FUNCTIONAL MUSCLE AND OSSEOUS TRANSFER

- Dr.PRIYANKA SHARMA
  Reconstructive and plastic surgeon, DNB
- RIGHT Hospitals, Chennai
- Associate consultant, Max Saket, Delhi
- SR Oncoplasty, Tata Memorial, Mumbai

Free Functional Muscle transfer:

- Traumatic Brachial Plexus
  e.g. elbow flexion, flexor and extensor

- Volkmans ischemic contracture

- Facial palsy: smile reanimation

- Post Burn injury

- Oncoreconstruction: upper or lower limb
  : perineal / sphincter reconstruction

How is the harvest different in FFM???

- Must include long segment of motor nerve
- Must mark muscle length at regular intervals for resting muscle tension
- Must harvest adequate length
- Must harvest tendinous portion for good insertion
- Must reconstruct with proper RMT
- Must have good coaptation to recipient nerve
- Must have proper immoblisation
- Must have good physiotherapy and nerve stimulation

FFM: GRACILIS

Type 2 : Dominant and minor pedicles

Pedicle: Dominant:

Medial circumflex femoral artery (4-6cm)
(Profunda femoris)
Venae commitantes

Minor: Superficial femoral artery

NERVE: Anterior br. OBTURATOR nerve

Origin:
Pubic symphysis, inferior pubic ramus and ischium

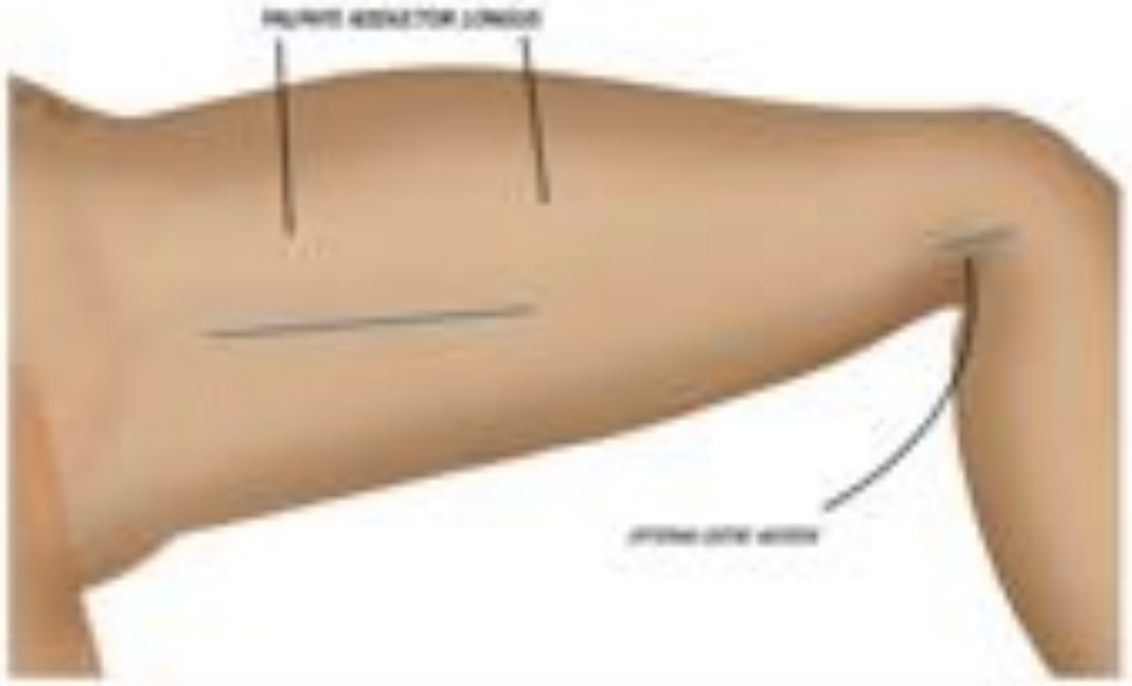
Insertion:
Medial condyle of the knee.

Axis:
In supine, with thigh abducted and knee flexed

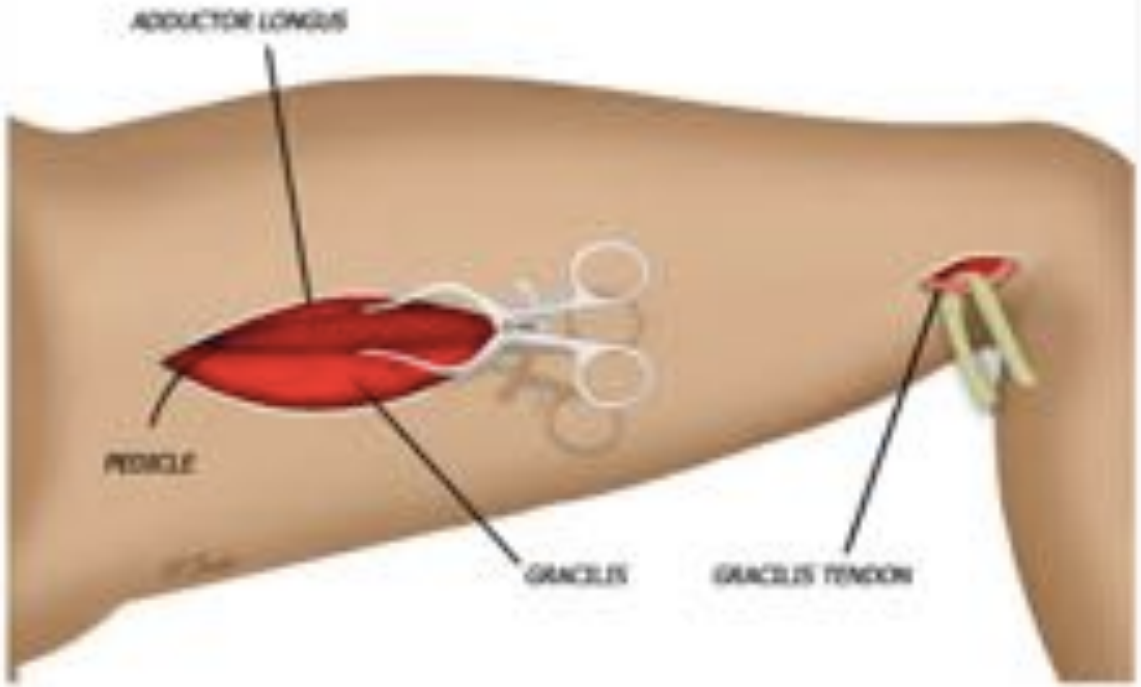
Drawing a line from the ischium to the knee medial condyle.

