UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Regional Anatomy

2425-1-H4102D087-H4102D026M

Aims

Students will be able to demonstrate the position of palpable landmarks of the different regions and will acquire knowledge of the characteristic features, organ content and 3-D arrangement of the head, neck, back, thorax, abdomen, pelvis and limbs.

The general features of the systems further described in detail in “Locomotor system diseases”, “Cardiovascular and Respiratory diseases”, Digestive health”, “Endocrine, Kidney and Urinary tract diseases” and “Mother and Child” will be addressed.

Contents

Students will be introduced to the principles of regional anatomy and general principles of systematic anatomy, with specific reference to clinical anatomy.

Detailed program

Principles of regional anatomy of: 1) back; 2) upper limb; 3) lower limb; 4) thorax; 5) abdomen; 6) pelvis and perineum; 7) head and neck. Moreveor, a) principles of radiologic anatomy, and b) principles of clinical anatomy for each region are described.

Learning objectives of the introductory lesson and for the *Back* region:

1. Understanding of the anatomical position and the main reference planes
2. General classification of bones and muscles

3. General framework of the back region (boundaries and contents)
4. Vertebral features
5. Ligaments of the back
6. Main muscular groups
7. Anatomical basis to correctly perform a spinal tap

Learning objectives for *Upper Limb* region:

1. Boundaries of this region
2. Relationships of this region
3. Detailed description of the skeletal framework of the upper limb
   3.1. Clavicle
   3.2. Scapula
   3.3. Humerus
   3.4. Radius
   3.5. Ulna
   3.6. Carpal bones
   3.7. Metacarpal bones
   3.8. Phalanges
4. Correct terminology to describe movements of the different segments of the upper limb
5. General description of the most relevant joints of the upper limb
   5.1. Shoulder
   5.1.1. Sterno-clavicular joint
   5.1.2. Acromioclavicular joint
   5.1.3. Gleno-humeral joint
   5.2. Elbow joint
   5.3. Hand and wrist joint
6. Description of the areas of transition
   6.1. Axilla
   6.2. Cubital fossa
   6.3. Carpal tunnel
7. General knowledge of the group of muscles (knowledge of compartments and their functions)
   7.1. Shoulder
   7.2. Posterior scapular region
   7.3. Axilla
   7.3.1. Anterior wall
   7.3.2. Medial wall
   7.3.3. Posterior/lateral wall
   7.4. Arm
   7.4.1. Anterior compartment
   7.4.2. Posterior compartment
   7.5. Forearm
   7.5.1. Anterior compartment
   7.5.1.1. Superficial layer
   7.5.1.2. Intermediate layer
   7.5.1.3. Deep layer
   7.5.2. Posterior compartment
   7.5.2.1. Superficial layer
   7.5.2.2. Deep layer
   7.6. Hand
   7.6.1. Intrinsic muscles
8. The most clinically relevant areas of mechanical damage for peripheral nerves:
   8.1. Radial nerve (humerus)
   8.2. Ulnare nerve (elbow joint)
   8.3. Median nerve (carpal tunnel)

Learning objectives for the *Lower Limb* region:

1. Boundaries of this region
2. Relationships of this region
3. Detailed description of the skeletal framework of the lower limb
   3.1. Pelvic bone (it will be mainly discussed in the Lesson concerning the pelvis)
   3.2. Femur
   3.3. Patella
   3.4. Tibia
   3.5. Fibula
   3.6. Tarsal bones
   3.7. Metatarsals
   3.8. Phalanges
4. Correct terminology to describe movements of the different segments of the lower limb
5. General description of the most relevant joints of the lower limb
   5.1. Hip
   5.2. Knee
   5.3. Ankle
6. Description of the areas of transition
   6.1. Femoral triangle
   6.2. Popliteal fossa
   6.3. Tarsal tunnel
7. General knowledge of the group of muscles (knowledge of compartments and their functions)
   7.1. Gluteal region
   7.2. Hip
   7.3. Thigh
   7.4. Leg
   7.5. Foot
8. The most clinically relevant areas of mechanical damage for peripheral nerves:
   8.1. Lateral femoral cutaneous nerve
   8.2. Peroneal nerve
   8.3. Anatomical basis of the intramuscular injection without damaging the sciatic nerve

