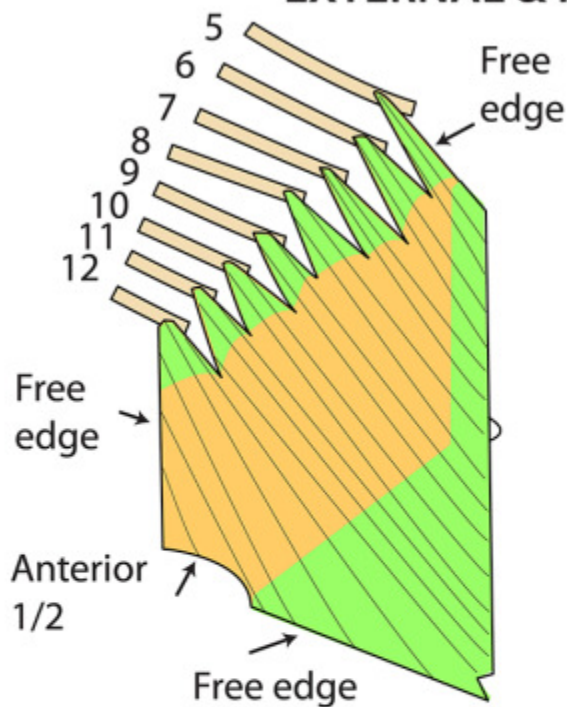


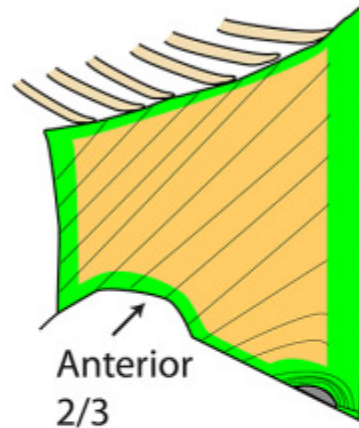
Abdomen: Anterior abdominal wall and inguinal canal