Adductor longus is palpated medially

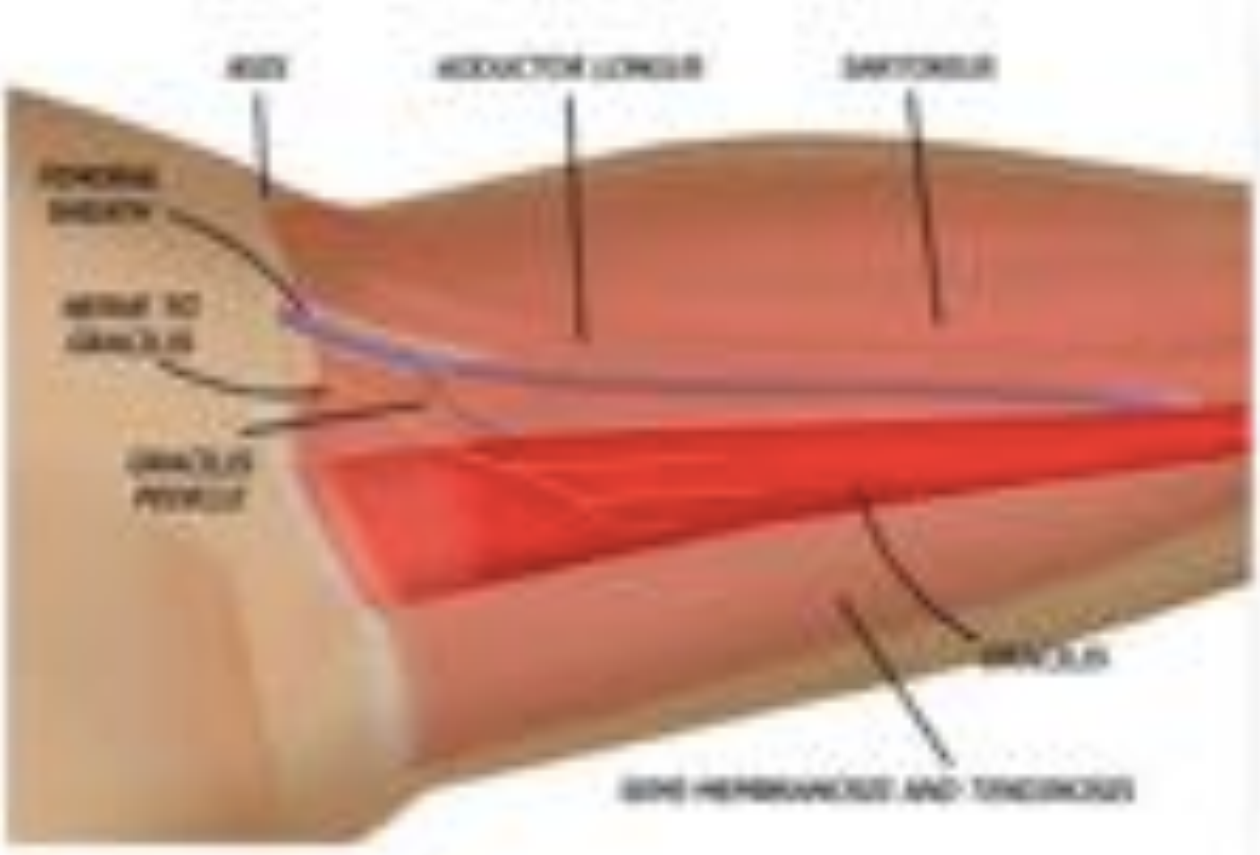
Gracilis axis is defined 2 to 3 finger breadths POSTERIOR to the adductor longus.



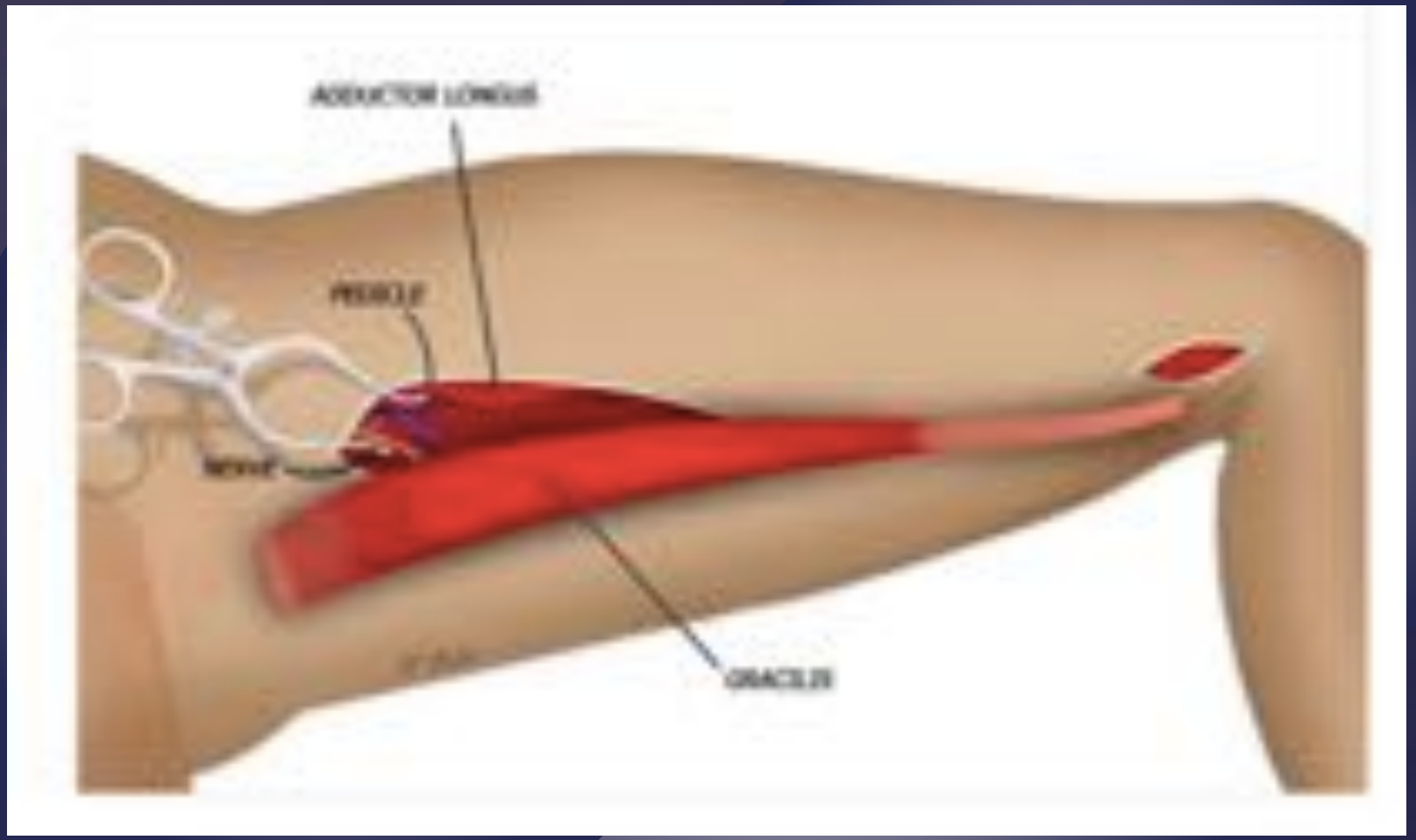
The incision is marked over the axis of the muscle, two to three finger breadths below the easily palpable adductor longus muscle.



