

ANATOMY DEPARTMENT

KING SAUD UNIVERSITY

COLLEGE OF MEDICINE

INTEGRATED COURSE

FIRST YEAR 1433-1434----2012-2013 FIRST SEMESTER

MUSCULOSKELETAL BLOCK

FIRST WEEK

SKELETON

PRACTICAL

DAY & DATE	TIME	GROUP	TOPIC
SUNDAY 02/12/2012	10:00--12:00	A	APPENDICULAR SKELETON
MONDAY 03/12/2012	01:00—03:00	FEMALE	
Tuesday 04/12/2012	08:00--10:00	B	

Objectives

By the end of this practical the student will be able to:

- Identify the bones forming the appendicular skeleton.
- Identify the main general features and the side of each bone.

Appendicular skeleton:

Bones of the shoulder girdle: clavicle and scapula

Bones of the upper limb: Humerus, radius, ulna, carpal, metacarpals and bone of the phalanx.

Pelvic girdle: Hip bone.

Bones of the lower limb: Femur, tibia, fibula, tarsal bones, metatarsal and bone of the toes.

SECOND WEEK

MUSCLES OF THE BACK & VERTABRAE

DAY & DATE	TIME	GROUP	TOPIC
SUN. 09/12/2012	10:00--12:00 am	A	MUSCLES OF THE BACK
MON. 10/12/2012	10:00-12:00 am	B	
MON. 10/12/2012	01:00--03:00 pm	FEMALE	
TUES. 11/12/2012	10:00-12:00 am	FEMALE	VERTABRAE
TUES. 11/12/2012	01:00-03:00 pm	A	
WED. 12/12/2012	08:00--10:00 am	B	

Muscles of the back

By the end of this practical the student should be able to:

- Identify the **superficial muscles** associated with the shoulder girdle
- Identify the **intermediate muscles** involved in respiration
- Identify the **deep muscles** belonging to the vertebral column

The superficial muscles belong to the upper limb.

First layer:

- Trapezius
- Latissimus dorsi

Second layer:

- Levator scapulae
- Rhomboid minor
- Rhomboid major

The intermediate muscles are associated with respiration:

- Serratus posterior superior
- Serratus posterior inferior
- Levatores costarum

The deep muscles:

- The deep muscles of the back form a deep, broad muscle column, which occupies the hollow on each side of the spinous processes.
- They extend from the sacrum to the skull.
- This muscle mass is composed from many muscles of different length.
- Each individual muscle helps one or several vertebrae to be extended or rotated on the vertebra below.

- **I- Superficial vertically running muscles:**

- **Erector spinae:**

- Iliocostalis
- Longissimus
- Spinalis

- **II- Intermediate oblique running muscles:**

- **Transversospinalis**

- Semispinalis

- Multifidus
- Rotatores
- **III- Deepest muscles:**
 - interspinales
 - intertransversarii
- The origins and the insertions of these muscles overlap and the vertebral column moves smoothly and there is no need to remember the origin and insertion of these deep muscles.
- **NB.** All the deep muscles of the back are innervated by the posterior rami of the spinal nerves.

VERTABRAE

Objectives

By the end of this practical the student will be able to:

Describe the bones forming the **VERTEBRAL COLUMN**

Vertebrae:

(7cervical, 12 thoracic, 5 lumbar, 5 sacral and 4 coccygeal),

Cervical Vertebrae: ***Atlas, axis***, 3, 4, 5 & 6 are called **typical**, and 7th cervical or **cervica Promina**.

Atlas: ring shaped, no body, no spine, formed of 2 lateral masses which are connected by small anterior arch and long posterior arch.

Each lateral mass has a **superior kidney- shape** articular surface for articulation with the occipital condyles of the skull, inferior **circular** articular facet for articulation with the superior articular facets of the axis.

Axis: Its body is projecting upwards forming the a peg-like odontoid or dense process, its spine is thick and very strong

Typical cervical vertebrae: From 3 to 6, small body, transverse diameter longer than the anteroposterior diameter, transverse process has foramen for the vertebral artery (foramen transversarium), and the spine is short and bifid, and the vertebral foramen is wide and triangular.

7th cervical vertebra: Its spine is long horizontal and blunt.

It is the first spine to be felt at the back of the neck.

Foramen transversarium is narrow or sometimes absent in one or both sides.

