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**ABDUCTOR DIGITI MINIMI (foot)**

**Arises** Med & lat processes of post calcaneal tuberosity

**Inserts** Lat side of base of prox phalanx of 5th toe & 5th MT

**Action** Flexes & abducts 5th toe. Supports lat longitudinal arch

**Nerve** Lat plantar N (S2,3)

**ABDUCTOR DIGITI MINIMI (hand)**

**Arises** Pisiform bone, pisohamate lig & flexor retinaculum

**Inserts** Ulnar side of base of prox phalanx of little finger & extensor expansion ( $\pm$  sesamoid)

**Action** Abducts little finger at MCP jnt

**Nerve** Deep br of ulnar N (C8,T1)

**ABDUCTOR HALLUCIS**

**Arises** Med process of post calcaneal tuberosity & flexor retinaculum

**Inserts** Med aspect of base of prox phalanx of big toe via med sesamoid

**Action** Flexes & abducts big toe. Supports med longitudinal arch

**Nerve** Med plantar N (S1,2)

**ABDUCTOR POLLICIS BREVIS**

**Arises** Tubercle of scaphoid & flexor retinaculum

**Inserts** Radial sesamoid of prox phalanx of thumb & tendon of extensor pollicis longus

**Action** Abducts thumb at MCP & CMC jnts

**Nerve** Recurrent (muscular) br of median N (C8,T1) occasionally by ulnar N

**ABDUCTOR POLLICIS LONGUS**

**Arises** Upper post surface of ulna & middle third of post surface of radius & interosseous membrane between

**Inserts** Over tendons of radial extensors & brachioradialis to base of 1st MC & trapezium

**Action** Abducts & extends thumb at CMC jnt

**Nerve** Post interosseous N (C6,7)

**Notes** Forms radial side of snuff box

**ADDUCTOR BREVIS**

**Arises** Inf ramus & body of pubis

**Inserts** Upper third of linea aspera

**Action** Adducts hip

**Nerve** Ant div of obturator N (L2,3)

**ADDUCTOR HALLUCIS**

**Arises** Oblique head: base of 2, 3, 4 MTs.  
Transverse head: plantar MT lig & deep transverse lig

**Inserts** Lat side of base of prox phalanx of big toe & lat sesamoid

**Action** Adducts & flexes MTP jnt of big toe. Supports transverse arch

**Nerve** Deep br of lat plantar N (S2,3)

**Notes** If muscle fibres are attached to 1st MT it can be regarded as opponens hallucis

**ADDUCTOR LONGUS**

**Arises** Body of pubis inf & med to pubic tubercle

**Inserts** Lower two thirds of med linea aspera

**Action** Adducts & med rotates hip

**Nerve** Ant div of obturator N (L2,3)

**ADDUCTOR MAGNUS**

**Arises** Adductor portion: ischiopubic ramus. Hamstring portion: lower outer quadrant of post surface of ischial tuberosity

**Inserts** Adductor portion: lower gluteal line & linea aspera. Hamstring portion: adductor tubercle

**Action** Adductor portion: adducts & med rotates hip. Hamstring portion: extends hip

**Nerve** Adductor portion: post div of obturator N (L2–4). Hamstring portion: tibial portion of sciatic (L4–S3)

**ADDUCTOR POLLICIS**

**Arises** Oblique head: base of 2nd & 3rd MCs, trapezoid & capitate. Transverse head: palmar border & shaft of 3rd MC

**Inserts** Ulnar sesamoid then ulnar side of base of prox phalanx & tendon of extensor pollicis longus

**Action** Adducts CMC jnt of thumb

**Nerve** Deep br of ulnar N (T1)

**ANCONEUS**

**Arises** Smooth surface at lower extremity of post aspect of lat epicondyle of humerus

**Inserts** Lat side of olecranon

**Action** Weak extensor of elbow. Moves (abducts) ulna in pronation

**Nerve** Radial N (C7,8)

**ARTICULARIS CUBITI (subanconeus)**

**Arises** Deep distal surface of med head of triceps

**Inserts** Post capsule of elbow jnt

**Action** Lifts capsule away from jnt

**Nerve** Radial (C6,7,8)

**ARTICULARIS GENU**

**Arises** Two slips from ant femur below vastus intermedius

**Inserts** Apex of suprapatellar bursa

**Action** Retracts bursa as knee extends

**Nerve** Post div of femoral N (L3,4)

**ARYEPIGLOTTICUS**

**Arises** Apex of arytenoid cartilage

**Inserts** Lat border of epiglottis

**Action** Aids closure of additus of larynx

**Nerve** Recurrent laryngeal br of vagus N (X)

**AURICULARIS**

**Arises** Cartilage of auricle

**Inserts** Galeal aponeurosis

**Action** Adjusts position of ear

**Nerve** Temporal br of facial N (VII)

**BICEPS BRACHII**

**Arises** Long head: supraglenoid tubercle of scapula. Short head: coracoid process of scapula with coracobrachialis

**Inserts** Post border of bicipital tuberosity of radius (over bursa) & bicipital aponeurosis to deep fascia & subcutaneous ulna

**Action** Supinates forearm, flexes elbow, weakly flexes shoulder

**Nerve** Musculocutaneous N (C5,6) (from lat cord)

**Notes** Supinates most effectively when elbow flexed

**BICEPS FEMORIS**

**Arises** Long head: upper inner quadrant of post surface of ischial tuberosity. Short head: middle third of linea aspera, lat supracondylar ridge of femur

**Inserts** Styloid process of head of fibula, lat collateral lig & lat tibial condyle

**Action** Flexes & lat rotates knee. Long head extends hip

**Nerve** Long head: tibial portion of sciatic N. Short head: common peroneal portion of sciatic N (both L5,S1)

**BRACHIALIS**

**Arises** Ant lower half of humerus & med & lat intermuscular septa

**Inserts** Coronoid process & tuberosity of ulna

**Action** Flexes elbow

**Nerve** Musculocutaneous N (C5,6) (from lat cord). Also small supply from radial N (C7)

**BRACHIORADIALIS**

**Arises** Upper two thirds of lat supracondylar ridge of humerus & lat intermuscular septum

**Inserts** Base of styloid process of radius

**Action** Flexes arm at elbow & brings forearm into midprone position

**Nerve** Radial N (C5,6)

**Notes** Overlies radial N & art as they lie on supinator

**BUCCINATOR**

**Arises** Ext alveolar margins of maxilla & mandible by molar teeth, to maxillary tubercle & pterygoid hamulus & post mylohyoid line respectively, then via pterygomandibular raphe between bones

**Inserts** Decussates at modiolus of mouth & interdigitates with opposite side

**Action** Aids mastication, tenses cheeks in blowing & whistling, aids closure of mouth

**Nerve** Buccal br of facial N (VII)

**BULBOSPONGIOSUS**

**Arises** Perineal body (& midline raphe over corpus spongiosum in male)

**Inserts** Superficial perineal membrane & dorsal penile/clitoral aponeurosis

**Action** Male: aids emptying of urine & ejaculate from urethra. Female: closes vaginal introitus

**Nerve** Perineal br of pudendal N (S2,3,4)

**CONSTRICTOR OF PHARYNX – INFERIOR**

**Arises** Cricopharyngeus: lat aspect of arch of cricoid cartilage. Thyropharyngeus: oblique line of lamina of thyroid cartilage & fibrous cricothyroid arch

**Inserts** Cricopharyngeus: continuous with muscle of opposite side, behind pharynx. Thyropharyngeus: lower pharyngeal raphe

**Action** Aids swallowing. Cricopharyngeus acts as upper oesophageal sphincter

**Nerve** Pharyngeal plexus (IX, X & sympathetic) via pharyngeal br of X with its motor fibres from cranial accessory (XI)

**Notes** Killian's dehiscence is between the two parts post

**CONSTRICTOR OF PHARYNX – MIDDLE**

**Arises** Lower third of stylohyoid lig, lesser cornu & sup border of greater cornu of hyoid bone

**Inserts** Middle portion of pharyngeal raphe

**Action** Aids swallowing

**Nerve** Pharyngeal plexus (IX, X & sympathetic) via pharyngeal br of X with its motor fibres from cranial accessory N (XI)

**CONSTRICTOR OF PHARYNX – SUPERIOR**

**Arises** Lower two thirds of med pterygoid plate, pterygomandibular raphe & post end of mylohyoid line on mandible

**Inserts** Upper midline pharyngeal raphe & pharyngeal tubercle of clivus of occiput

**Action** Aids swallowing

**Nerve** Pharyngeal plexus (IX, X & sympathetic) via pharyngeal br of X with its motor fibres from cranial accessory (XI)