The pedicle is identified by incising the muscular fascia over the gracilis muscle and retracting the space between the gracilis and adductor longus. The pedicle is traced back to its origin by exposing it between the planes of adductor longus and magnus.

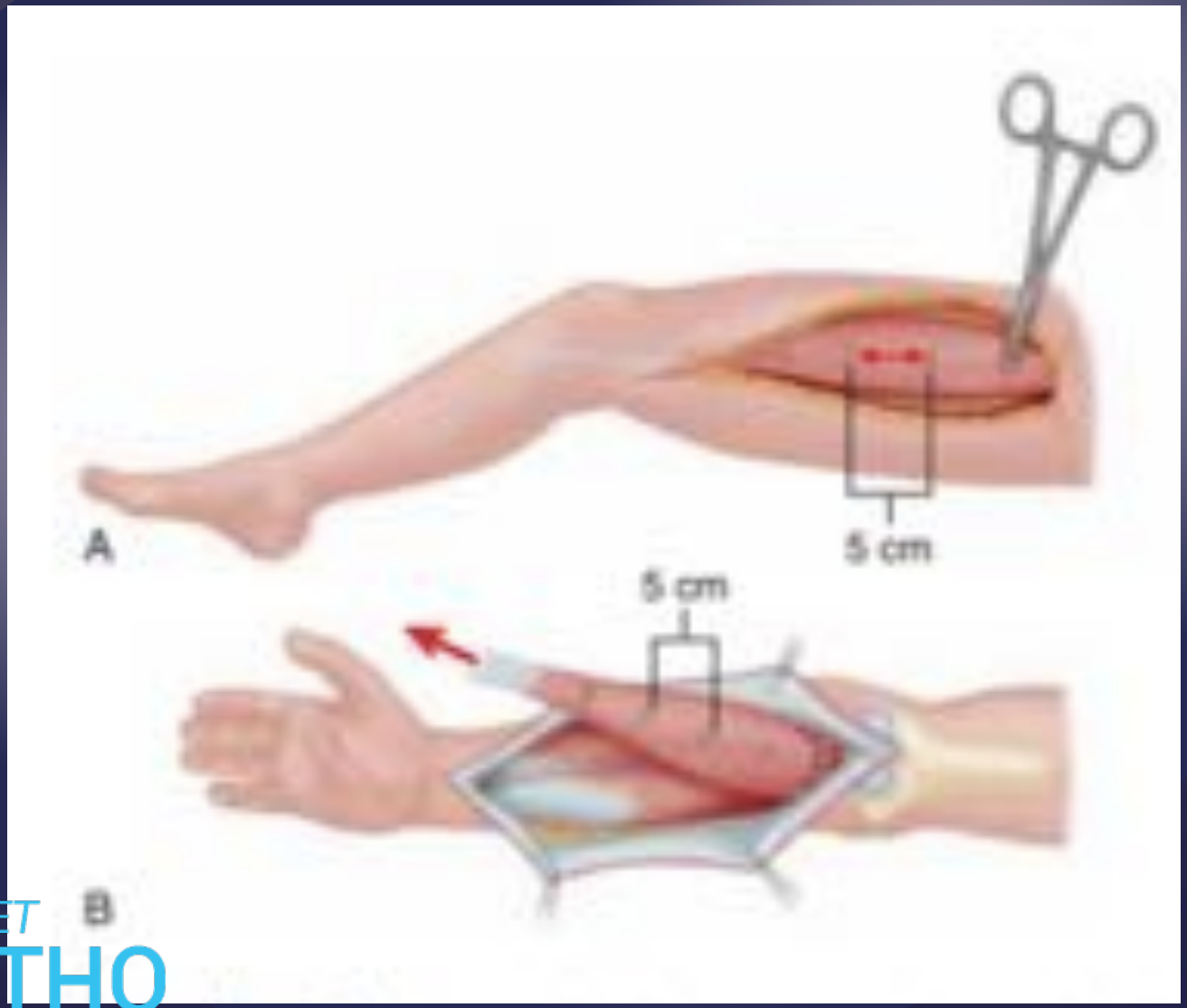


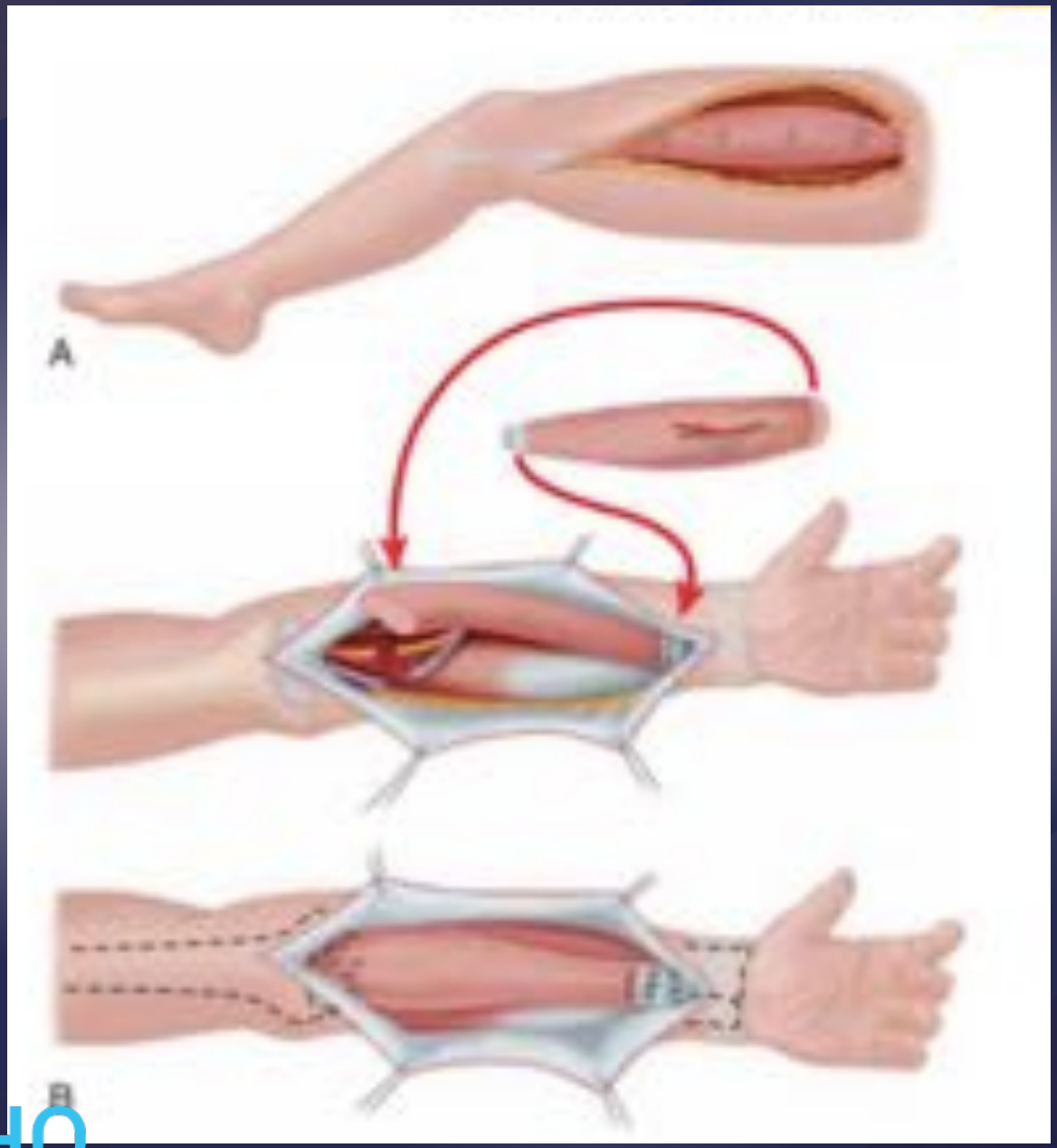
The gracilis vessels take origin from the medial femoral circumflex system, a branch of the profunda femoral vessels.