Why?

Thoracic vertebrae:

General features of typical and atypical thoracic vertebrae

They are 12 unique in their extremely pointed and overlapping spinous process and their special articulation with the ribs.

Vertebral canal is small and circular.

The body is medium in size and **heart** shaped and has **3 facets** superior, inferior and costal for articulation with ***its rib and the rib below.***

1st thoracic vertebra, 10th, 11th and 12th are atypical.

2nd to 9th are typical thoracic vertebrae

Lumbar vertebrae:

Large body kidney shaped and massive spinous and transverse process and wide triangular vertebral foramen.

The spinous processes are short, flat and quadrangular and project directly backward.

Superior articular facet faces medially while the **inferior articular facets** faces laterally.

Compare the spinous processes of thoracic and lumbar vertebrae.

Sacrum:

Represents **five** fused sacral vertebrae, wedge-shaped bone. It has 4 pairs of anterior and posterior sacral foramina, dorsal, intermediate and lateral sacral crests, and the sacral hiatus.

THIRD WEEK

MUSCLES, BONES, VESSLS & NERVES OF THE UPPER LIMB			
DAY & DATE	TIME	GROUP	TOPIC
MON. 17/12/2012	08:00-10:00 am	A	MUSCLES & BONES OF THE UPPER LIMB
	10:00--12:00 am	FEMALE	
	01:00--03:00 pm	B	
TUES. 18/12/2012	01:00-03:00 pm	A	VESSLS & NERVES OF THE UPPER LIMB
WED. 19/12/2012	08:00--10:00 am	FEMALE	
WED. 19/12/2012	10:00-12:00 am	B	

Objectives

By the end of this practical the student will be able to:

Identify the different groups of the muscles of the upper limb, (pectoral, scapular, flexors and extensors of the arm and forearm, muscles of the hand).

List the name of each muscle group.

Briefly mention the attachment (origin and insertion) of these muscular groups, the action and the nerve supply of these groups of muscles.

Describe the course, and distribution of the nerves of the upper limb (radial, ulnar, median, musculocutaneous and axillary nerves)

Describe the course and branches of the main arteries of the upper limb (axillary, Brachial, radial and ulnar arteries).

Describe the course, and tributaries of the superficial and deep veins of the upper limb (cephalic, basilic, brachial and axillary veins).

FOURTH WEEK

MUSCLES, BONES, VESSLS & NERVES OF THE LOWER LIMB			
DAY & DATE	TIME	GROUP	TOPIC
MON. 24/12/2012	10:00-12:00 am	A	MUSCLES & BONES OF THE LOWER LIMB
TUES. 25/12/2012	01:00-03:00 pm	B	
TUES. 25/12/2012	10:00-12:00 am	FEMALE	
MON. 31/12/2012	10:00-12:00 am	A	VESSLS & NERVES OF THE LOWER LIMB
MON. 31/12/2012	08:00-10:00 am	B	
TUES. 01/01/2013	08:00-10:00 am	FEMALE	

Objectives

By the end of this practical the student will be able to:

Identify the different groups of the muscles of the lower limb, (gluteal muscles, front, medial side- (adductors), posterior compartment of the thigh (Hamstring), muscles of the popliteal fossa, muscles of the front, lateral and posterior compartments of the leg, and muscles of the sole of the foot.

List the muscles in each of these groups.

Describe the attachment (origin and insertion) of each of these muscles group, the action and the nerve supply of these groups of muscles.

Describe the course, and distribution of the nerves of the lower limb (femoral, sciatic, medial popliteal (tibial), lateral popliteal (common peroneal), anterior tibial (deep peroneal), musculocutaneous (superficial peroneal)).

Describe the course, and tributaries of the superficial and deep veins of the lower limb (great and small saphenous, femoral, popliteal and venae comitantes of the anterior and posterior tibial arteries).

FIFTHTH WEEK

SURFACE ANATOMY OF THE UPPER & LOWER LIMBS			
DAY & DATE	TIME	GROUP	TOPIC
TUES. 01/01/2013	10:00-11:00 AM	A1	SURFACE ANATOMY OF THE UPPER & LOWER LIMBS
TUES. 01/01/2013	11:00-12:00 AM	A2	
MON. 31/12/2012	10:00-11:00 am	F1	
MON. 31/12/2012	11:00-12:00 am	F2	
Wed. 02/01 /2013	08:00-09:00	B1	
Wed. 02/01 /2013	09:00-10:00	B2	

Objectives

By the end of this practical the student will be able to:

Identify and feel the bony landmark of the upper and lower limbs:

Identify and feel some individual muscles and muscle groups.

