

Anatomy practice 1

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Autumn 2015

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)**

Seminar

1. Skeleton of the spine and thorax (vertebrae, sacrum, coccyx, ribs, sternum) Description of x-ray pictures

2. Skeleton of the upper and lower extremities Description of x-ray pictures

3. Skull, skull of the newborn Description of x-ray pictures

4. Joints of the spine, thorax and skull Joints of the upper limb (art. humeri et cubiti) Description of x-ray pictures

5. Joints of the upper and lower limbs Pelvis Pelvic planes Description of x-ray pictures

6. Demonstration of the muscles of the head, neck, thorax and abdomen

7. Muscles of the head Oral cavity (incl. tongue and salivary glands), pharynx, stomach, small and large intestine

Description of x-ray pictures

8. Muscles of the abdomen Liver, gall bladder, spleen, pancreas, duodenum Description of x-ray pictures

9. Laryngeal muscles Nasal cavity (vestibulum, nasal cavity proper), larynx, bronchi, lungs, thyroid gland

Cricothyrotomy, tracheotomy, Description of x-ray pictures

10. Urinary and male genital system. Description of x-ray pictures

11.

12.

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

What you will need and safety at work





Blade no. 23 Cases, lock and key
Holder no. 4



long hair
pin together

crossed out
painted nails

crossed out
earrings, rings and bracelets

What is not allowed





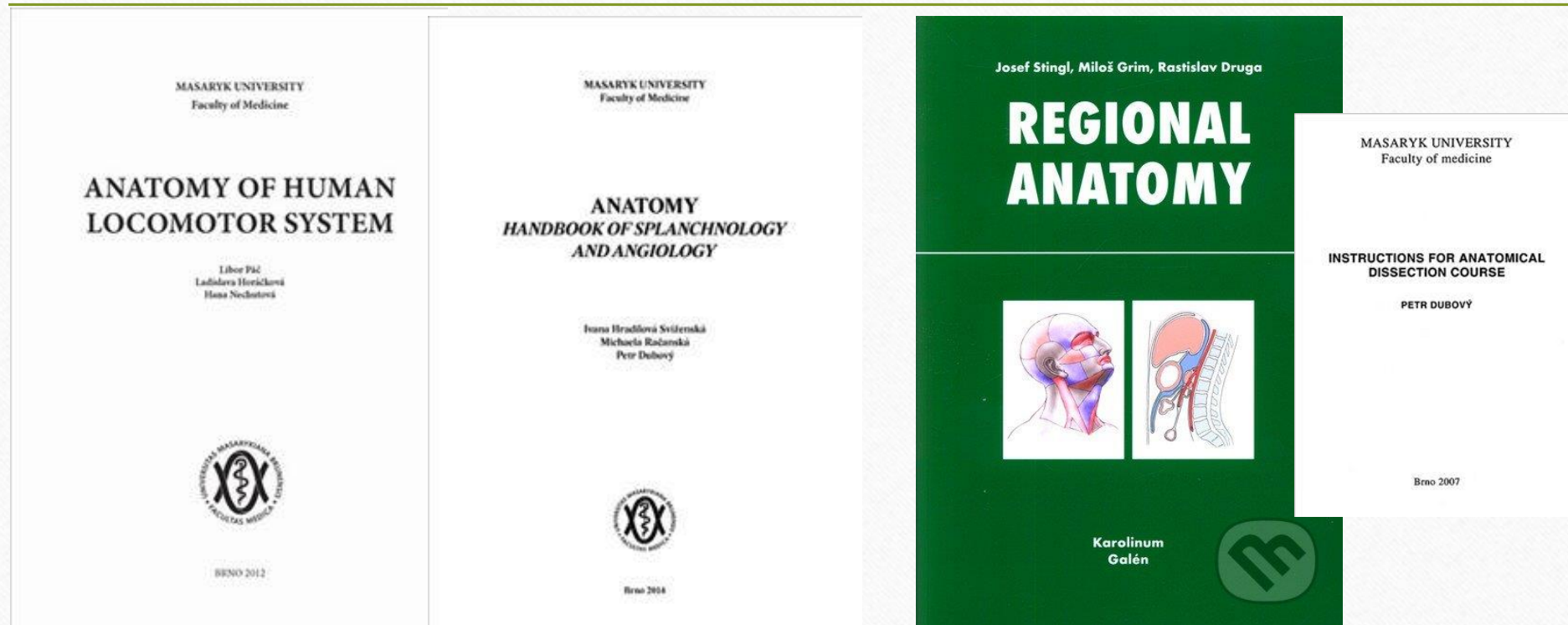
Safety at work

- 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

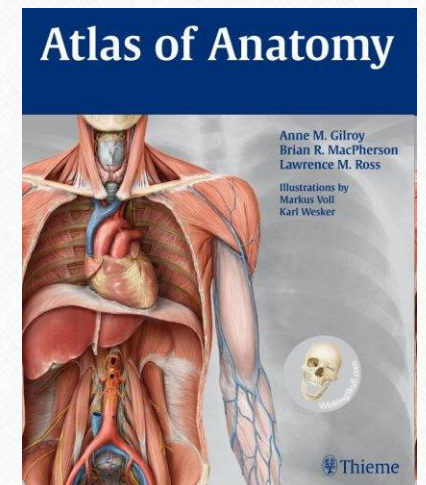
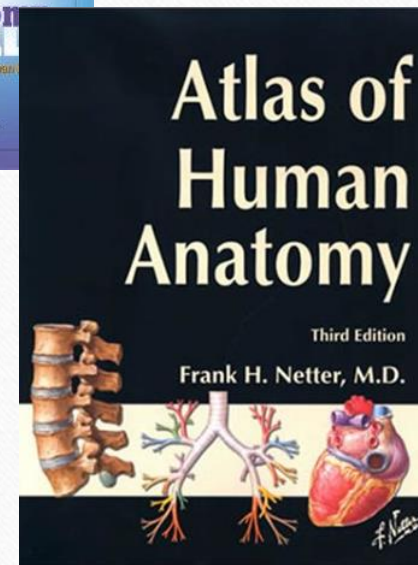
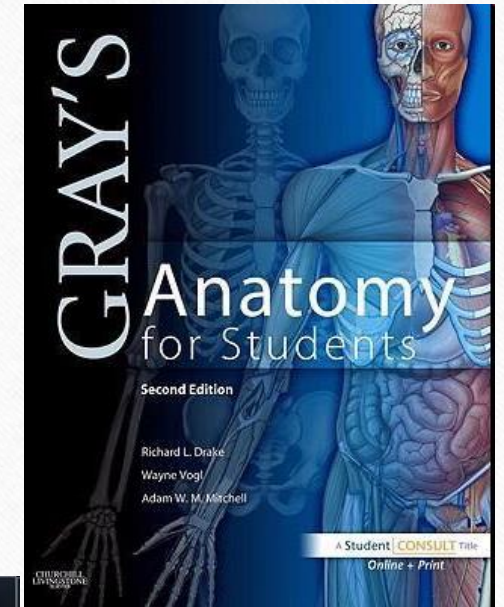
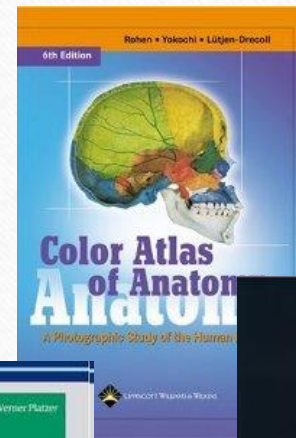
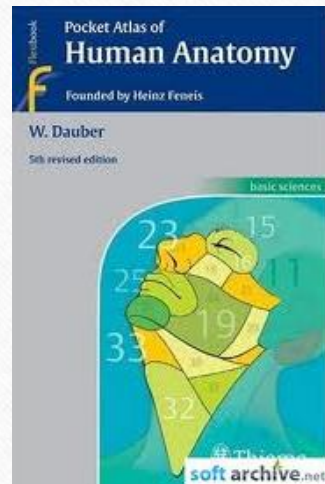
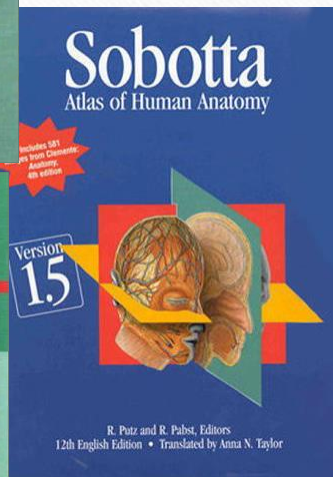
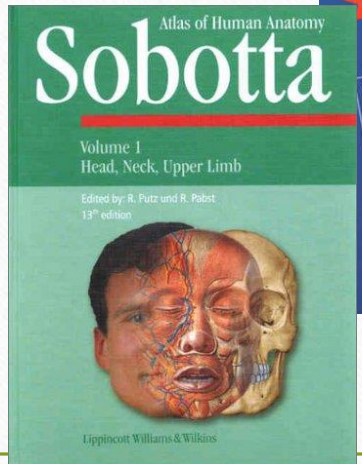
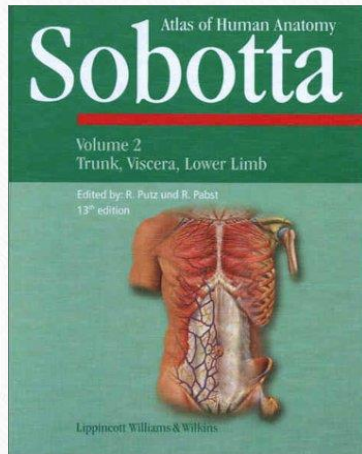




