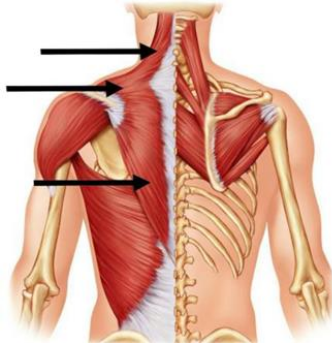
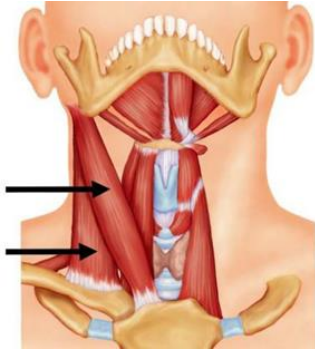


Attachment 4

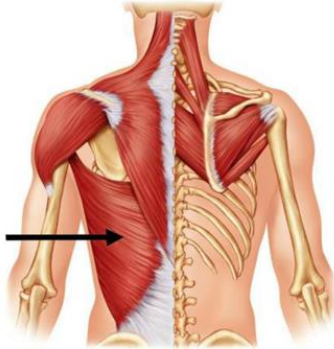
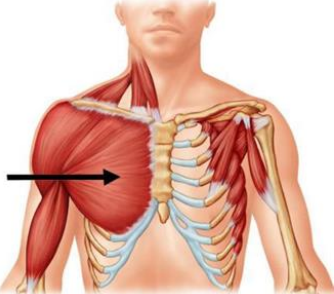
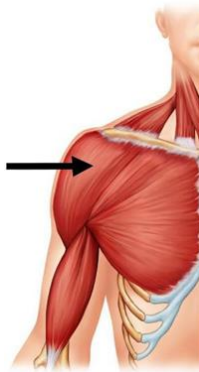
BREAKDOWN OF MUSCLES

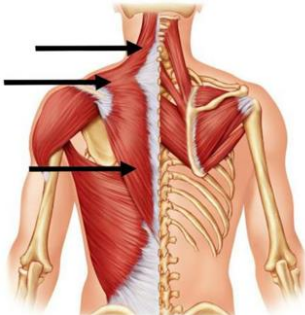
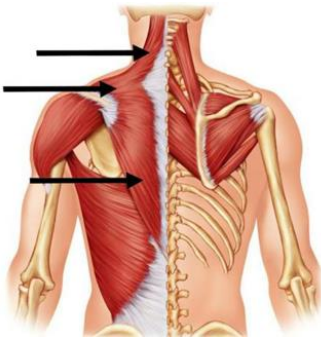
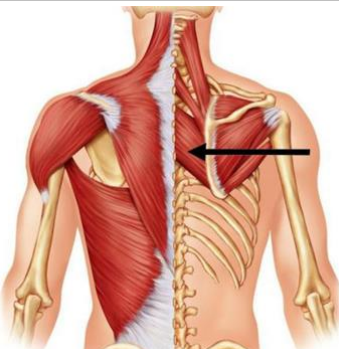
Major muscles of the human body, origins and insertions and other important information.

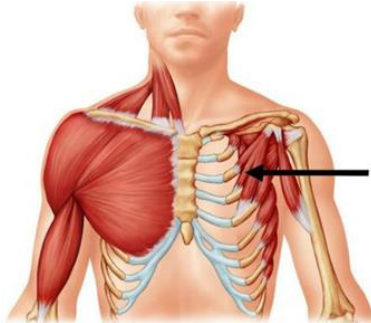
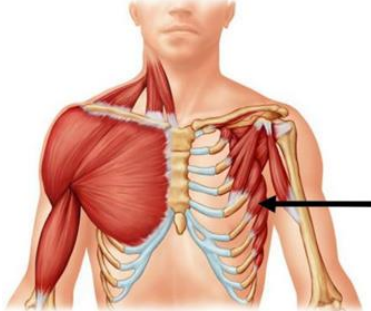
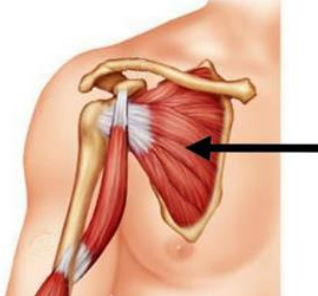
Neck:

Muscle	Image / Location	Origin and Insertion	Other information
Trapezius (Upper)*		Origin: Occipital bone and posterior ligaments of the neck Insertion: Clavicle	Joint: Scapula Action: Scapula elevation, lateral rotation of neck and neck extension
Levator Scapulae*		Origin: Cervical Vertebrae c1- c4 transverse processes Insertion: Scapula (superior)	Joint: Scapula and neck Action: Scapula elevation, Lateral flexion of neck, neck extension
Sternocleidomastoid		Origin: Sternum and clavicle Insertion: mastoid process of the temporal bone	Joint: Neck Action: Prime mover of neck flexion and lateral flexion