ABDOMINAL WALL MUSCLES EXTERNAL & INTERNAL OBLIQUE



EXTERNAL OBLIQUE

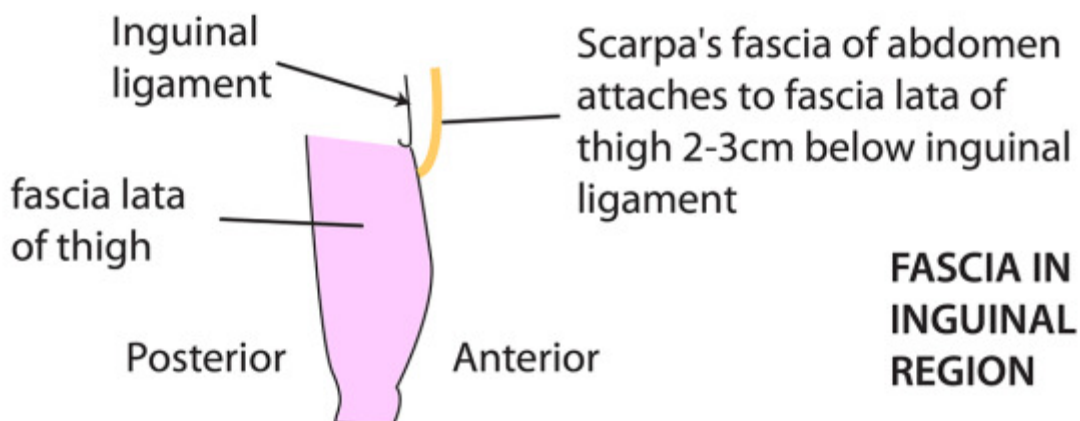
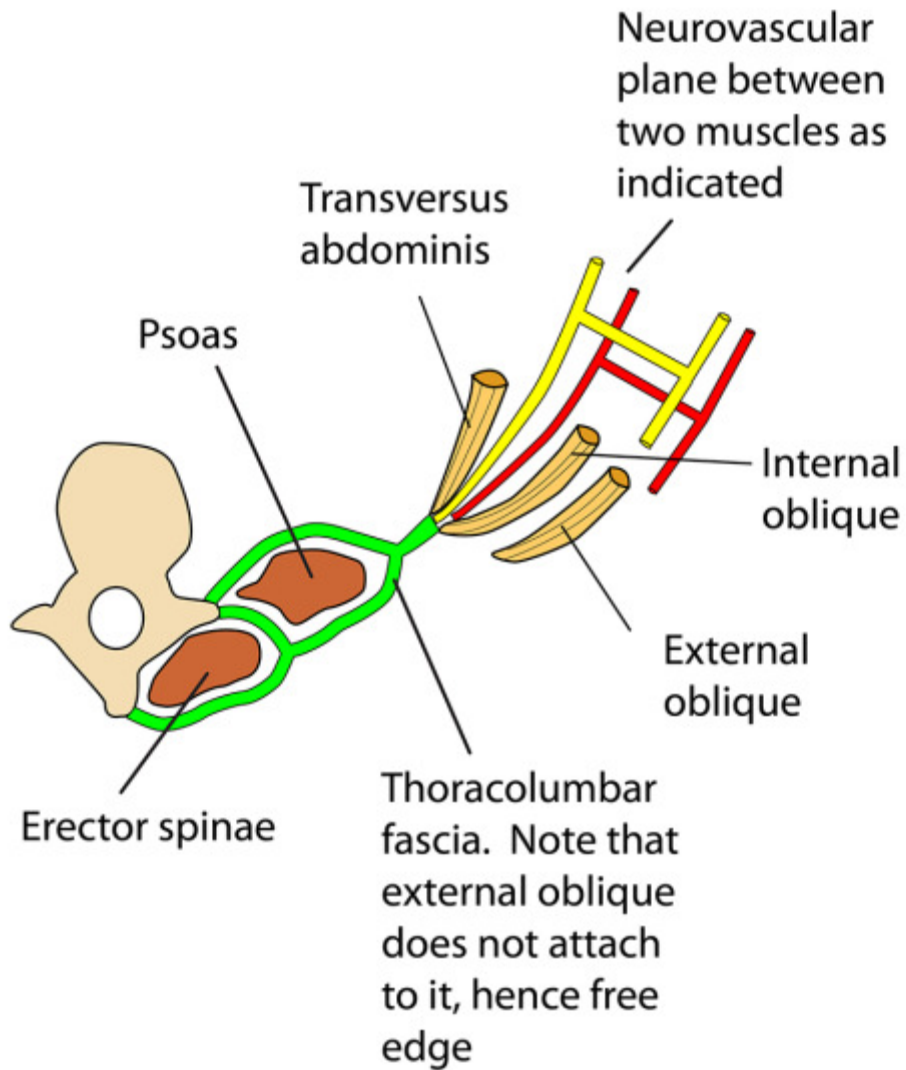
From: ant angles last 8 ribs.
To: xiphisternum, linea alba, pubic symphysis & crest, inguinal lig, ant 1/2 iliac crest.
Fibres: down/medial
N: T7-12



INTERNAL OBLIQUE

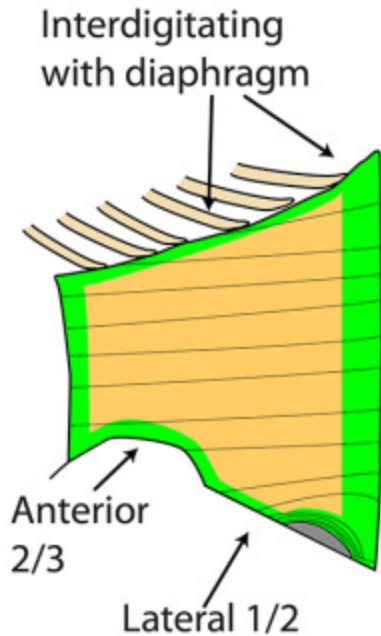
From: ant. 2/3 iliac crest, lat 2/3 inguinal lig, lumbar fascia
To: costal margin, rectus sheath. Conjoint tendon (CT) on pubic crest & pectineal line.
Fibres: Upward/medial
N: T7-12, ilioinguinal to CT