Where you can study from?



<http://elsevierelibrary.co.uk/bookshelf>



**Terminologia Anatomica 1998 TA
Nomenclature**



MASARYK UNIVERSITY INFORMATION SYSTEM

Study materials posted under the course LF:aVLAN0121s

česky | in English

RNDr. Michaela Račanská, Ph.D. (učo [10489](#)).

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HIGHLIGHT

IS.MUNI.CZ

NB: [mailbox space occupied](#): 94 %

MY MAIL

PEOPLE

Address within IS:

TEACHER

SUPERVISOR

PUBLICATIONS

REPOSITORY

Other courses offered in **Spring 2014**: [BFAP0222p](#), [VSAN0232c](#), [VSAN0232p](#), [VSAN0232s](#), [ZLAN0232p](#); **Autumn 2014**: [VSAN0131p](#), [VSAN0131s](#), [VSAN0333c](#), [VSAN0333p](#), [VSAN0333s](#), [ZLAN0333c](#), [ZLAN0333p](#); **Spring 2015**: [BFAP0222p](#), [VSAN0232c](#), [VSAN0232p](#), [VSAN0232s](#), [ZLAN0232p](#); **Autumn 2015**: [aVLAN0121c](#), [aVLAN0121p](#), [aVLAN0121s](#), [aZLAN0131p](#), [aZLAN0131s](#), [VLAN0121c](#), [VLAN0121p](#), [VLAN0121s](#), [VSAN0131p](#), [VSAN0131s](#), [VSAN0333c](#), [VSAN0333p](#), [VSAN0333s](#), [ZLAN0333c](#), [ZLAN0333p](#); **Spring 2016**: [aVLAN0222c](#), [aVLAN0222p](#), [aVLAN0222s](#), [aZLAN0232p](#), [VLAN0222c](#), [VLAN0222p](#), [VLAN0222s](#), [VSAN0232c](#), [VSAN0232p](#), [VSAN0232s](#), [ZLAN0232p](#)

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DISCUSSION

LF:aVLAN0121s Anatomy I - seminar (Autumn 2015)

Operations

Study materials posted under the course LF:aVLAN0121s /aVLAN0121s/

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<input type="checkbox"/>		Learning Materials /um/			20. 6. 201	
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Operations