RESTING MUSCLE TENSION TO BE MARKED

FFM for flexor reconstruction:





FFM for elbow flexion:

- TBPI : loss of biceps action

- Coracoid process proximally
- Bicipital aponeurosis distally

- Brachial artery or axillary
- Cephalic vein or commitantes

- Intercostal nerves (3,4,5)
- Phrenic nerve? (C5,C6)
- Spinal accessory (XI)

FFM for Facial palsy:

FFM : LATTISIMUS DORSI

- Type 5 : Major and segmental pedicles
- Thoracodorsal pedicle
- Posterior intercostal vessels
- Free and pedicled transfer

Origin:

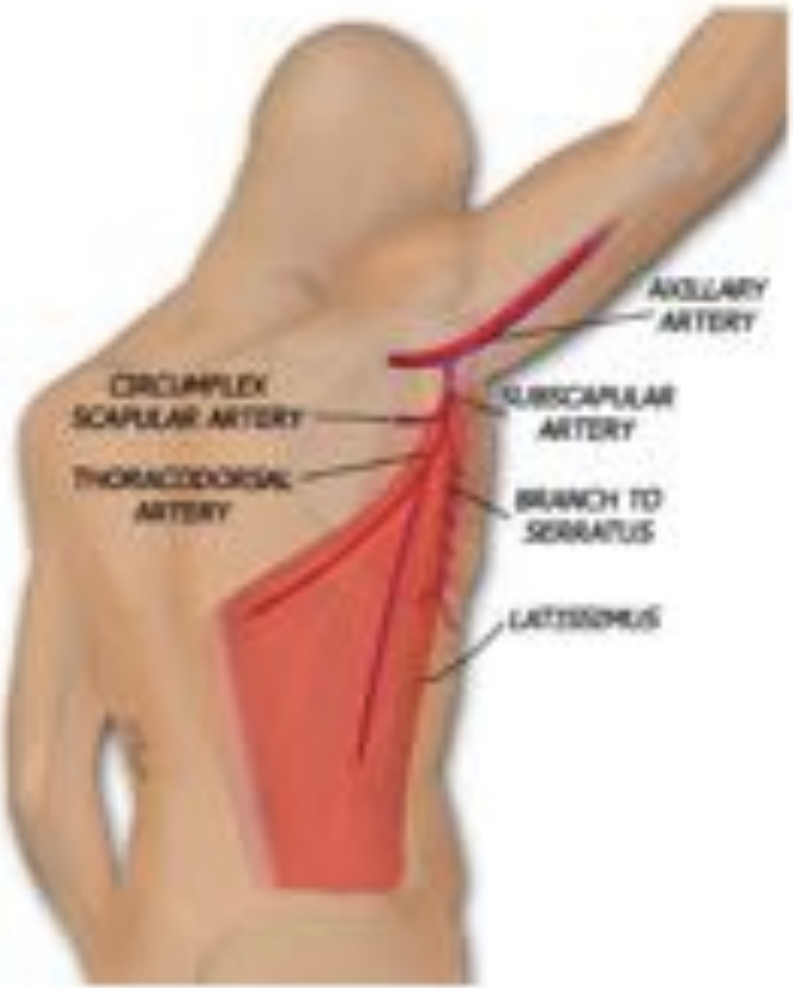
- T7-L5 vertebrae
- Posterior iliac crest
- Lower ribs
- Inferior angle of scapula

Insertion:

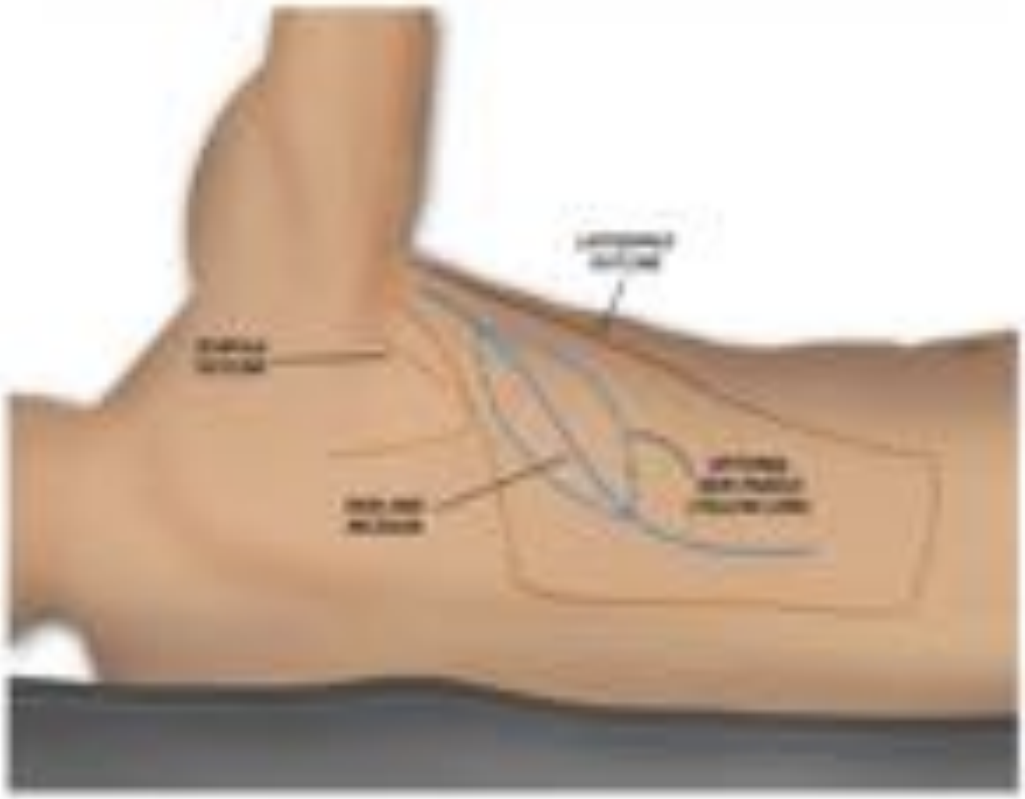
- Floor of bicipital groove (1 lady between 2 majors)

Axis:

- Patient in lateral, arm on support
- Mark posterior axillary fold, inferior angle of scapula posterior iliac crest, midline



The latissimus muscle is supplied by the thoracodorsal artery, and branch of the subscapular artery. A nerve, the thoracodorsal, and vein accompany the artery.