**CORACOBRACHIALIS**

**Arises** Coracoid process of scapula with biceps brachii

**Inserts** Upper half of med border of humerus

**Action** Flexes & weakly adducts arm

**Nerve** Musculocutaneous N (C5,6,7) (from lat cord)

**Notes** Ligament of Struthers as embryological 3rd head. Musculocutaneous N runs through muscle

**CORRUGATOR SUPERCILII**

**Arises** Med superciliary arch

**Inserts** Skin of med forehead

**Action** Wrinkles forehead

**Nerve** Temporal br of facial N (VII)

**CREMASTER**

**Arises** Lower border of internal oblique & transversus abdominis in inguinal canal

**Inserts** Loops around spermatic cord & tunica vaginalis & some fibres return to attach to pubic tubercle

**Action** Retracts testis

**Nerve** Genital br (L2) of genitofemoral N (L1,2)

**CRICOTHYROID**

**Arises** Anterolateral aspect of cricoid cartilage

**Inserts** Inf cornu & lower laminar of thyroid cartilage

**Action** Lengthens & tenses vocal cords by tilting thyroid cartilage forwards

**Nerve** Ext br of sup laryngeal br of vagus N (X)

**DARTOS**

**Arises** Subcutaneous tissue of scrotum, superficial to superficial fascia (Colles)

**Inserts** Skin & midline fibrous septum of scrotum

**Action** Corrugates scrotal skin

**Nerve** Sympathetic fibres from genital br (L2) of genitofemoral N (L1,2)

**DEEP TRANSVERSE PERINEI**

**Arises** Med aspect of ischiopubic ramus & body of ischium

**Inserts** Midline raphe & perineal body

**Action** Fixes perineal body & supports pelvic viscera

**Nerve** Perineal br of pudendal N (S2,3,4)

**DELTOID**

**Arises** Lat third of clavicle, acromion, spine of scapula to deltoid tubercle

**Inserts** Middle of lat surface of humerus (deltoid tuberosity)

**Action** Abducts arm, ant fibres flex & med rotate, post fibres extend & lat rotate

**Nerve** Axillary N (C5,6) (from post cord)

**DEPRESSOR ANGULI ORIS**

**Arises** Outer surface of mandible post to oblique line

**Inserts** Modiolus at angle of mouth

**Action** Depresses & draws angle of mouth laterally

**Nerve** Mandibular br of facial N (VII)

**DEPRESSOR LABII INFERIORIS**

**Arises** Outer surface of mandible along oblique line

**Inserts** Skin of lower lip

**Action** Depresses & draws lower lip laterally

**Nerve** Mandibular br of facial N (VII)

**DIAPHRAGM**

**Arises** Vertebral: crura from bodies of L1,2 (left), L1–3 (right). Costal: med & lat arcuate lig, inner aspect of lower six ribs and costal cartilages.

Sternal: two slips from post aspect of xiphoid

**Inserts** Trefoil central tendon

**Action** Inspiration & assists in raising intra-abdominal pressure

**Nerve** Phrenic N (motor) (C3,4,5).

Sensory: phrenic, intercostals (6–12) & upper two lumbar N roots

**DIGASTRIC**

**Arises** Ant belly: digastric fossa on post surface of symphysis menti. Post belly: base of med aspect of mastoid process

**Inserts** Fibrous loop to lesser cornu of hyoid bone

**Action** Elevates hyoid bone. Aids swallowing & depresses mandible

**Nerve** Ant belly: mylohyoid N (Vc). Post belly: facial N (VII)

**ERECTOR SPINAE – ILIOCOSTOCERVICALIS**

**Arises** Post angles of ribs

**Inserts** Transverse processes above & below

**Action** Extends & lat flexes spine

**Nerve** Post primary rami

**Notes** Divided into iliocostalis – lumborum, thoracis & cervicalis

**ERECTOR SPINAE – LONGISSIMUS**

**Arises** Transverse processes

**Inserts** Transverse processes several levels above

**Action** Extends spine

**Nerve** Post primary rami

**Notes** Divided into longissimus – thoracis, cervicis & capitis

### ERECTOR SPINAE – SPINALIS

**Arises** Spinous processes

**Inserts** Spinous processes six levels above

**Action** Lat flexion of spine

**Nerve** Post primary rami

**Notes** Divided into spinalis – thoracis, cervicis & capitis

### EXTENSOR CARPI RADIALIS

#### BREVIS

**Arises** Common extensor origin on ant aspect of lat epicondyle of humerus

**Inserts** Post base of 3rd MC

**Action** Extends & abducts hand at wrist

**Nerve** Post interosseous N (C7,8)

### EXTENSOR CARPI RADIALIS

#### LONGUS

**Arises** Lower third of lat supracondylar ridge of humerus & lat intermuscular septum

**Inserts** Post base of 2nd MC

**Action** Extends & abducts hand at wrist

**Nerve** Radial N (C6,7)

### EXTENSOR CARPI ULNARIS

**Arises** Common extensor origin on ant aspect of lat epicondyle of humerus

**Inserts** Base of 5th MC via groove by ulnar styloid

**Action** Extends & adducts hand at wrist

**Nerve** Post interosseous N (C7,8)

### EXTENSOR DIGITI MINIMI (hand)

**Arises** Common extensor origin on ant aspect of lat epicondyle of humerus

**Inserts** Extensor expansion of little finger – usually two tendons which are joined by a slip from extensor digitorum at MCP jnt

**Action** Extends all jnts of little finger

**Nerve** Post interosseous N (C7,8)

### EXTENSOR DIGITORUM (hand)

**Arises** Common extensor origin on ant aspect of lat epicondyle of humerus

**Inserts** Ext expansion to middle & distal phalanges by four tendons. Tendons 3 & 4 usually fuse & little finger just receives a slip

**Action** Extends all jnts of fingers

**Nerve** Post interosseous N (C7,8)

### EXTENSOR DIGITORUM

#### BREVIS (foot)

**Arises** Sup surface of ant calcaneus

**Inserts** Four tendons into prox phalanx of big toe & long extensor tendons to toes 2, 3 and 4

**Action** Extends toes when foot fully dorsiflexed

**Nerve** Deep peroneal N (L5,S1)

**Notes** Med one of four tendons could be regarded as extensor hallucis brevis

### EXTENSOR DIGITORUM

#### LONGUS (foot)

**Arises** Upper two thirds of ant shaft of fibula, interosseous membrane & sup tibiofibular jnt

**Inserts** Extensor expansion of lat four toes

**Action** Extends toes & extends foot at ankle

**Nerve** Deep peroneal N (L5,S1)

### EXTENSOR HALLUCIS LONGUS

**Arises** Middle half of ant shaft of fibula

**Inserts** Base of distal phalanx of great toe

**Action** Extends big toe & foot. Inverts foot & tightens subtalar jnts

**Nerve** Deep peroneal N (L5,S1)

### EXTENSOR INDICIS

**Arises** Lower post shaft of ulna (below extensor pollicis longus) & adjacent interosseous membrane

**Inserts** Extensor expansion of index finger (tendon lies on ulnar side of extensor digitorum tendon)

**Action** Extends all jnts of index finger

**Nerve** Post interosseous N (C7,8)

**EXTENSOR POLLICIS BREVIS**

**Arises** Lower third of post shaft of radius & adjacent interosseous membrane

**Inserts** Over tendons of radial extensors & brachioradialis to base of prox phalanx of thumb

**Action** Extends MCP jnt of thumb

**Nerve** Post interosseous N (C7,8)

**Notes** Forms radial side of snuff box

**EXTENSOR POLLICIS LONGUS**

**Arises** Middle third of post ulna (below abductor pollicis longus) & adjacent interosseous membrane

**Inserts** Base of distal phalanx of thumb via Lister's tubercle (dorsal tubercle of radius)

**Action** Extends IP & MCP jnts of thumb

**Nerve** Post interosseous N (C7,8)

**Notes** Forms ulnar side of snuff box

**EXTERNAL OBLIQUE ABDOMINIS**

**Arises** Ant angles of lower eight ribs

**Inserts** Outer ant half of iliac crest, inguinal lig, pubic tubercle & crest, & aponeurosis of ant rectus sheath

**Action** Supports abdominal wall, assists forced expiration, aids raising intra-abdominal pressure &, with muscles of opposite side, abducts & rotates trunk

**Nerve** Ant primary rami (T7–12)

**Notes** Interdigitates with four slips of serratus ant & four of latissimus dorsi

**FLEXOR CARPI RADIALIS**

**Arises** Common flexor origin of med epicondyle of humerus

**Inserts** Bases of 2nd & 3rd MCs via groove in trapezium & slip to scaphoid

**Action** Flexes & abducts wrist

**Nerve** Median N (C6,7) (from med & lat cords)

**FLEXOR CARPI ULNARIS**

**Arises** Humeral head: common flexor origin of med epicondyle. Ulnar head: aponeurosis from med olecranon & upper three quarters subcutaneous border of ulna