Thoracic:

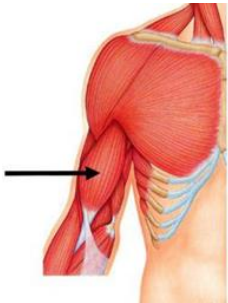
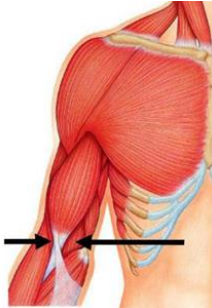
Muscle	Image / Location	Origin and Insertion	Other information
Latissimus Dorsi*		Origin: Sacrum, lumbar vertebrae and lower thoracic vertebrae Iliac Crest/ ribs Insertion: Humerus (Anterior proximal)	Joint: Shoulder Action: Extension, Adduction, Internal rotation
Teres Major*		Origin: Scapula (Inferior angle) Insertion: Humerus (Anterior, proximal)	Joint: Shoulder/ Scapula Action: Extension, Adduction and internal rotation
Pectoralis Major*		Origin: Sternum, Clavicle and ribs Insertion: Humerus (Anterior proximal)	Joint: Shoulder Action: Horizontal flexion, shoulder flexion, adduction and internal rotation
Deltoid Anterior*		Origin: Clavicle Insertion: Lateral proximal humerus	Joint: shoulder Action: flexion, horizontal flexion, internal rotation
Deltoid Medial*		Origin: Acromion process Insertion: lateral proximal humerus	Joint: shoulder Action: abduction

Muscle	Image / Location	Origin and Insertion	Other information
Deltoid Posterior*		Origin: Spine of scapula Insertion: lateral proximal humerus	Joint: Shoulder Action: extension, horizontal extension, external rotation
Trapezius (Middle)*		Origin: Spinous processes of 7th cervical and 1st – 3rd thoracic vertebrae Insertion: Acromion process and spine of scapula	Joint: Scapula Action: Scapula retraction, lateral rotation
Trapezius (Lower)*		Origin: 4th – 12th thoracic vertebrae Insertion: Spine of scapula	Joint: Scapula Action: Scapula depression
Rhomboids (Minor)*		Origin: C7- T1 spinous processes (cervical and thoracic vertebrae) Insertion: medial border of scapula	Joint: Scapula Action: Retraction
Rhomboids (Major)*		Origin: T2 – T5 spinous processes (thoracic vertebrae) Insertion: Medial border and inferior angle of scapula	Joint: Scapula Action: Retraction and medial rotation

Muscle	Image / Location	Origin and Insertion	Other information
Pectoralis Minor*		Origin: Ribs – anterior (3rd - 5th pair of ribs) Insertion: Scapula (Coracoid Process)	Joint: Scapula Action: Scapula protraction and depression
Serratus anterior*		Origin: Ribs – upper 9 ribs Insertion: Scapula, Medial border	Joint: Scapula Action: Scapula protraction and lateral rotation
Supraspinatus*		Origin: Above the scapula spine Insertion: Head of humerus	Joint: Shoulder Action: Abduction stabiliser
Infraspinatus*		Origin: Below the scapula spine Insertion: Head of humerus	Joint: Shoulder Action: External rotation stabiliser
Subscapularis*		Origin: Anterior surface of scapula Insertion: Head of humerus	Joint: Shoulder Action: Internal rotation stabiliser

Muscle	Image / Location	Origin and Insertion	Other information
Teres Minor*		Origin: Lateral border of scapula Insertion: Head of humerus	Joint: Shoulder Action: External rotation stabiliser

Arm:

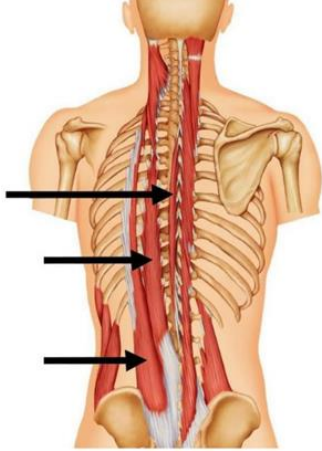
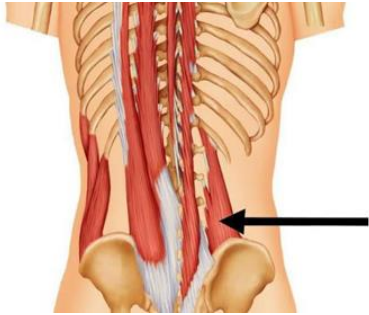
Muscle	Image / Location	Origin and Insertion	Other information
Biceps brachii*		Origin: Scapula Insertion: Radius	Joint: Shoulder and elbow Action: Shoulder flexion, elbow flexion and supination of the forearm
Brachialis*		Origin: Humerus (distal anterior) Insertion: Ulna (proximal anterior)	Joint: Elbow Action: Elbow flexion
Brachioradialis*		Origin: Humerus (distal lateral) Insertion: Radius (distal lateral)	Joint: Elbow Action: Elbow flexion