Learning objectives for *The Thorax* region:

1. Boundaries of this region
2. Functions
3. Partitions of the thorax
   3.1. Pectoral region
   3.2. Thoracic wall
   3.2.1. Muscles
   3.2.2. Skeletal framework
   3.3. Pleural cavities
   3.4. Mediastinum
4. Relationships of this region
   4.1. Neck
   4.2. Upper limb
   4.3. Abdomen
   4.4. Breast
5. Pectoral region
6. Thoracic wall
7. Pleural cavities and their contents
8. Mediastinum and its contents
   8.1. Heart (described in more details in *General Anatomy* course)
   8.2. Esophagus

    8.3. Trachea
    8.4. Major nerves (described in more details in *General Anatomy* course)
    8.5. Major systemic blood vessels (described in more details in *General Anatomy* course)
9. Anatomical basis of this maneuvers:
    9.1. Thoracentesis
    9.2. Pericardiocentesis
    9.3. Lung and heart percussion/auscultation
    9.4. EKG electrodes positioning

Learning objectives for *The Abdomen* region:

1. Boundaries of this region
2. Functions
3. Relationships of this region
4. Abdomen components
    4.1. Wall
    4.1.1. Bones
    4.1.2. muscles
    4.2. Abdominal cavity
    4.3. Inferior thoracic aperture (superior margin)
    4.4. Diaphragm
    4.5. Pelvic inlet
5. Anterior abdominal wall
6. Inguinal canal
7. Abdominal cavity
8. Peritoneum, mesenteries, intra and retroperitoneal spaces
9. Posterior abdominal wall
10. Description of the viscera contained in this region
    10.1. Esophagus
    10.2. Stomach
    10.3. Small intestine
    10.4. Large intestine
    10.5. Liver
    10.6. Spleen
    10.7. Kidneys and ureters
    10.8. Suprarenal glands
    10.9. Major nerves (described in more details in *General Anatomy* course)
    10.10. Major systemic blood vessels (described in more details in *General Anatomy* course)
11. Anatomical basis of this maneuvers:
    11.1. Paracentesis

    Learning objectives for *Pelvis and Perinuem *region:
12. Boundaries of this region
13. Functions
14. Relationships of this region
15. Pelvis cavity components
    4.1. Pelvic inlet
    4.2. Pelvic walls
    4.3. Pelvic outlet
    4.4. Pelvic floor
    4.5. Pelvic cavity
    4.6. Perinuem
16. Description of the viscera contained in this region
    5.1. Urinary system (male VS female)
    5.2. Gastrointestinal system (male VS female)

    5.3. Reproductive system
17. Anatomical basis of this maneuvers:
    6.1. Urinary catheter positioning

Learning objectives for *Head and Neck* region:

1. Boundaries of this region
2. Functions
3. Relationships of this region
    3.1. Thorax
    3.2. Upper limb
4. Major compartments of this region, their position and contents:
    4.1. Cranial cavity
    4.2. Ears
    4.3. Orbits
    4.4. Nasal cavities
    4.5. Oral cavities
    4.6. Areas of transition:
    4.6.1. Infratemporal fossa
    4.6.2. Pterygopalatine fossa
5. Structures of the neck
6. Skeletal elements
    6.1. Skull
    6.2. Cervical vertebrae
    6.3. Hyoid bone
    6.4. Hard (and soft) palate
7. Description of the contents of this region
    7.1. Central nervous system (described in more details in *General Anatomyy* course)
    7.2. Vascularisation of this region (described in more details in *General Anatomyy* course)
    7.3. Eye
    7.4. Ear
    7.5. Mouth
    7.6. Pharynx
    7.7. Larynx
8. Anatomical basis of this maneuvers:
    8.1. Tracheostomy
    8.2. Cricothyroidotomy