**Inserts** Pisiform, hook of hamate, base of 5th MC via pisohamate & pisometacarpal lig

**Action** Flexes & adducts wrist. Fixes pisiform during action of hypothenar muscles

**Nerve** Ulnar N (C6,7) (by communication from lat cord)

**Notes** Ulnar N passes between two heads

**FLEXOR DIGITI MINIMI****BREVIS (foot)**

**Arises** Base of 5th MT & sheath of peroneus longus

**Inserts** Lat side of base of prox phalanx of little toe

**Action** Flexes MTP jnt of little toe

**Nerve** Superficial br of lat plantar N (S2,3)

**Notes** A few muscle fibres to distal half of plantar surface of 5th MT represent opponens digiti minimi

**FLEXOR DIGITI MINIMI****BREVIS (hand)**

**Arises** Flexor retinaculum & hook of hamate

**Inserts** Ulnar side of base of prox phalanx of little finger

**Action** Flexes MCP jnt of little finger

**Nerve** Deep br of ulnar N (C8,T1)

**FLEXOR DIGITORUM****ACCESSORIUS (QUADRATUS PLANTAE) (foot)**

**Arises** Med & lat sides of calcaneus

**Inserts** Tendons of flexor digitorum longus

**Action** Assists flexor digitorum longus to flex lat four toes, especially when ankle is plantar flexed

**Nerve** Lat plantar N (S2,3)

**FLEXOR DIGITORUM****BREVIS (foot)**

**Arises** Med process of post calcaneal tuberosity

**Inserts** Four tendons to four lat toes to borders of middle phalanx. Tendons of

flexor digitorum longus pass through them

**Action** Flexes lat four toes. Supports med & lat longitudinal arches

**Nerve** Med plantar N (S1,2)

### FLEXOR DIGITORUM

#### LONGUS (foot)

**Arises** Post shaft of tibia below soleal line & by broad aponeurosis from fibula

**Inserts** Base of distal phalanges of lat four toes

**Action** Flexes distal phalanges of lat four toes & foot at ankle. Supports lat longitudinal arch

**Nerve** Tibial N (S1,2)

**Notes** Med two tendons receive slips from flexor hallucis longus & all four receive insertion of flexor accessorius & each give lumbricals

### FLEXOR DIGITORUM

#### PROFUNDUS (hand)

**Arises** Med olecranon, upper three quarters of ant & med surface of ulna as far round as subcutaneous border & narrow strip of interosseous membrane

**Inserts** Distal phalanges of med four fingers. Tendon to index finger separates early

**Action** Flexes distal IP jnts, then secondarily flexes prox IP & MCP jnts & wrist

**Nerve** Median N (ant interosseous) (C6,7)/ ulnar N (C7,8)

**Notes** Nerve supply as above in 60%. In 40% it is a 3 : 1 ratio either way

### FLEXOR DIGITORUM

#### SUPERFICIALIS (hand)

**Arises** Humeral head: common flexor origin of med epicondyle of humerus, med lig of elbow. Ulnar head: sublime tubercle (med border of coronoid process) & fibrous arch. Radial head: whole length of ant oblique line

**Inserts** Tendons split to insert onto sides of middle phalanges of med four fingers

**Action** Flexes prox IP jnts & secondarily MCP jnts & wrist

**Nerve** Median N (C7,8) (from med & lat cords)

**Notes** Median N applied to under surface of muscle

### FLEXOR HALLUCIS BREVIS

**Arises** Cuboid, lat cuneiform & tibialis posterior insertion over the two remaining cuneiforms

**Inserts** Med tendon to med side of base of prox phalanx of big toe. Lat tendon to lat side of same, both via sesamoids

**Action** Flexes MTP jnt of big toe. Supports med longitudinal arch

**Nerve** Med plantar N (S2,3)

### FLEXOR HALLUCIS LONGUS

**Arises** Lower two thirds of post fibula between median crest & post border, lower intermuscular septum & aponeurosis of flexor digitorum longus

**Inserts** Base of distal phalanx of big toe & slips to med two tendons of flexor digitorum longus

**Action** Flexes distal phalanx of big toe, flexes foot at ankle, supports med longitudinal arch

**Nerve** Tibial N (S2,3)

### FLEXOR POLLICIS BREVIS

**Arises** Flexor retinaculum & tubercle of trapezium

**Inserts** Base of prox phalanx of thumb (via radial sesamoid)

**Action** Flexes MCP jnt of thumb

**Nerve** Recurrent (muscular) br of median N (C8,T1) (may also be from deep br of ulnar N (T1))

### FLEXOR POLLICIS LONGUS

**Arises** Ant surface of radius below ant oblique line & adjacent interosseous membrane

**Inserts** Base of distal phalanx of thumb

**Action** Flexes distal phalanx of thumb

**Nerve** Ant interosseous N (C7,8)

**GASTROCNEMIUS**

**Arises** Lat head: post surface of lat condyle of femur & highest of three facets on lat condyle. Med head: post surface of femur above med condyle

**Inserts** Tendo calcaneus to middle of three facets on post aspect of calcaneus

**Action** Plantar flexes foot. Flexes knee

**Nerve** Tibial N (S1,2)

**Notes** Main propulsive force for jumping

**GEMELLUS INFERIOR**

**Arises** Upper border of ischial tuberosity

**Inserts** Middle part of med aspect of greater trochanter of femur

**Action** Lat rotates & stabilises hip

**Nerve** N to quadratus femoris (L4,5,S1)

**GEMELLUS SUPERIOR**

**Arises** Spine of ischium

**Inserts** Middle part of med aspect of greater trochanter of femur

**Action** Lat rotates & stabilises hip

**Nerve** N to obturator internus (L5,S1,2)

**GENIOGLOSSUS**

**Arises** Sup mental spine on post surface of symphysis menti

**Inserts** Central mass of tongue & mucous membrane

**Action** Protracts tongue

**Nerve** Hypoglossal N (XII)

**GENIOHYOID**

**Arises** Inf mental spine on post surface of symphysis menti

**Inserts** Sup border of body of hyoid bone

**Action** Elevates & protracts hyoid bone. Depresses mandible

**Nerve** C1 fibres carried by hypoglossal N (XII)

**GLUTEUS MAXIMUS**

**Arises** Outer surface of ilium behind post gluteal line & post third of iliac crest, lumbar fascia, lat mass of sacrum, sacrotuberous lig & coccyx

**Inserts** Deepest quarter into gluteal tuberosity of femur, remaining three quarters into iliotibial tract (ant surface of lat condyle of tibia)

**Action** Extends & lat rotates hip. Maintains knee extended via iliotibial tract

**Nerve** Inf gluteal N (L5,S1,2)

**Notes** Largest muscle in body

**GLUTEUS MEDIUS**

**Arises** Outer surface of ilium between post & middle gluteal lines

**Inserts** Posterolateral surface of greater trochanter of femur

**Action** Abducts & med rotates hip. Tilts pelvis on walking

**Nerve** Sup gluteal N (L4,5,S1)

**GLUTEUS MINIMUS**

**Arises** Outer surface of ilium between middle & inf gluteal lines

**Inserts** Ant surface of greater trochanter of femur

**Action** Abducts & med rotates hip. Tilts pelvis on walking

**Nerve** Sup gluteal N (L4,5,S1)

**GRACILIS**

**Arises** Outer surface of ischiopubic ramus

**Inserts** Upper med shaft of tibia below sartorius

**Action** Adducts hip. Flexes knee & med rotates flexed knee

**Nerve** Ant div of obturator N (L2,3)

**HYOGLOSSUS (& CHONDROGLOSSUS)**

**Arises** Sup border of greater cornu of hyoid bone

**Inserts** Lat sides of tongue

**Action** Depresses tongue

**Nerve** Hypoglossal N (XII)

**ILIACUS**

**Arises** Iliac fossa within abdomen

**Inserts** Lowermost surface of lesser trochanter of femur

**Action** Flexes & med rotates hip  
**Nerve** Femoral N in abdomen (L2,3)

**INFERIOR OBLIQUE** (see also obliquus capitis inferior)

**Arises** Orbital surface of maxilla behind orbital margin  
**Inserts** Post/inf quadrant of sclera behind equator of eyeball  
**Action** Elevates eye in adduction. Extorts eye in abduction  
**Nerve** Inf div of oculomotor N (III)