Muscle	Image / Location	Origin and Insertion	Other information
Coracobrachialis*		Origin: Coracoid Process Insertion: Medial surface of humerus.	Joint: Shoulder Action: Flexion and adduction of arm; synergist of Pectoralis Major.
Triceps brachii*		Origin: Scapular and humerus Insertion: Ulna	Joint: Shoulder/ Elbow Action: Shoulder extension and elbow extension
Flexor Carpi Radialis (Forearm)*		Origin: Medial epicondyle of humerus	Actions: Flexion of wrist. Weak flexion of elbow; may assist in abduction
Palmaris Longus (Forearm)*		Origin: Medial epicondyle of humerus	Actions: Flexion of wrist

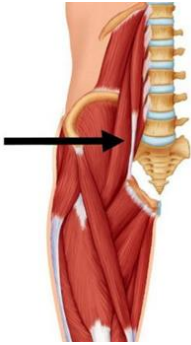
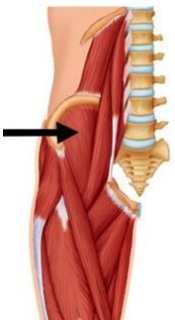
Abdomen:

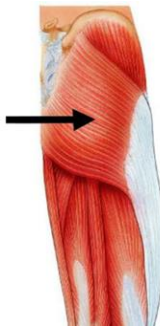
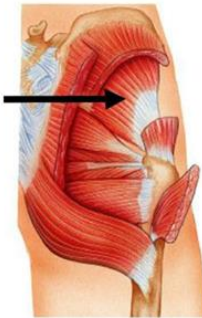
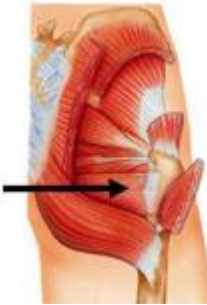
Muscle	Image / Location	Origin and Insertion	Other information
Transversus Abdominis*		Origin: 6th – 12th ribs, lumbar vertebrae and iliac crest via the lumbothoracic fascia from the transverse processes of L1-5 Insertion: Linea alba Xiphoid process (at bottom of sternum and) and pubis	Joint: vertebral / trunk Action: Abdomen compression
Rectus Abdominis		Origin: Pubic crest and Pubic Symphysis Insertion: Xiphoid process and costal ribs 5th-7th	Joint: vertebral / trunk Action: Flexion and rotation of lumbar vertebral region. Stabilise the pelvis
External abdominal oblique		Origin: By fleshy strips of Ribs 4th-2nd Insertion: Linea alba through to pubic crest and iliac crest	Joint: vertebral / trunk Action: Lateral flexion, and aids rotation and flexion
Internal abdominal oblique*		Origin: Iliac crest and the thoracic lumbar fascia Insertion: Ribs and Linea alba	Joint: Vertebral / trunk Action: Lateral flexion, rotation, flexion

Lumbar:

Muscle	Image / Location	Origin and Insertion	Other information
Erector spinae (Spinalis, Longissimus, Iliocostalis)		Origin: Vertebral Column Insertion: Vertebral column	Joint: Vertebral / trunk Action: Prime mover that extends the vertebral column, maintains erect posture, Assists in head rotation
Quadratus lumborum		Origin: Iliac crest and lumbar fascia Insertion: Ribs (12th) and lumbar vertebrae (1st – 4th)	Joint: Vertebral/ trunk Action: Lateral Flexion, Lateral extension, lateral pelvic tilt. Maintains upright posture

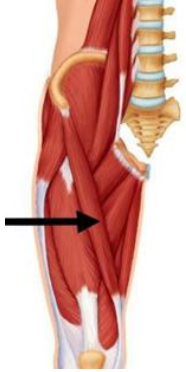
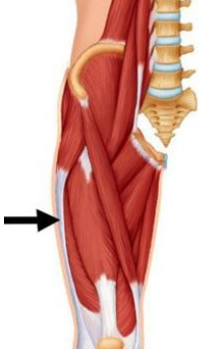
Hip:

Muscle	Image / Location	Origin and Insertion	Other information
Psoas Major (Hip flexor)*		Origin: Lumbar vertebrae, transverse processes of lumbar vertebrae Insertion: Femur, Lesser trochanter	Joint: Hip Action: Hip flexion, trunk flexion, lateral rotation
Iliacus (Hip flexor)*		Origin: Ilium (Iliac fossa) Insertion: Femur (lesser trochanter)	Joint: Hip Action: Hip flexion, lateral rotation

