Anatomy practice 1

RNDr. Michaela Račanská, Ph.D.
Email: racanska@mail.muni.cz

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Attendance

- Precise
- Completion of the subject is assessed by the course-unit credit. A precondition for obtaining the course-unit credit is 95% attendance at the seminars (1 non-attendance tolerated). Apologies and substitution, in sickness – the certificate from the doctor perhaps 1 excused absence

- Be prepared for the seminar !!!! (test, protocols - IS)
<table>
<thead>
<tr>
<th>Seminar</th>
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<tr>
<td>1. Skeleton of the spine and thorax (vertebrae, sacrum, coccyx, ribs, sternum) Description of x-ray pictures</td>
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<td>2. Skeleton of the upper and lower extremities Description of x-ray pictures</td>
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<td>3. Skull, skull of the newborn Description of x-ray pictures</td>
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<td>4. Joints of the spine, thorax and skull Joints of the upper limb (art. humeri et cubiti) Description of x-ray pictures</td>
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<td>5. Joints of the upper and lower limbs Pelvis Pelvic planes Description of x-ray pictures</td>
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<td>6. Demonstration of the muscles of the head, neck, thorax and abdomen</td>
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<td>7. Muscles of the head Oral cavity (incl. tongue and salivary glands), pharynx, stomach, small and large intestine Description of x-ray pictures</td>
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<td>8. Muscles of the abdomen Liver, gall bladder, spleen, pancreas, duodenum Description of x-ray pictures</td>
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<td>9. Laryngeal muscles Nasal cavity (vestibulum, nasal cavity proper), larynx, bronchi, lungs, thyroid gland Cricothyrotomy, tracheotomy, Description of x-ray pictures</td>
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<td>10. Urinary and male genital system. Description of x-ray pictures</td>
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<td>13. Dissections (dissection of the back, upper and lower extremities) Ovary (description, position in the lesser pelvis), Uterine tube, uterus, vagina, Description of x-ray pictures</td>
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What you will need and safety at work
Blade no. 23  
Holder no. 4  
Cases, lock and key  

long hair pin together  
painted nails  
earings, rings and bracelets
What is not allowed
Safety at work

• Every accident (even small injuries) that happens during your education immediately report, write to the accident book
• Pregnancy – not allowed to attend dissections
• Fire instructions
Where you can study from?
Lending of bones
(this schedule is valid for the first 6 week of semester)

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<tr>
<td>monday</td>
<td>8.00 – 18.00*</td>
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<tr>
<td>tuesday</td>
<td>8.00 – 16.00*</td>
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<tr>
<td>wednesday</td>
<td>8.00 – 18.00*</td>
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<td>thursday</td>
<td>8.00 – 16.00*</td>
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<tr>
<td>friday</td>
<td>8.00 – 16.00*</td>
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* 11.30 – 12.30 lunch break
Orientation on the body

Anatomical position
standard erect position

Not a military position!
PLANES – 3 anatomical planes or sections

Sagittal plane (median)
Midsagittal
vertical plane - Right and left
Acc. to sagittal axis

Transverse plane (horizontal, axial, cross sections)
Vertical plane - Superior and inferior
(acc. to transversal axis)

Frontal plane (coronal)
Anterior and posterior
(acc. to longitudinal axis)
Directions on the body
Directions at the limbs

PROXIMALIS
DISTALIS
RADIALIS (lateralis)
ULNARIS (medialis)
PALMARIS
DORSALIS
PLANTARIS
FIBULARIS (lateralis)
TIBIALIS (medialis)
Marking of bones - positive and negative relief

**NEGATIVE**
- Sulcus – a groove
- Incisura – a notch
- Canalis – a canal
- Fossa – a pit, hollow
- Fovea – a pit, hollow
- Foramen – an opening, orifice, gap
- Groove – a furrow

**POSITIVE**
- Processus – a projection, prominence
- Spina – a thorn
- Tuberculum – a tubercle
- Tuber – a torus
- Tuberositas – a tuberosity, large rounded eminence