Lending of bones

(this schedule is valid for the first 6 week of semester)

monday **8.00 – 18.00***

tuesday **8.00 – 16.00***

wednesday **8.00 – 18.00***

thursday **8.00 – 16.00***

friday **8.00 – 16.00***

* 11.30 – 12.30 lunch break

Orientation on the body



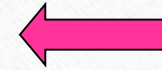
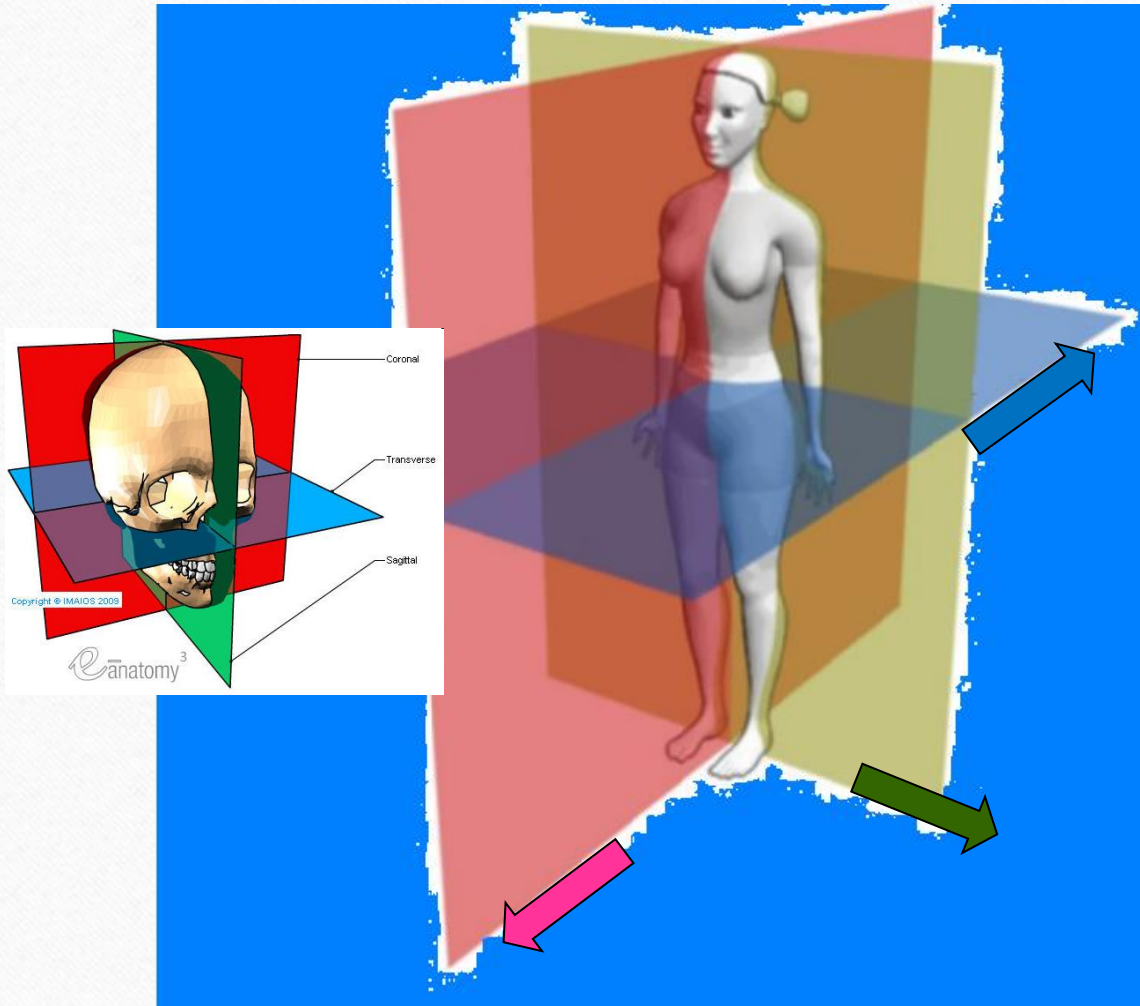
Anatomical position
standard erect position

X



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)



→ cranialis

😊 superior

→ ventralis

😊 anterior

→ medialis

😊 medianus

😊 dexter

● superficialis

😊 internus

→ caudalis

😊 inferior

→ dorsalis

😊 posterior

→ lateralis

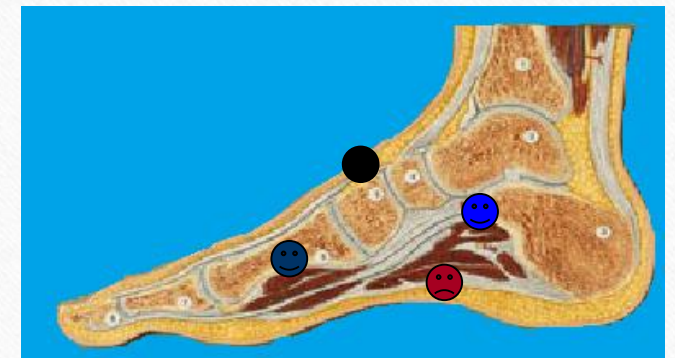
😊 medius (intermedius)