The patient is marked in the lateral decubitus position for the extent of the muscle, skin incision and possible skin paddle.

The muscle harvest is complete and pedicle remains attached

Free LD transfer for elbow flexion

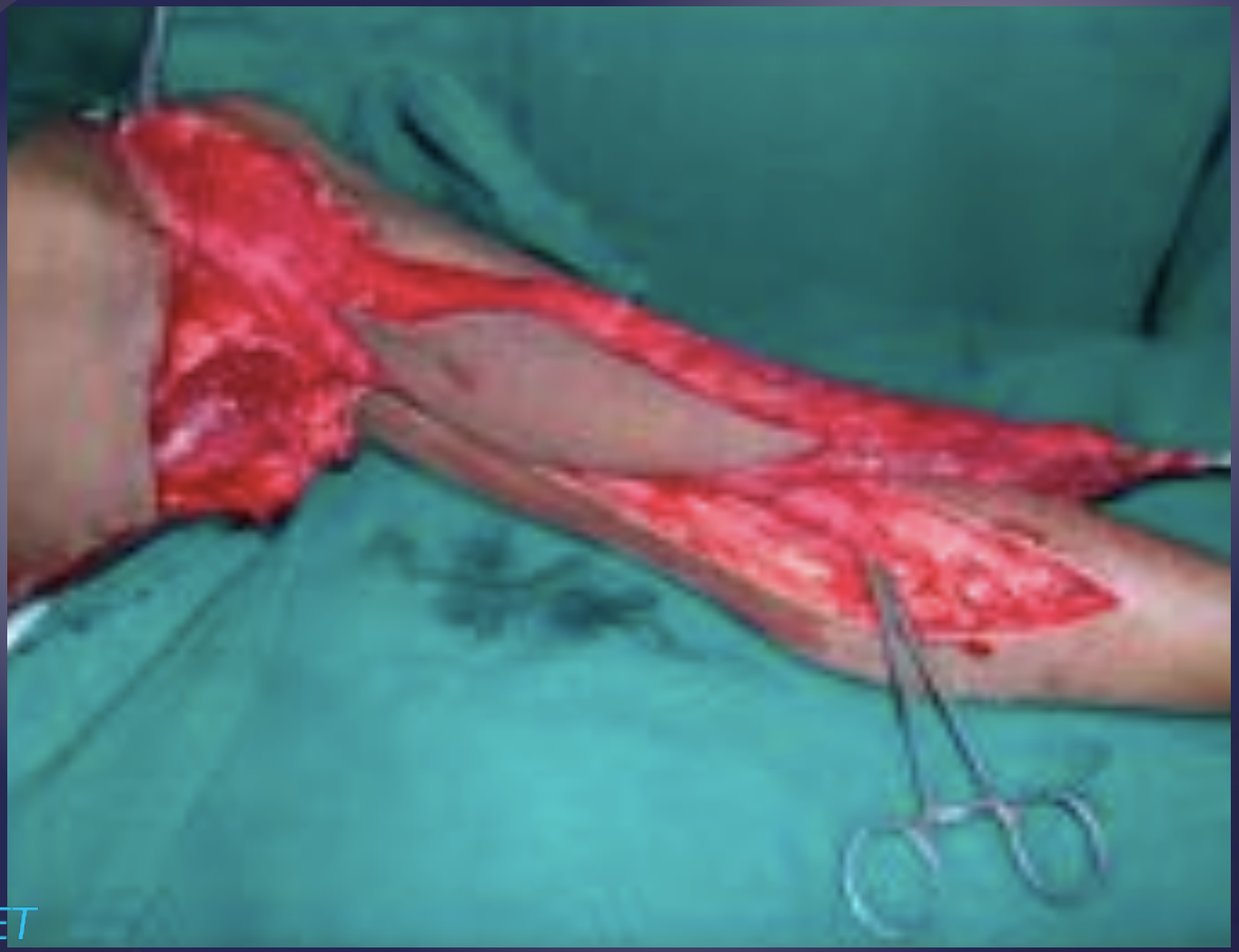


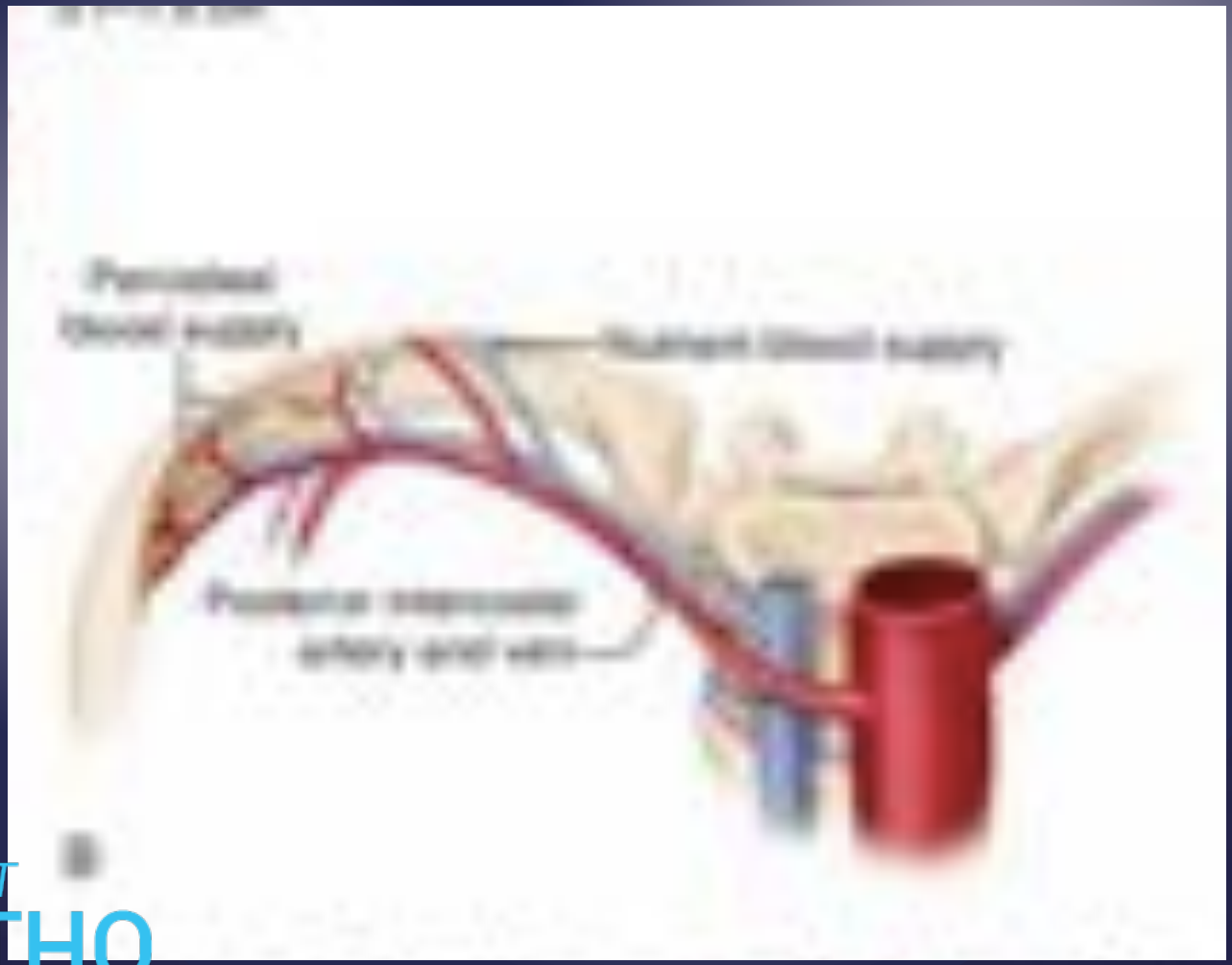