ABDOMINAL WALL - THORACOLUMBAR FASCIA, NEUROVASCULAR PLANE & FASCIA OVER INGUINAL REGION



FASCIA IN INGUINAL REGION

ABDOMINAL WALL MUSCLES TRANSVERSUS, RECTUS ABDOMINIS, PYRAMIDALIS



TRANSVERSUS ABDOMINIS

From: costal margin, lumbar fascia, ant 2/3 iliac crest. lat 1/2 inguinal lig

To: rectus sheath, linea alba, CT to pubic crest & pectineal line

Fibres: transverse

N: T7-12, ilioinguinal to CT

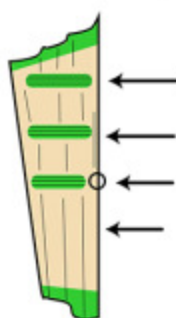
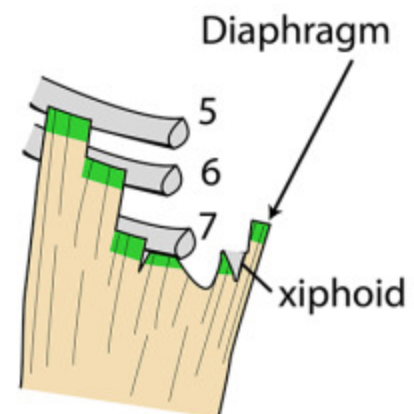
RECTUS ABDOMINIS

From: pubic crest, tubercle & symphysis

To: costal cartilages 5,6,7, costal margin of 7, sternum & diaphragm

N: T7-12

(note: 3 morphological layers)



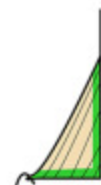
3 Tendinous intersections (rarely 4)
Fusion to anterior sheath