😊 sinister

😊 profundus

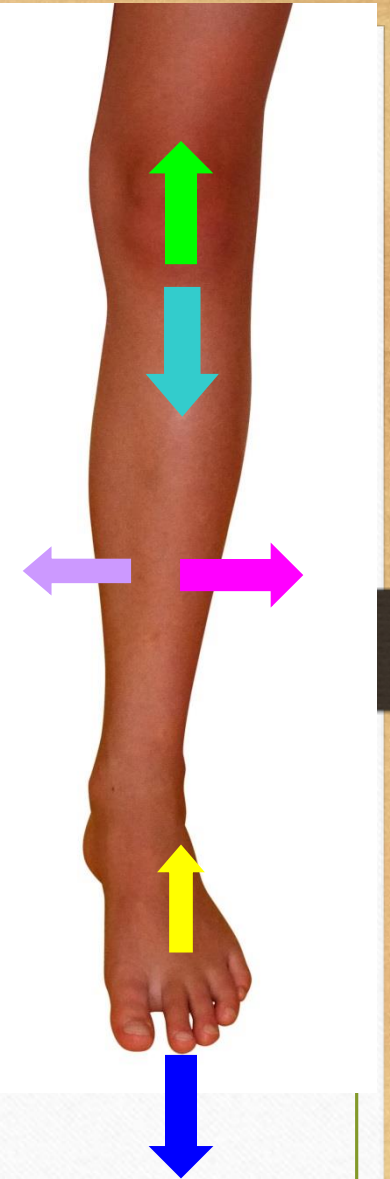
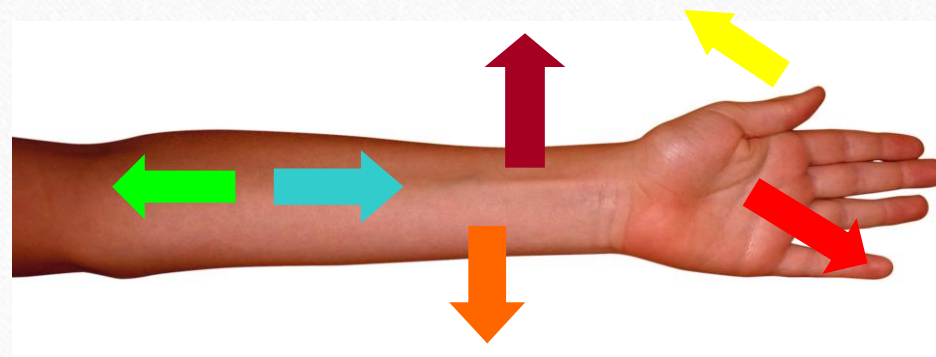
😊 externus

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

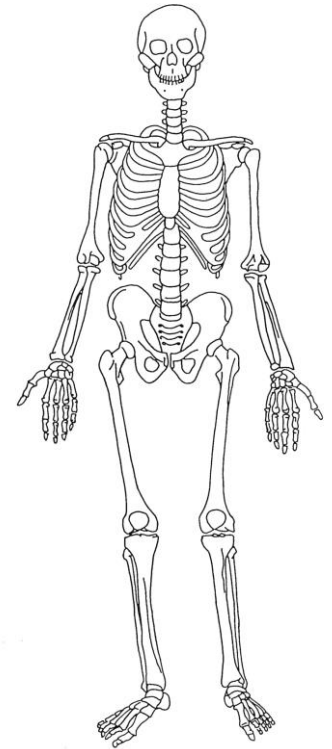
Superficialis – superficial

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)