Image courtesy RIGHT Hospitals, Chennai

Intercostal nerve transfer

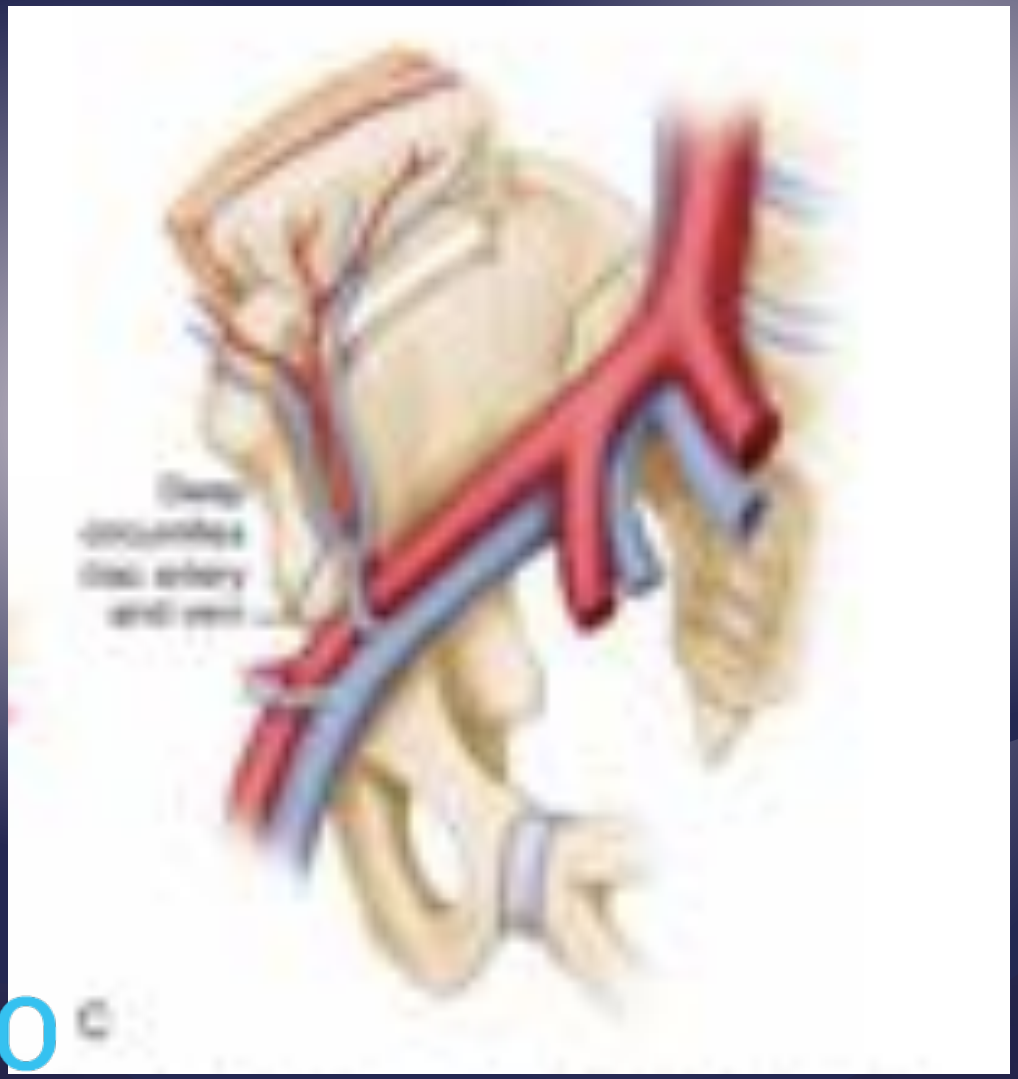
Vascularised osseous transfer

- Free fibula
- Iliac crest
- Rib
- Medial femoral condyle

Vascularised RIB harvest



Vascularised ILIAC CREST transfer



Free fibula :