Internus – internal
Externus – external
Superficialis – superficial
Profundus – deep
Os, ossis, ossa – a bone, bones
Articulus – a joint
Facies – a facet, surface
MAIN PARTS OF HUMAN BODY

Head – caput
Capitulum – a small head
Neck – collum, cervix
Trunk - truncus:
    chest (thorax)
back (dorsum)
belly (abdomen)
pelvis (pelvis)
Upper limb - membrum superius:
 arm (brachium)
 forearm (antebrachium)
 hand (manus): back of the hand (dorsum manus), palm (palma manus), fingers (digiti manus)
Lower limb - membrum inferius:
 thigh (femur)
 lower leg (crus)
 foot (pes): back of the foot (dorsum pedis), sole (planta pedis), fingers (digiti pedis)
Fossa x fovea

Caput x condylus

Caput humeri

Caput femoris

Epicondylus med. et lat. humeri

Caput tali

Condylus medialis et lateralis et epicondylus med. et lat. femoris

Incisura x foramen

Incisura scapulae

Foramen obturatum

X-ray’s anatomy

Anatomy is essential for understanding radiology.
Wilhelm Conrad Röntgen 1845-1923
1895 – discovery of x-ray
1901- awarded by Nobel price in physics)
X-rays principle

A highly penetrating beam of x-rays "transluminates" the patient, showing tissues of differing densities on x-ray film.

A tissue or organ that is relatively dense absorbs (stops) more x-rays than a less dense tissue.

Light structures – shadows (Heart shadow)
Dark structures – brightening (Brightening of the lung tissue)
Interpretation of image documents

Interpretation is an integral part of every radiological exam!!

Projections: Sagital(PA, AP), Lateral, dorsoplantar, dorsopalmar

monitor                        negatoscope - translumination

digital modalities              films
PLAIN RADIOGRAPHS
NATIVE, conventional (simple) without using contrast agent

X-rays with contrast material (CONTRAST EXAMINATION)
For bowel or vessels

Negative Gass, air (brain ventricles)

Positive Barium sulfate

Iodine-based molecules

They are used to investigate the hollow organs of the digestive system, urinary system, reproductive system and blood vessels.

We got the picture of the filling of the investigated area.

Double contrast – barium and air (colon)
"Judging from your X-ray, I'd say you're not digesting your sushi!"
How to describe bones

- knowledges of the general osteology, basic orientation on the body with planes are obvious

In describing bones we proceed according to the following outline:

1. Name of the bone (english, latin)
2. Type of the bone (long, short …)
3. Dividing into separate parts (ends, body, surfaces, borders….)
4. Description of the positive and negative relief of the isolated parts
5. In paired bones estimate the laterality

IMPORTANT!!! STUDY WITH THE BORROWED MATERIAL IN THE BONY ROOM OR IN THE MUSEUM AT THE DEPARTMENT!!!
HOW TO DIFFER VERTEBRAS
Costa

Processus transversus

Processus spinosus

Arcus vertebrae

Corpus vertebrae

General features of all vertebrae

Special features
X-rays of the spine
SPINE
CERVICAL PART
axial projection

- transverse process
- cervical vertebra
- thoracic vertebra
- disc space
- vertebral body
- spinous process
- 1th rib
- clavicle
- mandible
SPINE
THORACIC PART
axial projection

- Thoracic vertebral body
- Spinous process
- Intervertebral disc space
- Pedicles
- Ribs
- Diaphragm
- Costovertebral joint
SPINE
LUMBAR PART
axial projection

- vertebral body
- intervertebral space
- spinous process
- pedicle
- costal process
- superior articular process
- inferior articular process
- intervertebral joint
- last rib
- 1st thoracic vertebra
- L1
- L2
- L3
- L4
- L5
- sacrum
SPINE
LUMBAR PART
lateral projection

vertebral body

Intervertebral disc space

Intervertebral disc space

L1

L2

L3

L4

L5

sacrum

spinal processes

pedicle

intervertebral foramen