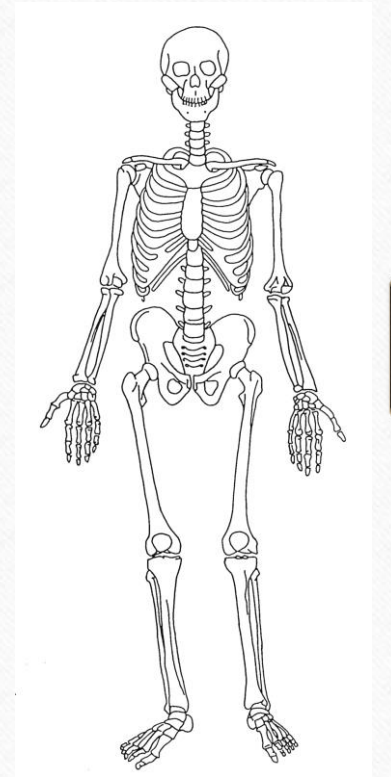
hand (manus): back of the hand (dorsum manus), palm (palma manus), fingers (digiti manus)

Lower limb - membrum inferius:

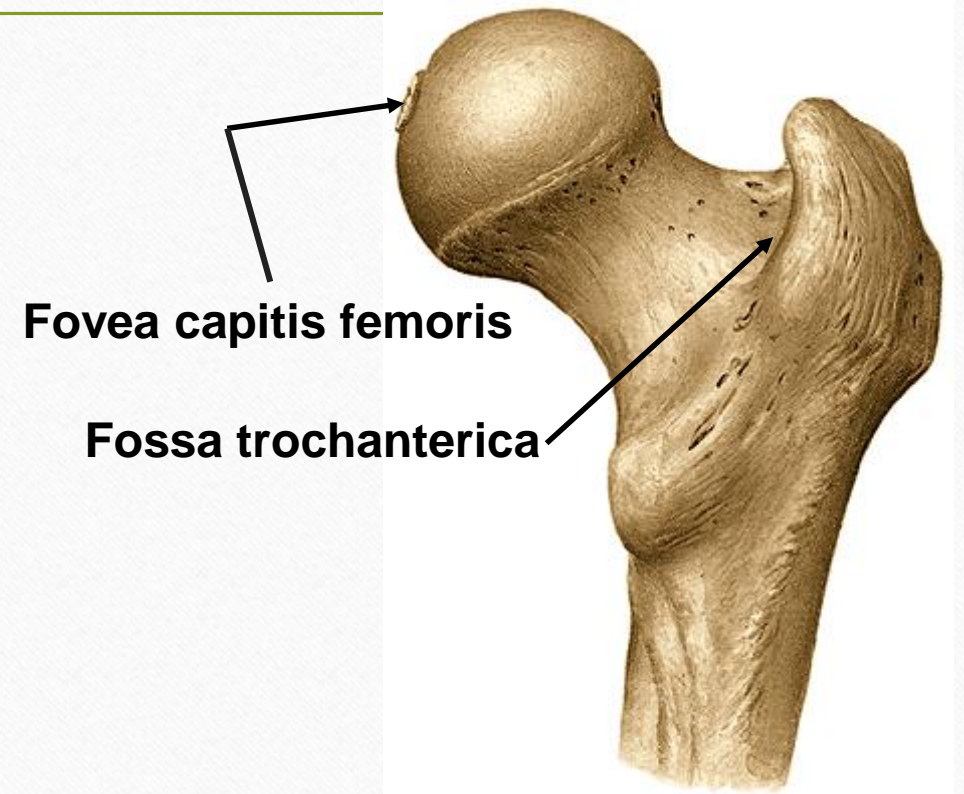
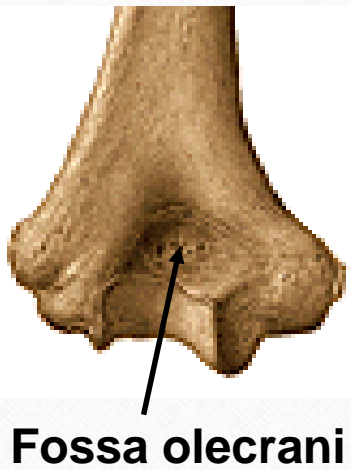
thigh (femur)

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



Epicondylus med. et lat. humeri

Caput tali



Caput femoris



**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.

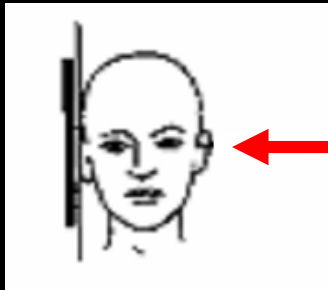
Central projection

3 D object



2D image

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



negative image



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

positive image



Interpretation of image documents

Interpretation is an integral part of every radiological exam !!