PYRAMIDALIS

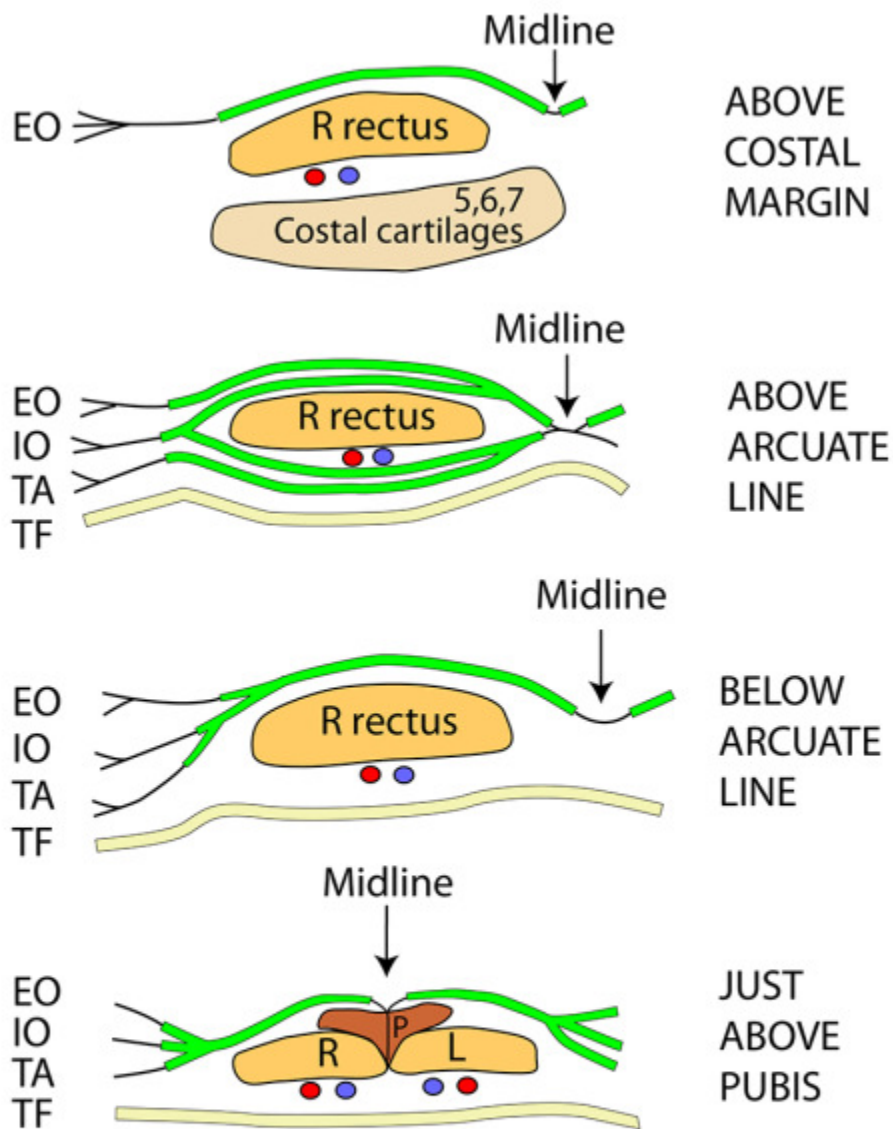
From: front of body of pubis

To: linea alba

N: T12 (subcostal)



ABDOMINAL WALL MUSCLES & RECTUS SHEATH

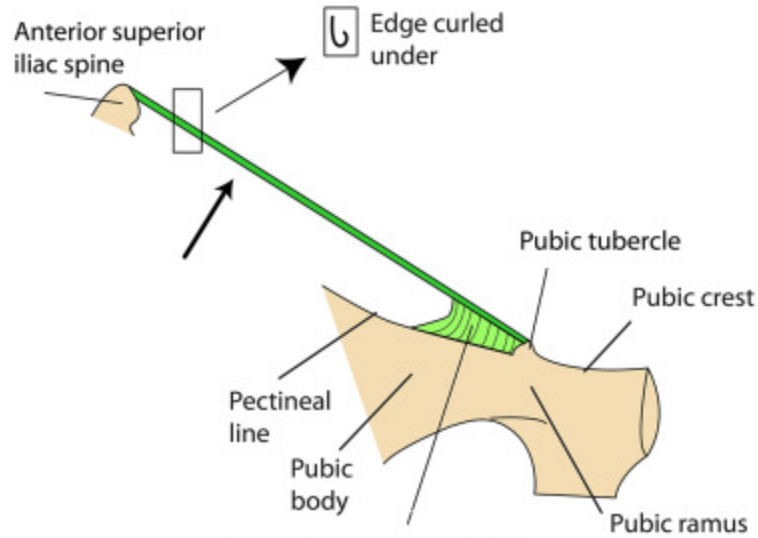


EO External oblique
 IO Internal oblique
 TA Transversus abdominis
 TF Transversalis fascia

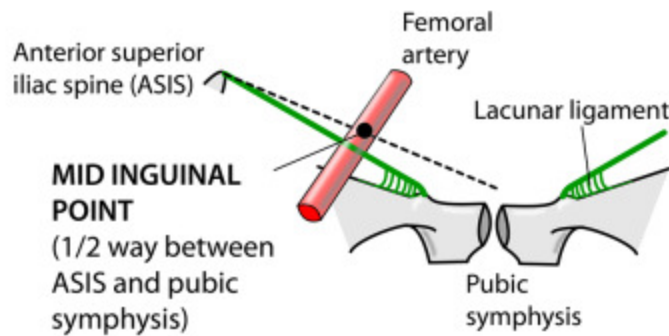
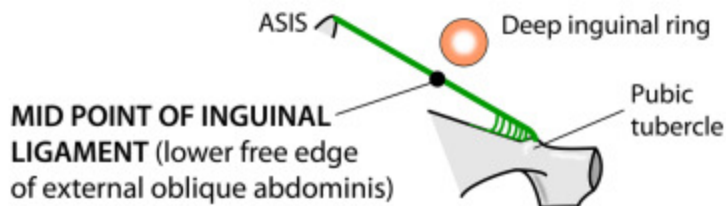
Actions of abdominal muscles:

- Truncal movements
- Rib depression
- Visceral support

INGUINAL LIGAMENT

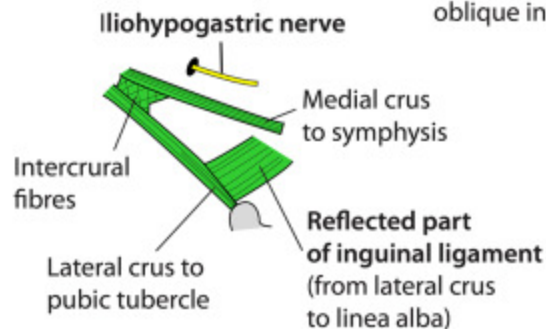


Lacunar ligament. Extends upwards/backwards onto pectineal line along which it extends to become the pectineal ligament (of Astley Cooper)



External (superficial) inguinal ring

Ilio-inguinal nerve lies on the internal oblique in canal



INGUINAL CANAL

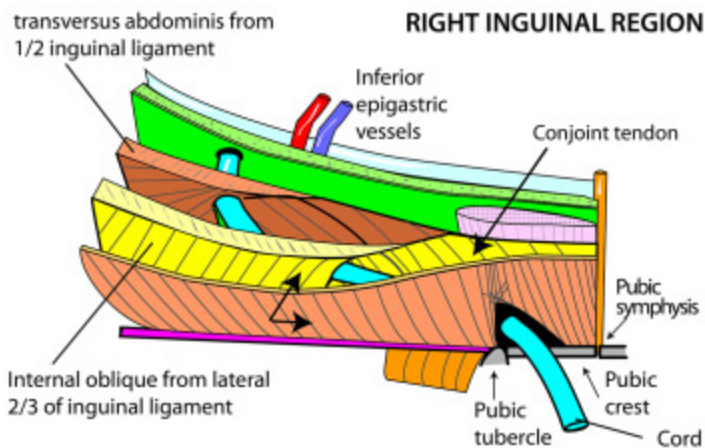
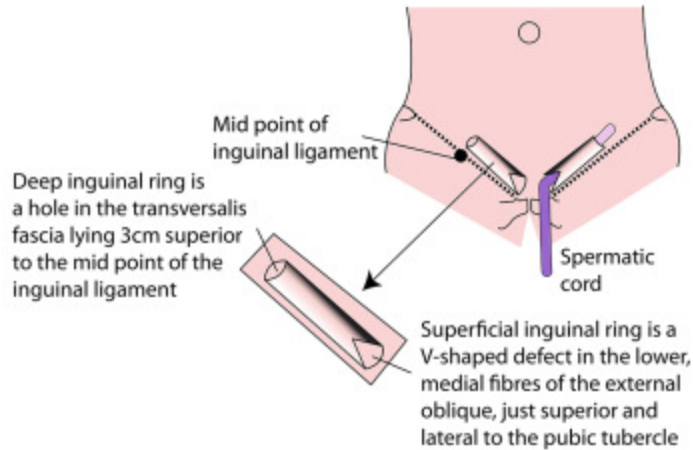
A 4cm tunnel in the lower, anterior abdominal muscles that runs downwards and medially between the deep and superficial inguinal rings

Anterior wall: external oblique, & internal oblique for lateral 1/3

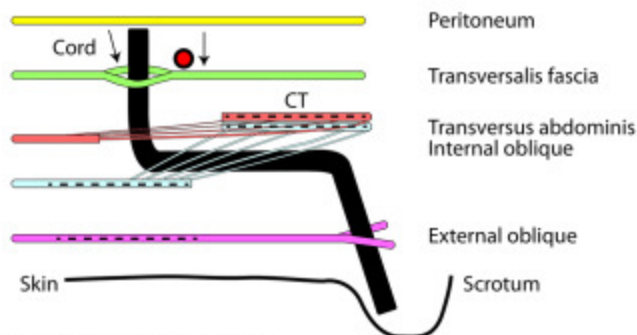
Roof: Arching fibres of internal oblique & transversus