### INFERIOR RECTUS

**Arises** Inf tendinous ring within orbit  
**Inserts** Inf sclera ant to equator of eyeball  
**Action** Depresses eye. Extorts eye in adduction  
**Nerve** Inf div of oculomotor N (III)

### INFRASPINATUS

**Arises** Med three quarters of infraspinous fossa of scapula & fibrous intermuscular septa  
**Inserts** Middle facet of greater tuberosity of humerus & capsule of shoulder jnt  
**Action** Lat rotates arm & stabilises shoulder jnt  
**Nerve** Suprascapular N (C5,6) (from upper trunk)  
**Notes** Bursa under tendon over glenoid angle. Tendon forms part of rotator cuff

### INTERCOSTALS EXTERNAL

**Arises** Inf border of ribs as far forwards as costochondral junctions  
**Inserts** Sup border of ribs below, passing obliquely downwards & forwards  
**Action** Fix intercostal spaces during respiration. Aids forced respiration by elevating ribs  
**Nerve** Muscular collateral brs of intercostal Ns

### INTERCOSTALS INNERMOST

**Arises** Int aspect of ribs above & below

**Inserts** Int aspect of ribs above & below  
**Action** Fix intercostal spaces during respiration  
**Nerve** Muscular collateral brs of intercostal Ns

### INTERCOSTALS INTERNAL

**Arises** Inf border of ribs as far back as post angles  
**Inserts** Sup border of ribs below, passing obliquely downwards & backwards  
**Action** Fix intercostal spaces during respiration. Aids forced inspiration by elevating ribs  
**Nerve** Muscular collateral brs of intercostal Ns

### INTERNAL OBLIQUE ABDOMINIS

**Arises** Lumbar fascia, ant two thirds of iliac crest & lat two thirds of inguinal lig  
**Inserts** Costal margin, aponeurosis of rectus sheath (ant & post), conjoint tendon to pubic crest & pectineal line  
**Action** Supports abdominal wall, assists forced respiration, aids raising intra-abdominal pressure &, with muscles of other side, abducts & rotates trunk. Conjoint tendon supports post wall of inguinal canal  
**Nerve** Ant primary rami (T7–12) (conjoint tendon ilioinguinal N (L1))

### INTEROSSEI – DORSAL OF FOOT (4)

**Arises** Bipennate from inner aspects of shafts of all MTs  
**Inserts** Bases of prox phalanges & dorsal extensor expansions of med side of 2nd toe & lat sides of 2nd, 3rd & 4th toes  
**Action** Abduct 2nd, 3rd & 4th toes from axis of 2nd toe. Assist lumbricals in extending IP jnts whilst flexing MTP jnts  
**Nerve** Lat plantar N (1–3: deep br; 4: superficial br) (S2,3)

**INTEROSSEI – DORSAL OF HAND (4)**

**Arises** Bipennate from inner aspects of shafts of all MCs

**Inserts** Prox phalanges & dorsal extensor expansion on radial side of index & middle fingers & ulnar side of middle & ring fingers

**Action** Abduct from axis of middle finger. Flex MCP jnt whilst extending IP jnts

**Nerve** Deep br of ulnar N (T1)

**INTEROSSEI – PALMAR OF HAND (4)**

**Arises** Ant shafts of 1, 2, 4, 5 MCs (unipennate)

**Inserts** Prox phalanges & dorsal extensor expansion on ulnar side of index & radial side of ring & little fingers & to ulnar sesamoid of thumb

**Action** Adduct to axis of middle finger. Flex MCP jnt whilst extending IP jnts

**Nerve** Deep br of ulnar N (T1)

**Notes** 1st palmar interosseous is small and may be absent

**INTEROSSEI – PLANTAR OF FOOT (3)**

**Arises** Inferomedial shafts of 3rd, 4th & 5th MTs (single heads)

**Inserts** Med sides of bases of prox phalanges with slips to dorsal extensor expansions of 3rd, 4th & 5th toes

**Action** Adduct 3rd, 4th & 5th toes to axis of 2nd toe. Assist lumbricals in extending IP jnts whilst flexing MTP jnts

**Nerve** Deep br of lat plantar N (S2,3)

**INTERSPINALES**

**Arises** Spinous processes

**Inserts** Spinous processes one above

**Action** Extension of spine

**Nerve** Post primary rami

**INTERTRANSVERSARI**

**Arises** Transverse processes

**Inserts** Transverse processes one above

**Action** Lat flexes spine

**Nerve** Post primary rami

**INTRINSIC MUSCLE OF TONGUE**

**Arises** Sup & inf longitudinal, transverse & vertical elements

**Inserts** Mucous membrane, septum & other muscles of tongue

**Action** Alter shape of tongue & so aid mastication, speech & swallowing

**Nerve** Hypoglossal N (XII)

**ISCHIOCAVERNOSUS**

**Arises** Med aspect of ischium & ischiopubic ramus

**Inserts** Inferolateral aponeurosis over crura of penis/clitoris

**Action** Stabilises erect penis

**Nerve** Perineal br of pudendal N (S2,3,4)

**LATERAL CRICOARYTENOID**

**Arises** Lat aspect of arch of cricoid cartilage

**Inserts** Muscular process of arytenoid cartilage

**Action** Adducts & med rotates arytenoid cartilage (closes rima glottidis)

**Nerve** Recurrent laryngeal br of vagus N (X)

**LATERAL PTERYGOID**

**Arises** Upper head: infratemporal surface of sphenoid bone. Lower head: lat surface of lat pterygoid plate

**Inserts** Pterygoid fovea below condyloid process of mandible & intra-articular cartilage of temporomandibular jnt

**Action** Depresses & protracts mandible to open mouth. Pulls forward cartilage of jnt during opening of mouth

**Nerve** Ns to lat pterygoid (ant div of mandibular N (Vc))

**LATERAL RECTUS**

**Arises** Lat tendinous ring within orbit

**Inserts** Lat sclera ant to equator of eyeball

**Action** Abducts eye

**Nerve** Abducent N (VI)

### LATISSIMUS DORSI

**Arises** Spine T7, spinous processes & supraspinous lig of all lower thoracic, lumbar & sacral vertebrae, lumbar fascia, post third iliac crest, last four ribs (interdigitating with ext oblique abdominis) & inf angle of scapula

**Inserts** Floor of bicipital groove of humerus after spiraling around teres major

**Action** Extends, adducts & med rotates arm. Costal attachment helps with deep inspiration & forced expiration

**Nerve** Thoracodorsal N (C6,7,8) (from post cord)

### LEVATOR ANGULI ORIS

**Arises** Ant surface of maxilla below infra-orbital foramen

**Inserts** Outer end of upper lip & modiolus

**Action** Elevates angle of mouth

**Nerve** Buccal br of facial N (VII)

### LEVATOR ANI – COCCYGEUS

**Arises** Sacrospinous lig

**Inserts** Anococcygeal body & coccyx

**Action** Supports pelvic viscera

**Nerve** Ant primary rami (perineal brs) of S4,5

### LEVATOR ANI – ILIOCOCYGEUS

**Arises** Post half of fascial line over obturator internus & ischial spine

**Inserts** Anococcygeal body

**Action** Supports pelvic viscera

**Nerve** Ant primary rami (perineal brs) of S3,4

### LEVATOR ANI – PUBOCOCCYGEUS

**Arises** Post surface of pubis & ant half of fascial line over obturator internus

**Inserts** Anococcygeal body

**Action** Supports pelvic viscera

**Nerve** Ant primary rami (perineal brs) of S3,4

### LEVATOR ANI – PUBORECTALIS

**Arises** Post surface of pubis

**Inserts** Midline sling post to rectum

**Action** Supports & aids continence of rectum by maintaining anorectal angle

**Nerve** Ant primary rami (perineal brs) of S3,4

### LEVATOR ANI – PUBOVAGINALIS (LEVATOR PROSTATAE)

**Arises** Post surface of pubis

**Inserts** Midline raphe post to vagina/prostate

**Action** Supports ant pelvic viscera

**Nerve** Ant primary rami (perineal brs) of S3,4

### LEVATOR LABII SUPERIORIS

**Arises** Med infra-orbital margin

**Inserts** Skin & muscle of upper lip

**Action** Elevates & everts upper lip

**Nerve** Buccal br of facial N (VII)

### LEVATOR LABII SUPERIORIS ALAEQUE NASI

**Arises** Upper frontal process of maxilla

**Inserts** Skin of lat nostril & upper lip

**Action** Dilates nostril & elevates upper lip

**Nerve** Buccal br of facial N (VII)

### LEVATOR PALPEBRAE SUPERIORIS

**Arises** Inf aspect of lesser wing of sphenoid bone

**Inserts** Sup tarsal plate & skin of upper eyelid

**Action** Elevates & retracts upper eyelid

**Nerve** Sup div of oculomotor N (III) & sympathetic to smooth muscle portion

### LEVATOR SCAPULAE

**Arises** Post tubercles of transverse processes of C1–4

**Inserts** Upper part of med border of scapula

**Action** Raises med border of scapula

**Nerve** Ant primary rami of C3 & C4 & dorsal scapular N (C5)

**LEVATOR VELI PALATINI**

**Arises** Apex of inf surface of petrous temporal bone & med rim of auditory tube

**Inserts** Palatine aponeurosis

**Action** Elevates, retracts & lat deviates soft palate. May open auditory tube on swallowing

**Nerve** Pharyngeal br of vagus N (X) with its motor fibres from cranial accessory N (XI)

profundus. Radial 2: radial side only (unipennate). Ulnar 2: cleft between tendons (bipennate)