Prerequisites

College-level scientific knowledge

Teaching form

Didactive activities rely on different teaching methods in the form of practical sessions: the 30 hours of the entire course are divided into 6 in-person lessons in the *Anatomy Room*, u8/Asclepio building in Monza (6 lessons of 4 hours, from 2pm to 6pm, and 1 lesson of 6 hours, from 11 to 13 and from 14 to 18).
Each lesson (2 hours in the 4-hour blocks and 3 hours in the single 6-hour block) is divided into a part of a delivery nature: the teacher presents the contents using the virtual dissection table present in the Anatomy Room

(*Anatomage Table*) to allow students to visualise the structures presented via 3D physical and virtual tools.
In the second part of the lesson, the teaching is interactive: the class is divided into small groups of no more than 6-8 students, also relying on a *flipped classroom* type activities. The students carry out exercises to consolidate the information presented in the first part of the lesson using the 3D models available in the classroom, paper and/or online teaching materials made available by the teacher, and using *Anatomage Table* for virtual dissections personally. *Gamification* strategy is also part of the interactive activities: a small team tournament among the different group is performed using the quiz mode of *Anatomage Table*.

Didactive activities are carried out in English language.

Textbook and teaching resource

- Treatise on Human Anatomy, by Anastasi G. et al.
- Gray's Anatomy: The Anatomical Basis of Clinical Practice, by S. Standring
- Gray's Anatomy for Students, by R. Drake, A.W. Vogl, A.W.M Mitchel
- Atlas of Human Anatomy, by F. H. Netter
- Human Anatomy Atlas, by G. Anastasi, E. Gaudio, C. Tacchetti

Semester

1st and 2nd term

Assessment method

The knowledge acquired in this course is being tested in the *Fundamentals of Human Morphology*.

At the end of 1st term an intermediate optional written test (20 multiple choice quizzes) will be done on cytology, embryology, and histology topics discussed during the first term. Each student will be assigned a judgment based on the number of correct answers (0-10=fail; 11-12=sufficient; 13-15=fair; 16-17=good; 18-19=very good; 20 excellent). At the end of the second term, to be admitted to the practical and oral final examination, a pass should be obtained on another (not optional) written test, that will be performed on the same day (20 multiple choice questions; the threshold to be admitted to the practical and oral examination is 11/20.
This test will explore the knowledge of all modules of the "Fundamentals of Human Morphology"; course (5 questions on histology/cytology/embryology, 5 on microscopic anatomy, 5 on regional anatomy, 5 on general anatomy). In case the student will have passed the intermediate test, the 5 questions on cytology, histology and embryology will be excluded in this written test and the threshold, in this case, is 8/15).
Once passed the written test, students can be admitted to the practical and oral final examination. For those students WHO DID NOT PASS the intermediate written test, the exam will be on the parts of the
program concerning cytology, embryology, histology, microscopic, regional and general anatomy. For those students who PASSED THE INTERMEDIATE TEST, the exam will be focused on microscopic anatomy, regional and general anatomy; however, the students have to prove their knowledge on the first term topics, if requested (e.g. while describing the microscopic anatomy of the cartilage, students might be asked to explain the histology of the tissue).
In the first part of the practical and oral final exam, beside cytology, histology and embryology (for those who DID NOT PASS THE INTERMEDIATE TEST), all students will be tested for the description/recognition of one slide observed at the light microscope, belonging to the systems described during the course of microscopic anatomy.

After passing this oral examination, each student will be assigned a judgment (not passed; sufficient; fair; good, very goodAnd will be admitted to the second and final oral examination: all the topics of General and Regional Anatomy enlisted in the syllabus will be tested, also exploiting the digital anatomy visualization and virtual dissection AnatomageTM table. If students pass also this part, they will receive a final mark (from 18 to 30L) considering all parts of the exam.

Specifically,for what regards *Regional Anatomy* oral exam, it explores all the topics in the syllabus; during the test, the recognition/description of 3D plastic models (e.g., vertebrae) and virtual cadaver visualisations is also being tested via the *Anatomage Table* available in the anatomy room.

Office hours

Appointments will be given upon contacting by email the teaching staff.

Sustainable Development Goals

QUALITY EDUCATION | GENDER EQUALITY | REDUCED INEQUALITIES