Posterior wall: transversalis fascia & conjoint tendon

Floor: inguinal ligament



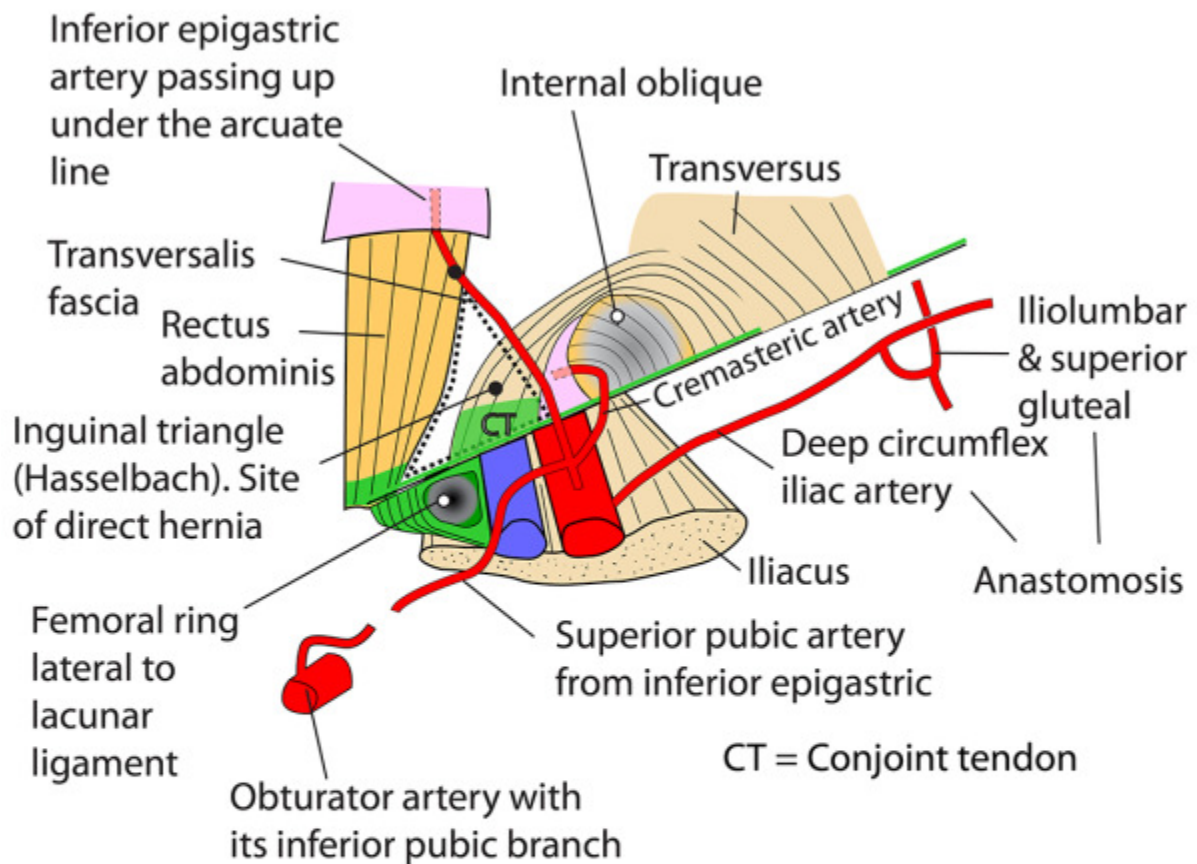
Arrows show 2 areas of "reinforcement" for superficial and deep ring



EXPLODED INGUINAL CANAL

- Arrows indicate sites of weakness at deep ring (indirect hernia) and at transversalis fascia lateral to conjoint tendon (direct hernia).
- Dotted lines indicate the 2 layers that support both the deep and superficial inguinal rings.