**Inserts** Extensor expansion (dorsum of prox phalanx) of fingers 2–5 radial side

**Action** Flex MCP jnts & extend IP jnts of fingers

**Nerve** Lat 2: median N (C8,T1). Med 2: deep br of ulnar N (C8,T1)

**Notes** 60% have nerve supply as above. 40% have 3 : 1 or 1 : 3

**LEVATORES COSTARUM**

**Arises** Transverse processes C7 to T11

**Inserts** Post surface & angle of rib below

**Action** Elevates ribs

**Nerve** Post primary rami

**MASSETER**

**Arises** Ant two thirds of zygomatic arch & zygomatic process of maxilla

**Inserts** Lat surface of angle & lower ramus of mandible

**Action** Elevates mandible (enables forced closure of mouth)

**Nerve** Ant div of mandibular N (Vc)

**LONGUS CAPITIS**

**Arises** Ant tubercles of transverse processes of C3–6

**Inserts** Ant basilar occipital bone

**Action** Flexes of cervical spine & atlanto-occipital jnt

**Nerve** Ant primary rami of C1–3

**MEDIAL PTERYGOID**

**Arises** Deep head. Med side of lat pterygoid plate & fossa between med & lat plates. Superficial head: Tuberosity of maxilla & pyramidal process of palatine bone

**Inserts** Med aspect of angle of mandible

**Action** Elevates, protracts & lat displaces mandible to opposite side for chewing

**Nerve** N to medial pterygoid (main trunk of mandibular N (Vc))

**LONGUS COLLI**

**Arises** Ant body of T1–3, ant tubercles of transverse processes of C3–7

**Inserts** Ant arch of atlas (C1) & bodies of C2–4

**Action** Flexes & rotates cervical spine

**Nerve** Ant primary rami of C2–6

**MEDIAL RECTUS**

**Arises** Med tendinous ring within orbit

**Inserts** Med sclera ant to equator of eyeball

**Action** Adducts eye

**Nerve** Inf div of oculomotor N (III)

**LUMBRICALS OF FOOT (4)**

**Arises** Lat 3: bipennate origin from cleft between the four tendons of flexor digitorum longus. Med 1: unipennate origin from med aspect of 1st tendon

**Inserts** Dorsal extensor expansion

**Action** Extend toes at IP jnts & flex MTP jnts

**Nerve** First: med plantar N (L4,5). 2–4: deep br of lat plantar N (S2,3)

**MENTALIS**

**Arises** Incisive fossa on ant aspect of mandible

**Inserts** Skin of chin

**Action** Elevates & wrinkles skin of chin & protrudes lower lip

**Nerve** Mandibular br of facial N (VII)

**LUMBRICALS OF HAND (4)**

**Arises** Four tendons of flexor digitorum

**MUSCULUS UVULAE****Arises** Post border of hard palate**Inserts** Palatine aponeurosis**Action** Shapes uvula**Nerve** Pharyngeal br of vagus N (X) with its motor fibres from cranial accessory N (XI)**MYLOHYOID****Arises** Mylohyoid line on int aspect of mandible**Inserts** Ant three quarters: midline raphe. Post quarter: sup border of body of hyoid bone**Action** Elevates hyoid bone, supports & raises floor of mouth. Aids in mastication & swallowing**Nerve** Mylohyoid N (Vc)**NASALIS (COMPRESSOR & DILATOR)****Arises** Frontal process of maxilla**Inserts** Nasal aponeurosis**Action** Opens & closes nostrils, particularly in forced respiration**Nerve** Buccal br of facial N (VII)**Notes** Part of dilator nasalis is depressor septi from maxilla above central incisor to mobile part of nasal septum**OBLIQUE ARYTENOID****Arises** Muscular process of arytenoid cartilage**Inserts** Sup pole of opposite arytenoid cartilage**Action** Adducts arytenoid cartilages (closes rima glottidis)**Nerve** Recurrent laryngeal br of vagus N (X)**OBLIQUUS CAPITIS INFERIOR****Arises** Spinous process of axis (C2)**Inserts** Lat mass of atlas (C1)**Action** Rotates atlanto-axial jnt**Nerve** Suboccipital N (post primary ramus of C1)**OBLIQUUS CAPITIS SUPERIOR****Arises** Lat mass of atlas (C1)**Inserts** Lat half inf nuchal line**Action** Lat flexes atlanto-occipital jnt**Nerve** Suboccipital N (post primary ramus of C1)**OBTURATOR EXTERNUS****Arises** Outer obturator membrane, rim of pubis & ischium bordering it**Inserts** Trochanteric fossa on med surface of greater trochanter**Action** Lat rotates hip**Nerve** Post div of obturator N (L2,3,4)**OBTURATOR INTERNUS****Arises** Inner surface of obturator membrane & rim of pubis & ischium bordering membrane**Inserts** Middle part of med aspect of greater trochanter of femur**Action** Lat rotates & stabilises hip**Nerve** N to obturator internus (L5,S1,2)**OCCIPITOFONTALIS****Arises** Occipital: highest nuchal line & mastoid process. Frontal: sup fibres of upper facial muscles**Inserts** Galeal aponeurosis**Action** Wrinkles forehead & fixes galeal aponeurosis**Nerve** Post auricular & temporal brs of facial (VII)**OMOHYOID****Arises** Suprascapular lig & adjacent scapula**Inserts** Inf border of body of hyoid bone**Action** Depresses hyoid bone & hence larynx**Nerve** Ansa cervicalis N (C1,2,3)**Notes** Tendon between two bellies through sling behind sternocleidomastoid**OPPONENS DIGITI MINIMI (hand)****Arises** Flexor retinaculum & hook of hamate

**Inserts** Ulnar border of shaft of 5th MC  
**Action** Opposes (flexes & lat rotates) CMC & MCP jnts of little finger  
**Nerve** Deep br of ulnar N (C8,T1)

### OPPONENS POLLICIS

**Arises** Flexor retinaculum & tubercle of trapezium  
**Inserts** Whole of radial border of 1st MC  
**Action** Opposes (med rotates & flexes) CMC & MCP jnts of thumb  
**Nerve** Recurrent (muscular) br of median N (C8,T1) (may also be from deep br of ulnar N (T1))

### ORBICULARIS OCULI

**Arises** Med orbital margin & lacrimal sac (orbital, palpebral & lacrimal parts)  
**Inserts** Lat palpebral raphe  
**Action** Closes eyelids, aids passage & drainage of tears  
**Nerve** Temporal & zygomatic brs of facial N (VII)

### ORBICULARIS ORIS

**Arises** Near midline on ant surface of maxilla & mandible & modiolus at angle of mouth  
**Inserts** Mucous membrane of margin of lips & raphe with buccinator at modiolus  
**Action** Narrows orifice of mouth, purses lips & puckers lip edges  
**Nerve** Buccal br of facial N (VII)  
**Notes** Accessory parts are incisivus labii superioris & inferioris

### PALATOGLOSSUS

**Arises** Palatine aponeurosis  
**Inserts** Posterolateral tongue  
**Action** Elevates post tongue & closes oropharyngeal isthmus & aids initiation of swallowing  
**Nerve** Pharyngeal br of vagus N (X) with its motor fibres from cranial accessory N (XI)

### PALATOPHARYNGEUS

**Arises** Palatine aponeurosis & post margin of hard palate  
**Inserts** Upper border of thyroid cartilage & blends with constrictor fibres. Upper fibres interdigitate with opposite side (Passavant's ridge)  
**Action** Elevates pharynx & larynx. Passavant's muscle closes nasopharyngeal isthmus in swallowing  
**Nerve** Pharyngeal br of vagus N (X) with its motor fibres from cranial accessory N (XI)

### PALMARIS BREVIS

**Arises** Flexor retinaculum & palmar aponeurosis  
**Inserts** Skin of palm into dermis  
**Action** Steadies & corrugates skin of palm to help with grip  
**Nerve** Superficial br of ulnar N (C8,T1)  
**Notes** Only muscle supplied by this br of ulnar N