- Lateral or posterior approach

- Periosteal blood supply

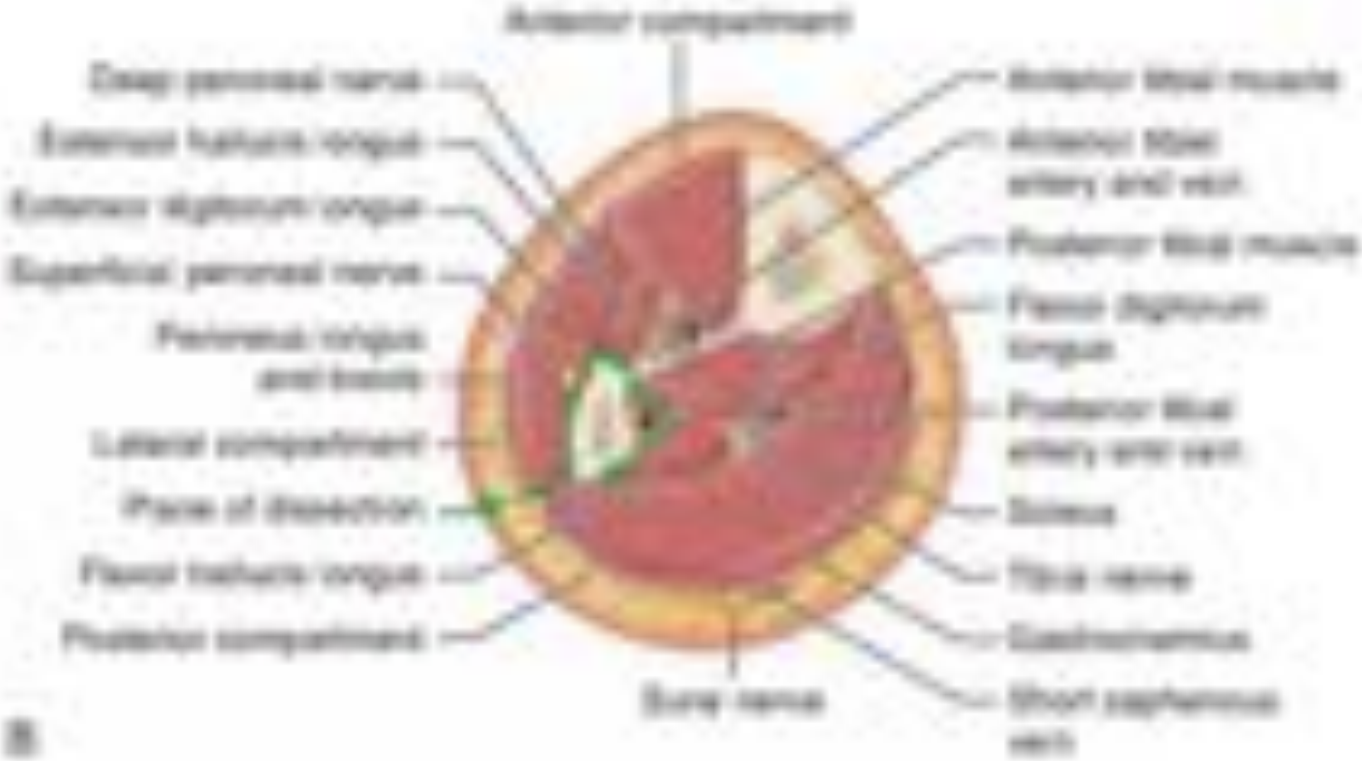
- Proximal 6cm
- Distal 6cm
- Upto 30cm length

- Segmental supply
- Osteotomies

- Soleus muscle

- Fibula head for epiphysis

Free Fibula



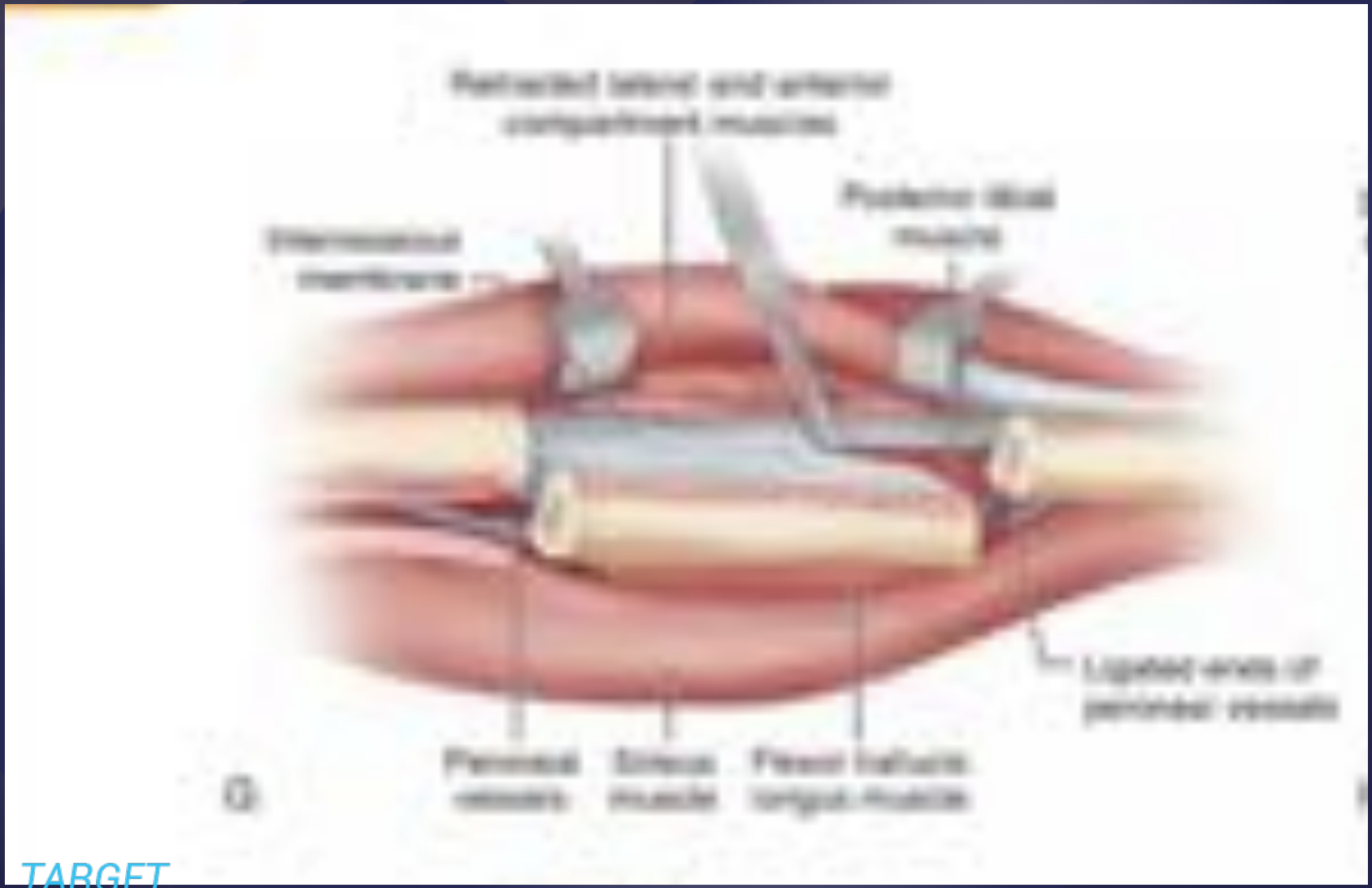
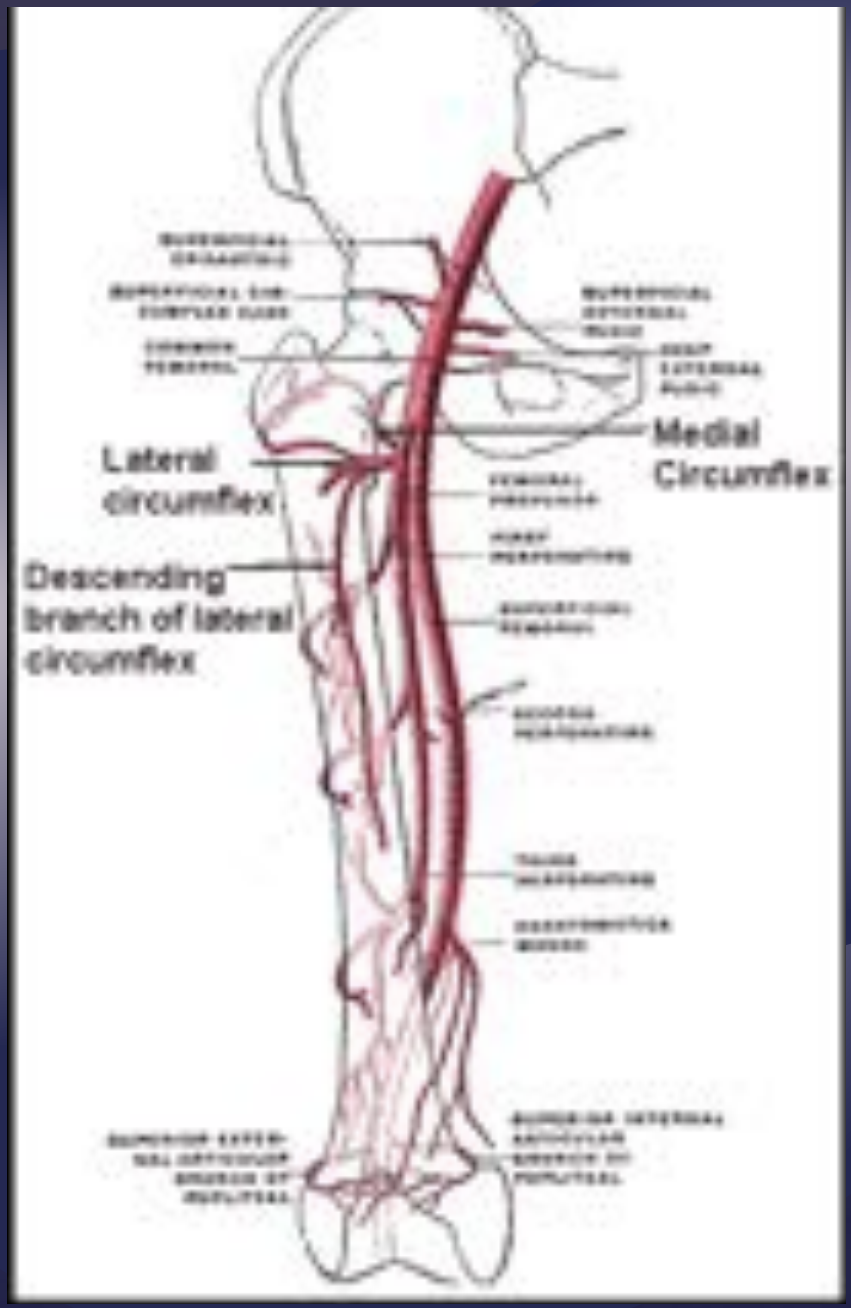