Muscle	Image / Location	Origin and Insertion	Other information
Gluteus maximus*		Origin: Iliac crest, sacrum and coccyx Insertion: Femur and iliotibial tract	Joint: Hip Action: Hip extension, external rotation
Gluteus minimus*		Origin: Ilium (Outer surface) Insertion: Femur (Greater trochanter)	Joint: Hip Action: Hip abduction, internal rotation
Gluteus Medius*		Origin: Ilium (outer surface) Insertion: Femur (greater trochanter)	Joint: Hip Action: Hip abduction, internal rotation
Piriformus*		Origin: Anterior aspect of sacrum. Insertion: Greater Trochanter	Joint: Hip Action: Lateral rotation and abduction of thigh; stabilizes hip joint
Quadratus Femoris*		Origin: Ischium Insertion: Greater Trochanter	Joint: Hip Action: Lateral rotation; stabilizes hip joint

Leg:

Muscle	Image / Location	Origin and Insertion	Other information
Adductor Magnus*		Origin: Pubis and ishium Insertion: Femur	Joint: Hip Action: Hip adduction and hip flexion
Adductor Brevis*		Origin: Pubis Insertion: Femur	Joint: Hip Action: Hip adduction and flexion
Adductor longus*		Origin: Pubis Insertion: Femur	Joint: Hip Action: Hip adduction and hip flexion
Pectineus*		Origin: Pubis Insertion: Femur (Proximal posterior)	Joint: Hip Action: Hip adduction, Hip flexion
Gracilis*		Origin: Pubis Insertion: Tibia (Medial proximal)	Joint: Hip/ knee Action: Hip adduction, Hip flexion, knee flexion

Muscle	Image / Location	Origin and Insertion	Other information
Tensor fascia latae*		Origin: Iliac crest Insertion: Tibia via iliotibial tract	Joint: hip Action: Hip flexion, hip abduction
Sartorius*		Origin: Ilium (Anterior superior) Insertion: Tibia	Joint: Hip Action: Hip flexion, lateral rotation, knee flexion
Iliotibial Band*		Origin: Tensor Fasciae Latae (anterior superior iliac crest) Insertion: Tibia	Joint: Hip Action: hip abduction,
Rectus Femoris (Quadriceps)*		Origin: Iliac crest, Anterior, inferior iliac spine (AIIS) Insertion: Tibia	Joint: Hip/ knee Action: hip flexion, knee extension
Vastus lateralis (Quadriceps)*		Origin: Femur (greater trochanter and linea aspera) Insertion: Tibia	Joint: Knee Action: Knee extension

Muscle	Image / Location	Origin and Insertion	Other information
Vastus Medialis (Quadriceps)*		Origin: Femur Insertion: Tibia	Joint: Knee Action: Knee extension
Vastus intermedius (Quadriceps)*		Origin: Femur (anterior lateral) Insertion: Tibia	Joint: Knee Action: Knee extension
Biceps Femoris (Hamstring)*		Origin: Ischial tuberosity Insertion: Lateral condyle of tibia and fibula head	Joint: Hip/ knee Action: Hip extension, knee flexion
Semi-tendinosus (Hamstring)*		Origin: Ischial tuberosity Insertion: Tibia (Medial condyle)	Joint: Hip/knee Action: Hip extension/ knee flexion
Semi-membranosus (Hamstring)*		Origin: Ischial tuberosity Insertion: Tibia (Medial condyle)	Joint: Hip/knee Action: Hip extension/ knee flexion

Muscle	Image / Location	Origin and Insertion	Other information
Gastrocnemius (Calf)*		Origin: Femur (lateral and medial condyles) Insertion: Tarsals (calcaneous via Achilles tendon)	Joint: Knee/ Ankle Action: Knee flexion, ankle plantar flexion
Soleus (Calf)*		Origin: Tibia (Medial border) and head of fibula Insertion: Tarsals (calcaneous via Achilles tendon)	Joint: Ankle Action: Ankle plantar flexion
Tibialis anterior*		Origin: Tibia Insertion: Metatarsals	Joint: Ankle, Metatarsals Action: Dorsiflexion, ankle inversion
Fibularis Longus*		Origin: Upper portion of lateral fibula. Insertion: 1st Metatarsal	Joint: Ankle Action: Plantarflexion and eversion of ankle; supports arches
Tibialis Posterior*		Origin: Proximal posterior tibia and fibula. Insertion: Plantar surface of tarsals and metatarsals 2-4.	Joint: Ankle Action: Plantar flexion and inversion of ankle; supports arches.

Image Source: Pearson Education