### PALMARIS LONGUS

**Arises** Common flexor origin of med epicondyle of humerus  
**Inserts** Flexor retinaculum & palmar aponeurosis  
**Action** Flexes wrist & tenses palmar aponeurosis  
**Nerve** Median N (C7,8) (from med & lat cords)  
**Notes** Absent in 13%

### PECTINEUS

**Arises** Pectineal line of pubis & narrow area of sup pubic ramus below it  
**Inserts** A vertical line between spiral line & gluteal crest below lesser trochanter of femur  
**Action** Flexes, adducts & med rotates hip  
**Nerve** Ant div of femoral N (L2,3). Occasional twig from obturator N (ant div – L2,3)

**PECTORALIS MAJOR**

**Arises** Clavicular head — med half clavicle. Sternocostal head — lat manubrium & sternum, six upper costal cartilages & ext oblique aponeurosis

**Inserts** Lat lip of bicipital groove of humerus and ant lip of deltoid tuberosity

**Action** Clavicular head: flexes & adducts arm. Sternal head: adducts & med rotates arm. Accessory for inspiration

**Nerve** Med pectoral N (from med cord) & lat pectoral N (from lat cord) (C6,7,8)

**Notes** Muscle folds on itself so that clavicular fibres insert lowest. Sternal fibres are highest inserting into capsule of shoulder joint

**PECTORALIS MINOR**

**Arises** 3, 4, 5 ribs

**Inserts** Med & upper surface of coracoid process of scapula

**Action** Elevates ribs if scapula fixed, protracts scapula (assists serratus ant)

**Nerve** Med & lat pectoral Ns (C6,7,8) (from med & lat cords)

**Notes** Landmark for axillary art & cords of brachial plexus

**PERONEUS BREVIS**

**Arises** Lower two thirds lat shaft of fibula

**Inserts** Tuberosity of base of 5th MT

**Action** Dorsiflexes & everts foot. Supports lat longitudinal arch

**Nerve** Superficial peroneal N (L5,S1)

**PERONEUS LONGUS**

**Arises** Upper two thirds of lat shaft of fibula, head of fibula & sup tibiofibular jnt

**Inserts** Plantar aspect of base of 1st MT & med cuneiform, passing deep to long plantar lig

**Action** Plantar flexes & everts foot. Supports lat longitudinal & transverse arches

**Nerve** Superficial peroneal N (L5,S1)

**PERONEUS TERTIUS**

**Arises** Third quarter of ant shaft of fibula

**Inserts** Shaft & base of 5th MT

**Action** Extends & everts foot

**Nerve** Deep peroneal N (L5,S1)

**PIRIFORMIS**

**Arises** 2, 3, 4 costotransverse bars of ant sacrum, few fibres from sup border of greater sciatic notch

**Inserts** Ant part of med aspect of greater trochanter of femur

**Action** Lat rotates & stabilises hip

**Nerve** Ant primary rami of S1,2

**Notes** Passes lat through greater sciatic foramen

**PLANTARIS**

**Arises** Lat supracondylar ridge of femur above lat head of gastrocnemius

**Inserts** Tendo calcaneus (med side, deep to gastrocnemius tendon)

**Action** Plantar flexes foot & flexes knee

**Nerve** Tibial N (S1,2)

**PLATYSMA**

**Arises** Skin over lower neck & upper lat chest

**Inserts** Inf border of mandible & skin over lower face & angle of mouth

**Action** Depresses & wrinkles skin of lower face & mouth. Aids forced depression of mandible

**Nerve** Cervical br of facial N (VII)

**POPLITEUS**

**Arises** Post shaft of tibia above soleal line & below tibial condyles

**Inserts** A facet on lat surface of lat condyle of femur posteroinferior to epicondyle. Tendon passes into capsule of knee to post part of lat meniscus

**Action** Unlocks extended knee by lat rotation of femur on tibia. Pulls back lat meniscus

**Nerve** Tibial N (L5, S1)

**Notes** Popliteus bursa lies deep to tendon

**POSTERIOR CRICOARYTENOID****Arises** Post aspect of cricoid cartilage**Inserts** Muscular process of arytenoid cartilage**Action** Abducts & lat rotates arytenoid cartilage (opens rima glottidis)**Nerve** Recurrent laryngeal br of vagus N (X)**PROCERUS****Arises** Nasal bone & cartilages**Inserts** Skin of med forehead**Action** Wrinkles & 'frowns' forehead**Nerve** Temporal br of facial N (VII)**PRONATOR QUADRATUS****Arises** Lower quarter of anteromedial shaft of ulna**Inserts** Lower quarter of anterolateral shaft of radius & some interosseous membrane**Action** Pronates forearm & maintains ulna & radius opposed**Nerve** Ant interosseous N (C8)**PRONATOR TERES****Arises** Humeral head: med epicondyle, med supracondylar ridge & med intermuscular septum. Ulnar head: med border of coronoid process**Inserts** Just post to most prominent part of lat convexity of radius**Action** Pronates forearm & flexes elbow**Nerve** Median N (C6,7) (from lat & med cords)**Notes** Median N passes between its two heads**PSOAS MAJOR****Arises** Transverse processes of L1–5, bodies of T12–L5 & intervertebral discs below bodies of T12–L4**Inserts** Middle surface of lesser trochanter of femur**Action** Flexes & med rotates hip**Nerve** Ant primary rami of L1,2**PSOAS MINOR****Arises** Bodies of T12 & L1 & intervening intervertebral disc**Inserts** Pectineal line of pubis & fascia over iliopsoas**Action** Weak flexor of trunk**Nerve** Ant primary rami of L1**PYRAMIDALIS****Arises** Pubic crest ant to origin of rectus abdominis**Inserts** Lower linea alba**Action** Reinforces lower rectus sheath**Nerve** Subcostal N (T12)**QUADRATUS FEMORIS****Arises** Lat border of ischial tuberosity**Inserts** Quadrate tubercle of femur & a vertical line below this to the level of lesser trochanter**Action** Lat rotates & stabilises hip**Nerve** N to quadratus femoris (L4,5,S1)**QUADRATUS LUMBORUM****Arises** Inf border of 12th rib**Inserts** Apices of transverse processes of L1–4, iliolumbar lig & post third of iliac crest**Action** Fixes 12th rib during respiration & lat flexes trunk**Nerve** Ant primary rami (T12–L3)**RECTUS ABDOMINIS****Arises** Pubic crest & pubic symphysis**Inserts** 5, 6, 7 costal cartilages, med inf costal margin & post aspect of xiphoid**Action** Flexes trunk, aids forced expiration & raises intra-abdominal pressure**Nerve** Ant primary rami (T7–12)**RECTUS CAPITIS ANTERIOR****Arises** Lat mass of atlas (C1)**Inserts** Basilar occipital bone ant to occipital condyle**Action** Flexes atlanto-occipital jnt**Nerve** Ant primary rami of C1

**RECTUS CAPITIS LATERALIS****Arises** Lat mass of atlas (C1)**Inserts** Jugular process of occipital bone**Action** Lat flexes atlanto-occipital jnt**Nerve** Ant primary rami of C1**RECTUS CAPITIS POSTERIOR****MAJOR****Arises** Spinous process of axis (C2)**Inserts** Lat half of inf nuchal line**Action** Extends & rotates atlanto-occipital jnt**Nerve** Suboccipital N (post primary ramus C1)**RECTUS CAPITIS POSTERIOR****MINOR****Arises** Post process of atlas (C1)**Inserts** Med half of inf nuchal line**Action** Extends atlanto-occipital jnt**Nerve** Suboccipital N (post primary ramus C1)**RECTUS FEMORIS (QUADRICEPS FEMORIS I)****Arises** Straight head: ant inf iliac spine.

