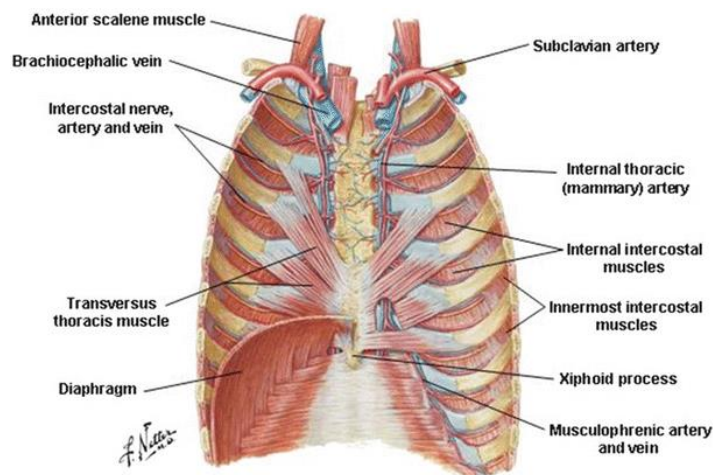


## More abdominal muscles...

- ▶ Internal oblique: supports the abdominal wall, aids in forced respiration, increases pressure in abdominal cavity, weak rotator of the trunk (assists this movement)
- ▶ Transversus Abdominis: compresses ribs, compresses internal organs, stabilizes thoracic and pelvic regions
- ▶ Important for back health and stability, core health and stability
- ▶ Nicknamed the “corset muscle”, braces core during heavy lifts, helps pregnant women deliver children
- ▶ Stabilizes spine when contracted, works with spine stabilizers to allow functional movements

## Transversus Thoracis

- ▶ Originates on costal cartilage, body of sternum, xiphoid process
- ▶ Inserts on ribs and costal cartilage of ribs 2-6.
- ▶ ALMOST without function BUT:
- ▶ Separates ribs from parietal pleura (lining of chest wall, covers diaphragm), depresses ribs and helps forced expiration by decreasing transverse diameter of thoracic cage



## The (Thoracic) Diaphragm

- ▶ Sheet of tissue comprised of muscle and tendon
- ▶ Separates thorax from abdomen
- ▶ When contracting, thoracic cavity volume increases, lungs fill
- ▶ Inn: Phrenic (C3-C5)
- ▶ 3 openings:
  - ▶ (Vena Cava (8 letters, T8)
  - ▶ Oesophagus (10, T10)
  - ▶ Aortic Hiatus (12, T12)