Recognize the actions of some muscles.

Feel the pulsation of the most important arteries in the upper and lower limb.

Recognize the sites of the superficial veins and dorsal venous arches.

UPPER LIMB:

Clavicle: Sternal and acromial ends and the shaft.

Scapula: Acromion, tip of the coracoid processes, inferior angle and spine.

Humerus: Greater and lesser tuberosities, shaft, medial and lateral epicondyles.

Radius: Head, dorsal radial tubercles, and styloid process in the anatomical snuff box.

Ulna: Head, olecranon process, posterior subcutaneous border and styloid process.

Hand:

Pisiform bones, metacarpals, knuckles of the fingers and phalangeal bones.

LOWER LIMB:

Hip bone: Anterior superior iliac spine, iliac crest, posterior superior iliac spine, symphysis pubis, and pubic crest.

Femur: Greater trochanter, shaft, medial and lateral femoral condyles

Tibia: Tibial condyles, tibial tuberosity, shin, medial surface and medial malleolus.

Fibula: Head, neck and lateral malleolus.

Foot: Calcaneus, metatarsals.

Soft tissues of the upper and lower limbs:

UPPER LIMB:

Brachial artery: Pulsation and compression in the arm in case of bleeding from the upper limb.

Feel the pulse of the brachial artery in the cubital fossa medial to the tendon of the biceps.

Radial artery pulsation above the wrist and in the anatomical snuff box

Ulnar artery pulsation above the wrist as it crosses superficial to the flexor retinaculum.

Dorsal venous arch and beginning of the cephalic and basilic veins.

Median cubital vein in the cubital fossa.

Axillary folds: Anterior and posterior.

Muscles:

Trapezius and its movements.

Deltoid muscle

Biceps brachii and its tendon.

Triceps brachii and its tendon.

Long extensor and long flexor tendons of the fingers and wrist.

Anatomical snuff box: boundaries, (anterior 2 tendons, -APL & EPB- posterior one tendon of FPL), bones (styloid process and scaphoid), vein (cephalic vein), artery (radial artery), nerve (superficial branch or radial nerve).

LOWER LIMB:

Feel the pulsation of the femoral artery; in the midinguinal point.

Feel the pulsation of the popliteal artery deep in the popliteal fossa.

Feel the pulsation of the dorsalis pedis artery, in the dorsum of the foot.

Feel the pulsation of the posterior tibial artery behind the medial malleolus.

In the popliteal fossa feel the tendon of biceps femoris laterally and tendons semitendinosus, semimembranosus and ischial part of adductor magnus medially.

In the dorsum of the foot you can see and feel the tendons of tibialis anterior, extensor hallucis longus and extensor digitorum.

Palpate the gastrocnemius and the calf muscles.

Palpate the calcneal (Achilles) tendon in the back of the lower part of the leg.

Facilities:

In practical dissecting hall, Museum and medical education simulating labs.

Equipments:

Human skeleton

Human prosected material,

Plastinated material,

Fixed jar specimen.

Clinical Skills lab.

Suggested learning resources:

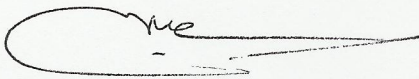
Slides of the lectures.

Students gray's Atlas.

Richard Snell by systems

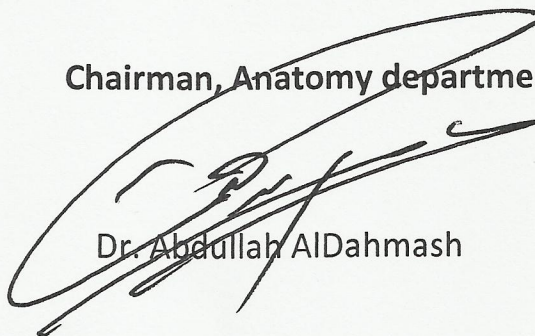
Anatomy Department's Museum

Block coordinator



Prof. Saeed Abuel Makarem

Chairman, Anatomy department



Dr. Abdullah AlDahmash