Reflected head: ilium above acetabulum

**Inserts** Quadriceps tendon to patella, via ligamentum patellae into tubercle of tibia**Action** Extends leg at knee. Flexes thigh at hip**Nerve** Post div of femoral N (L3,4)**RHOMBOID MAJOR****Arises** Spines of T2–T5 & supraspinous lig**Inserts** Lower half of posteromedial border of scapula, from angle to upper part of triangular area at base of scapular spine**Action** Retracts scapula. Rotates scapula to rest position**Nerve** Dorsal scapular N (C5) (from root)**RHOMBOID MINOR****Arises** Lower ligamentum nuchae, spines of C7 & T1**Inserts** Small area of posteromedial border of scapula at level of spine, below levator scapulae**Action** Retracts scapula. Rotates lower scapula back to rest position**Nerve** Dorsal scapular N (C5) (from root)**RISORIUUS****Arises** Deep fascia of face & parotid**Inserts** Modiolus & skin at angle of mouth**Action** Retracts angle of mouth**Nerve** Buccal br of facial N (VII)**SALPINGOPHARYNGEUS****Arises** Inf cartilage & mucosa of pharyngeal orifice of auditory tube**Inserts** Upper border of thyroid cartilage & inf constrictor muscle fibres**Action** Elevates pharynx & larynx & aids swallowing. Opens auditory tube during swallowing**Nerve** Pharyngeal br of vagus N (X) with its motor fibres from cranial accessory N (XI)**SARTORIUS****Arises** Immediately below ant sup iliac spine**Inserts** Upper med surface of shaft of tibia**Action** Flexes, abducts, lat rotates thigh at hip. Flexes, med rotates leg at knee**Nerve** Ant div of femoral N (L3,4)**SCALENUS ANTERIOR****Arises** Ant tubercles of transverse processes of C3–6**Inserts** Scalene tubercle on sup aspect of 1st rib**Action** Accessory to inspiration. Lat flexion of neck when 1st rib fixed**Nerve** Ant primary rami of C5,6**SCALENUS MEDIUS****Arises** Post tubercles of transverse processes of C2–7**Inserts** Sup aspect of neck of 1st rib

**Action** Accessory to inspiration

**Nerve** Ant primary rami of C3–8

### SCALENUS MINIMUS

**Arises** Ant tubercle of transverse process of C7

**Inserts** Suprapleural membrane (Sibson's fascia)

**Action** Supports suprapleural membrane

**Nerve** Ant primary rami of C7

### SCALENUS POSTERIOR

**Arises** Post tubercles of transverse processes C4–6

**Inserts** Post/lat surface of 2nd rib

**Action** Accessory to inspiration

**Nerve** Ant primary rami of C6–8

### SEMIMEMBRANOSUS

**Arises** Upper outer quadrant of post surface of ischial tuberosity

**Inserts** Med condyle of tibia below articular margin, fascia over popliteus & oblique popliteal lig

**Action** Flexes & med rotates knee. Extends hip

**Nerve** Tibial portion of sciatic N (L5,S1)

### SEMITENDINOSUS

**Arises** Upper inner quadrant of post surface of ischial tuberosity

**Inserts** Upper med shaft of tibia below gracilis

**Action** Flexes & med rotates knee. Extends hip

**Nerve** Tibial portion of sciatic N (L5,S1)

### SERRATUS ANTERIOR

**Arises** Upper eight ribs & ant intercostal membranes from midclavicular line.

Lower four interdigitating with external oblique

**Inserts** Inner med border scapula. 1 & 2: upper angle; 3 & 4: length of costal surface; 5–8: inf angle

**Action** Lat rotates & protracts scapula

**Nerve** Long thoracic N of Bell (C5,6,7)

(from roots) slips from ribs 1 & 2: C5; 3 & 4: C6; 5–8: C7

### SERRATUS POSTERIOR INFERIOR

**Arises** Spinous processes & supraspinous lig of T11–L2

**Inserts** Post aspect of ribs 9–12

**Action** Assists forced expiration

**Nerve** Ant primary rami (T9–12)

### SERRATUS POSTERIOR SUPERIOR

**Arises** Spinous processes & supraspinous lig of C7–T2

**Inserts** Post aspect of ribs 2–5

**Action** Assists forced inspiration

**Nerve** Ant primary rami (T2–5)

### SOLEUS

**Arises** Soleal line & middle third of post border of tibia & upper quarter of post shaft of fibula including neck

**Inserts** Tendo calcaneus to middle of three facets on post surface of calcaneus

**Action** Plantar flexes foot (aids venous return)

**Nerve** Tibial N (S1,2)

**Notes** Main propulsive force for walking & running

### SPHINCTER ANI (external)

**Arises** Circular anatomical sphincter

**Inserts** Deep, superficial & subcutaneous portions

**Action** Maintains continence of faeces

**Nerve** Inf rectal br of pudendal N (S2,3,4)

### SPHINCTER URETHRAE

**Arises** Circular anatomical sphincter

**Inserts** Fuses with deep transverse perineal

**Action** Maintains continence of urine

**Nerve** Perineal br of pudendal N (S2,3,4)

### SPLenius CAPITIS

**Arises** Lower lig nuchae, spinous processes & supraspinous lig T1–3

**Inserts** Lat occiput between sup & inf nuchal lines

**Action** Extends & rotates cervical spine

**Nerve** Post primary rami of C3,4

### SPLЕНИUS CERVICIS

**Arises** Spinous processes & supraspinous lig of T3–6

**Inserts** Post tubercles of transverse processes of C1–3

**Action** Extends & rotates cervical spine

**Nerve** Post primary rami of C5,6

### STAPEDIUS

**Arises** The pyramid (post wall of middle ear)

**Inserts** Neck of stapes

**Action** Protects & critically damps ossicular chain

**Nerve** Facial (VII), in middle ear

### STERNOCLEIDOMASTOID

**Arises** Ant & sup manubrium & sup med third of clavicle

**Inserts** Lat aspect of mastoid process & ant half of sup nuchal line

**Action** Flexes & lat rotates cervical spine. Protracts head when acting together. Extends neck when neck already partially extended

**Nerve** Spinal accessory N (lat roots C1–5)

**Notes** Effectively four separate muscles

### STERNOHYOID

**Arises** Sup lat post aspect of manubrium

**Inserts** Inf border of body of hyoid bone

**Action** Depresses hyoid bone & hence larynx

**Nerve** Ansa cervicalis N (C1,2,3)

### STERNOTHYROID

**Arises** Med post aspect of manubrium

**Inserts** Oblique line of lamina of thyroid cartilage

**Action** Depresses larynx

**Nerve** Ansa cervicalis N (C1,2,3)

### STYLOGLOSSUS

**Arises** Ant surface & apex of styloid process & upper quarter of stylohyoid lig

**Inserts** Superolateral sides of tongue

**Action** Retracts & elevates tongue, aids initiation of swallowing

**Nerve** Hypoglossal N (XII)

### STYLOHYOID

**Arises** Base of styloid process

**Inserts** Base of greater cornu of hyoid bone

**Action** Elevates & retracts hyoid bone. Aids swallowing & elevates larynx

**Nerve** Mandibular br of facial N (VII)

### STYLOPHARYNGEUS

**Arises** Med aspect of styloid process

**Inserts** Posterolateral border of thyroid cartilage

**Action** Elevates larynx & pharynx. Aids swallowing

**Nerve** Muscular br of glossopharyngeal N (IX)

### SUBCLAVIUS

**Arises** Costochondral junction of 1st rib

**Inserts** Subclavian groove on inf surface of middle third of clavicle

**Action** Depresses clavicle & steadies it during shoulder movements

**Nerve** N to subclavius (C5,6, upper trunk)

### SUBCOSTALIS

**Arises** Int post aspects of lower six ribs

**Inserts** Int aspects of ribs two to three levels below

**Action** Depresses lower ribs

**Nerve** Muscular collateral brs of intercostal Ns

### SUBSCAPULARIS

**Arises** Med two thirds of subscapular fossa

**Inserts** Lesser tuberosity of humerus, upper med lip of bicipital groove, capsule of shoulder jnt

**Action** Med rotates arm & stabilises shoulder jnt

**Nerve** Upper & lower subscapular Ns (C6,7) (from post cord)

**Notes** Subscapular bursa beneath tendon, usually connected with jnt. Tendon forms part of rotator cuff

### SUPERFICIAL TRANSVERSE PERINEI

**Arises** Body of ischium

**Inserts** Perineal body

**Action** Fixes perineal body

**Nerve** Perineal br of pudendal N (S2,3,4)

**SUPERIOR OBLIQUE** (see also obliquus capitis superior)

**Arises** Body of sphenoid superomedial to tendinous ring

**Inserts** Post/sup quadrant of sclera behind equator of eyeball

**Action** Depresses eye in adduction. Intorts eye in abduction

**Nerve** Trochlear N (IV)

**Notes** Passes around trochlear sling on frontal bone

### SUPERIOR RECTUS

**Arises** Sup tendinous ring within orbit

**Inserts** Sup sclera ant to equator of eyeball

**Action** Elevates eye. Intorts eye in adduction

**Nerve** Sup div of oculomotor N (III)

### SUPINATOR

**Arises** Deep part (horizontal): supinator crest & fossa of ulna. Superficial part (downwards): lat epicondyle & lat lig of elbow & annular lig