ABDOMINAL WALL RIGHT DEEP INGUINAL RING FROM INSIDE



Note: If the obturator artery is missing then the superior pubic branch of the inferior epigastric takes over. This artery is then called an abnormal (aberrant) obturator artery. Whether or not an abnormal obturator artery is present, the superior pubic branch of the inferior epigastric may run antero-medial to the sac of a femoral hernia in the femoral ring. If so, it can easily be damaged during a hernia repair. In this illustration it runs posterolateral and is thus not a hazard.

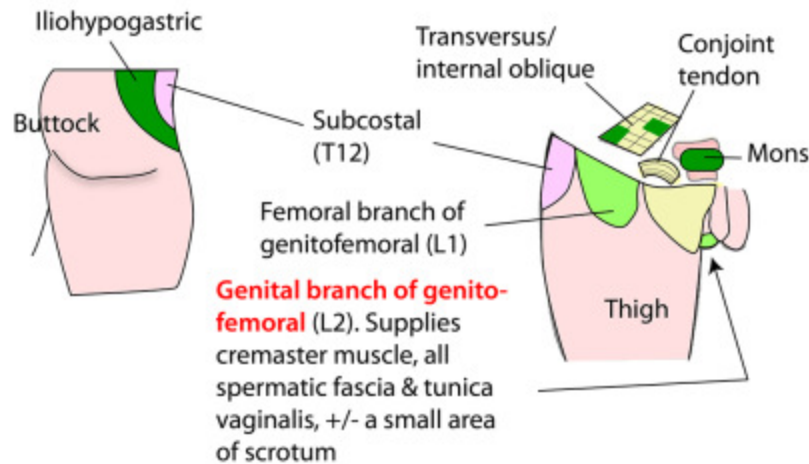
ILIOHYPOGASTRIC, ILIO-INGUINAL & GENITOFEMORAL NERVES

ILIOHYPOGASTRIC NERVE

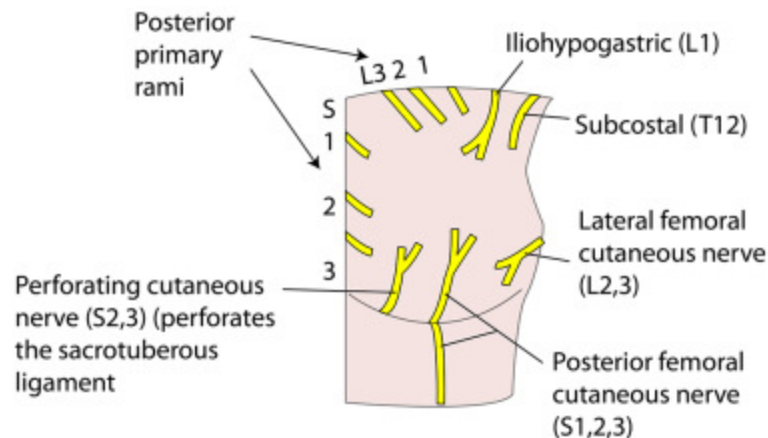
- Main branch of L1
- Sensory and motor
- Pierces internal oblique above anterior superior iliac spine
- Pierces external oblique above superficial inguinal ring
- Supplies:
 - Upper buttock (lateral cutaneous branch)
 - Transversus & internal oblique (lowest fibres)
 - Skin of mons pubis

ILIOINGUINAL NERVE

- Muscular collateral branch of L1
- Motor and sensory
- Pierces internal oblique above anterior superior iliac spine
- Supplies:
 - Transversus & internal oblique (lowest fibres)
 - Conjoint tendon
- Then enters inguinal canal from above/lateral and leaves via superficial inguinal ring
- Supplies:
 - Upper medial thigh, anterior 1/3 scrotum, labia majora and root of penis



CUTANEOUS NERVE SUPPLY OF BUTTOCKS



Note that the POSTERIOR RAMI of C1, L4,5, S4,5 and the coccygeal nerves do not reach the skin