Image courtesy Tata Memorial Mumbai

MEDIAL FEMORAL CONDYLE

Avascular necrosis of head of femur???

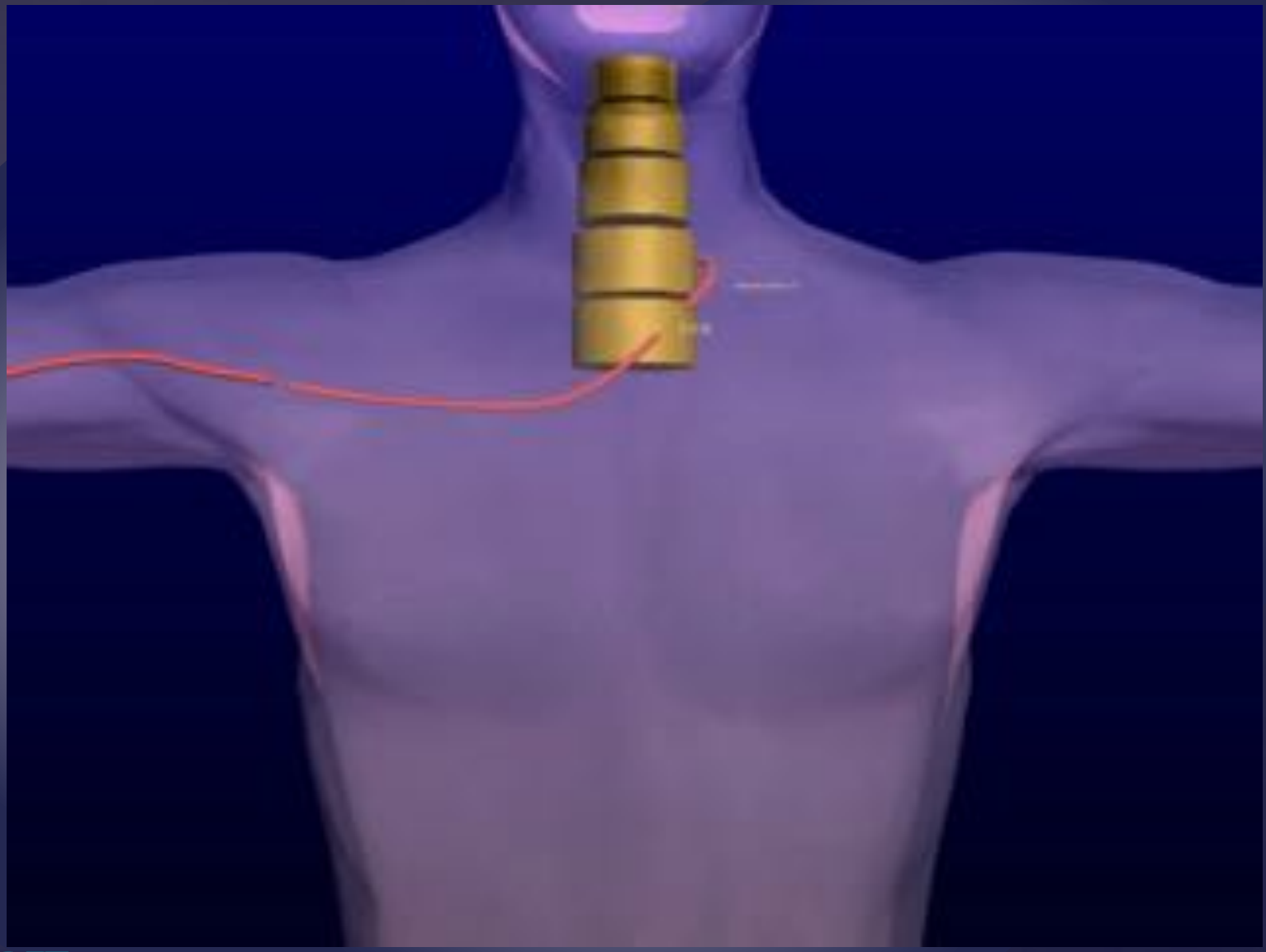


VUNG:

- TBPI
- VUNG from affected limb
- To C/L C7 of opposite normal limb
- SUCA (superior ulnar collateral artery)

Image – RIGHT Hospitals, Chennai

RIGHT Hospitals,
Chennai



Animation courtesy RIGHT Hospitals, Chennai

THANK YOU!

Linkedin – Dr.Priyanka Sharma

Instagram – drps_plastics

Youtube – DrPS