**Inserts** Neck & shaft of radius, between ant & post oblique lines

**Action** Supinates forearm. Only acts alone when elbow extended

**Nerve** Post interosseous N (C5,6)

**Notes** Post interosseous N passes between two heads

### SUPRASPINATUS

**Arises** Med three quarters of supraspinous fossa of scapula, upper surface of spine (bipennate)

**Inserts** Sup facet on greater tuberosity of humerus & capsule of shoulder jnt

**Action** Abducts arm & stabilizes shoulder jnt

**Nerve** Suprascapular N (C5,6) (from upper trunk)

**Notes** Subacromial bursa lies above its tendon. Tendon forms part of rotator cuff

### TEMPORALIS

**Arises** Temporal fossa between inf temporal line & infratemporal crest

**Inserts** Med & ant aspect of coronoid process of mandible

**Action** Elevates mandible & post fibres retract

**Nerve** Deep temporal brs from ant div of mandibular N (Vc)

### TEMPOROPARIETALIS

**Arises** Aponeurosis above auricularis

**Inserts** Galeal aponeurosis

**Action** Fixes galeal aponeurosis

**Nerve** Temporal br of facial N (VII)

### TENSOR FASCIAE LATAE

**Arises** Outer surface of ant iliac crest between tubercle of the iliac crest & ant sup iliac spine

**Inserts** Iliotibial tract (ant surface of lat condyle of tibia)

**Action** Maintains knee extended (assists gluteus maximus) & abducts hip

**Nerve** Sup gluteal N (L4,5,S1)

### TENSOR TYMPANI

**Arises** Cartilaginous & bony margins of auditory tube

**Inserts** Handle of malleus (via processus trochleariformis)

**Action** Protects & critically damps ossicular chain

**Nerve** N to med pterygoid (main trunk of mandibular N (Vc))

**TENSOR VELI PALATINI**

**Arises** Scaphoid fossa, med aspect of spine of sphenoid bone & Lat cartilage of auditory tube

**Inserts** Palatine aponeurosis (via pulley of pterygoid hamulus)

**Action** Tenses soft palate prior to elevation. Opens auditory tube on swallowing

**Nerve** N to med pterygoid (main trunk of mandibular N (Vc))

**TERES MAJOR**

**Arises** Oval area (lower third) of lat side of inf angle of scapula below teres minor

**Inserts** Med lip of bicipital groove of humerus

**Action** Med rotates & adducts arm. Stabilises shoulder jnt

**Nerve** Lower subscapular N (C5,6) (from post cord)

**Notes** Functionally part of subscapularis

**TERES MINOR**

**Arises** Middle third lat border of scapula above teres major

**Inserts** Inf facet of greater tuberosity of humerus (below infraspinatus) & capsule of shoulder jnt

**Action** Lat rotates arm & stabilises shoulder jnt

**Nerve** Axillary N (C5,6) (from post cord)

**Notes** Functionally part of infraspinatus. Tendon forms part of rotator cuff

**THYRO-ARYTENOID & VOCALIS**

**Arises** Lower post surface of angle between laminae of thyroid cartilage

**Inserts** Vocal process of arytenoid cartilage

**Action** Shortens & relaxes vocal cords by med rotation & protraction of arytenoid cartilage

**Nerve** Recurrent laryngeal br of vagus N (X)

**THYRO-EPIGLOTTICUS**

**Arises** Lower post surface of thyroid cartilage

**Inserts** Lat border of epiglottis

**Action** Aids closure of additus to larynx

**Nerve** Recurrent laryngeal br of vagus N (X)

**THYROHYOID**

**Arises** Oblique line on lamina of thyroid cartilage

**Inserts** Inf border of body of hyoid bone

**Action** Elevates larynx or depresses hyoid bone

**Nerve** C1 fibres carried by hypoglossal N (XII)

**TIBIALIS ANTERIOR**

**Arises** Upper half of lat shaft of tibia & interosseous membrane

**Inserts** Inferomedial aspect of med cuneiform & base of 1st MT

**Action** Extends & inverts foot at ankle. Holds up med longitudinal arch of foot

**Nerve** Deep peroneal N (L4,5)

**Notes** Inversion is at subtalar & transverse tarsal joints

**TIBIALIS POSTERIOR**

**Arises** Upper half of post shaft of tibia & upper half of fibula between median crest & interosseous border, & interosseous membrane

**Inserts** Tuberosity of navicular bone & all tarsal bones (except talus) & spring lig

**Action** Plantar flexes & inverts foot. Supports med longitudinal arch of foot

**Nerve** Tibial N (L4,5)

**TRANSVERSE ARYTENOID**

**Arises** Post surface & muscular process of arytenoid cartilage

**Inserts** Corresponding surfaces of opposite cartilage

**Action** Adducts arytenoid cartilage (closes rima glottidis)

**Nerve** Recurrent laryngeal branch of vagus N (X)

**TRANSVERSOSPINALIS –  
MULTIFIDUS****Arises** Laminae of vertebra**Inserts** Spinous processes two to three levels above**Action** Extends spine**Nerve** Post primary rami**TRANSVERSOSPINALIS –  
ROTATOIRES****Arises** Transverse processes**Inserts** Spinous processes one above**Action** Rotates spine**Nerve** Post primary rami**Notes** Two types – thoracis & cervicis et lumborum**TRANSVERSOSPINALIS –  
SEMISPINALIS****Arises** Transverse processes**Inserts** Spinous processes six levels above**Action** Extends & lat flexes spine**Nerve** Post primary rami**Notes** Three types – thoracis, cervicis & capitis**TRANSVERSUS ABDOMINIS****Arises** Costal margin, lumbar fascia, ant two thirds of iliac crest & lat half of inguinal lig**Inserts** Aponeurosis of post & ant rectus sheath & conjoint tendon to pubic crest & pectineal line**Action** Supports abdominal wall, aids forced expiration & raising intra-abdominal pressure. Conjoint tendon supports post wall of inguinal canal**Nerve** Ant primary rami (T7–12).  
Conjoint tendon: ilioinguinal N (L1)**TRANSVERSUS THORACIS  
(STERNOCOSTALIS)****Arises** Lower third of inner aspect of sternum & lower three costosternal junctions**Inserts** Second to sixth costal cartilages**Action** Depresses upper ribs**Nerve** Muscular collateral brs of intercostal Ns**TRAPEZIUS****Arises** Med third sup nuchal line, lig nuchae, spinous processes & supraspinous lig to T12**Inserts** Upper fibres to lat third of post border of clavicle; lower to med acromion & sup lip of spine of scapula to deltoid tubercle**Action** Lat rotates, elevates & retracts scapula. If scapula is fixed, extends & lat flexes neck**Nerve** Spinal accessory N (lat roots, C1–5) (spinal nerves C3 & C4 for proprioception)**TRICEPS****Arises** Long head: infraglenoid tubercle of scapula. Lat head: upper half post humerus (linear origin). Med head: lower half post humerus inferomedial to spiral groove & both intermuscular septa**Inserts** Post part of upper surface of olecranon process of ulna & post capsule**Action** Extends elbow. Long head stabilises shoulder jnt. Med head retracts capsule of elbow jnt on extension**Nerve** Radial N (C7,8) (from post cord), four brs**VASTUS INTERMEDIUS  
(QUADRICEPS FEMORIS 2)****Arises** Ant & lat shaft of femur to one hand's breadth above condyles**Inserts** Quadriceps tendon to patella, via ligamentum patellae into tubercle of tibia**Action** Extends knee**Nerve** Post div of femoral N (L3,4)**VASTUS LATERALIS (QUADRICEPS  
FEMORIS 3)****Arises** Upper intertrochanteric line, base of greater trochanter, lat linea aspera, lat supracondylar ridge & lat intermuscular septum

**Inserts** Lat quadriceps tendon to patella, via ligamentum patellae into tubercle of tibia

**Action** Extends knee

**Nerve** Post div of femoral N (L3,4)

#### **VASTUS MEDIALIS (QUADRICEPS FEMORIS 4)**

**Arises** Lower intertrochanteric line, spiral line, med linea aspera & med intermuscular septum

**Inserts** Med quadriceps tendon to patella & directly into med patella, via ligamentum patellae into tubercle of tibia

**Action** Extends knee. Stabilises patella

**Nerve** Post div of femoral N (L3,4)

#### **ZYGOMATICUS MAJOR**

**Arises** Ant surface of zygomatic bone

**Inserts** Modiolus at angle of mouth

**Action** Elevates & draws angle of mouth laterally

**Nerve** Buccal br of facial N (VII)

#### **ZYGOMATICUS MINOR**

**Arises** Lat infra-orbital margin

**Inserts** Skin & muscle of upper lip

**Action** Elevates & everts upper lip

**Nerve** Buccal br of facial N (VII)