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

monitor



digital modalities

negatoscope - transillumination

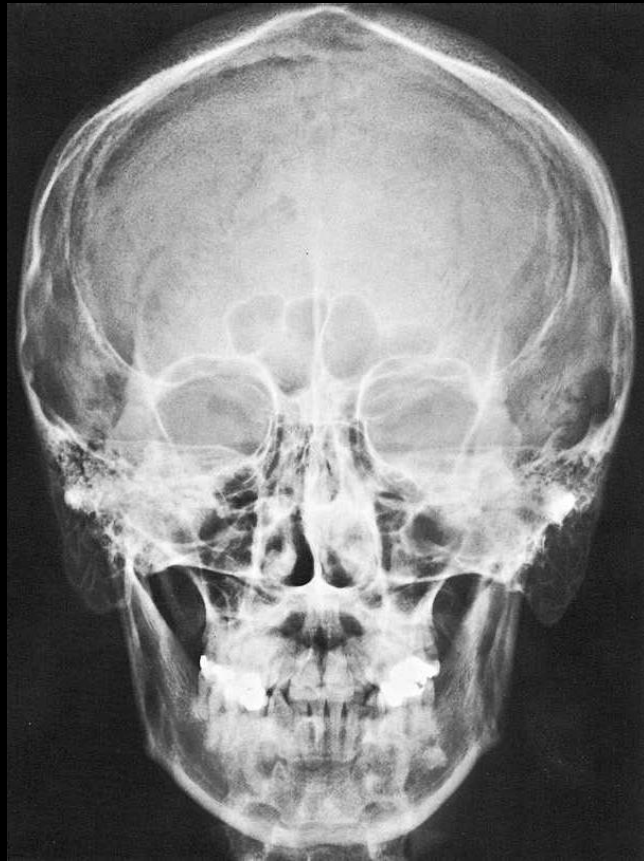


films

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

are mostly used to obtain images of **connective tissue musculoskeletal system**, assessing their integrity as fractures, bone development, osteoporosis, relations with joint injuries, etc.

They can be used to control the operation of the bones



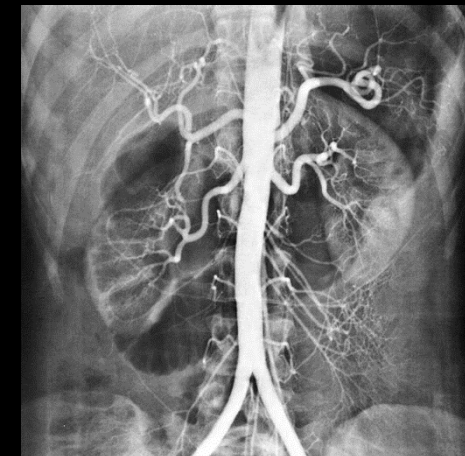
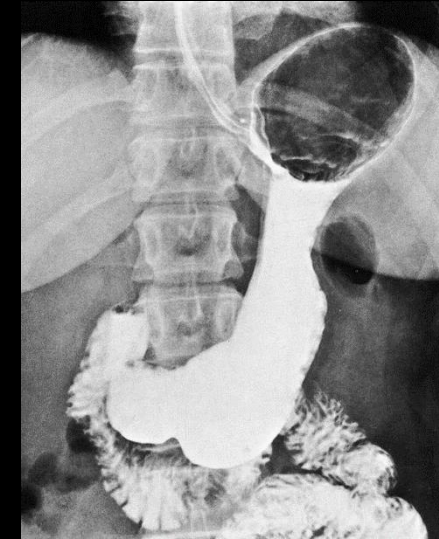
X-rays with contrast material
(CONTRAST EXAMINATION)

For bowel or vessels

Negative
Gass, air
(brain
ventricles)

Positive
Barium sulfate

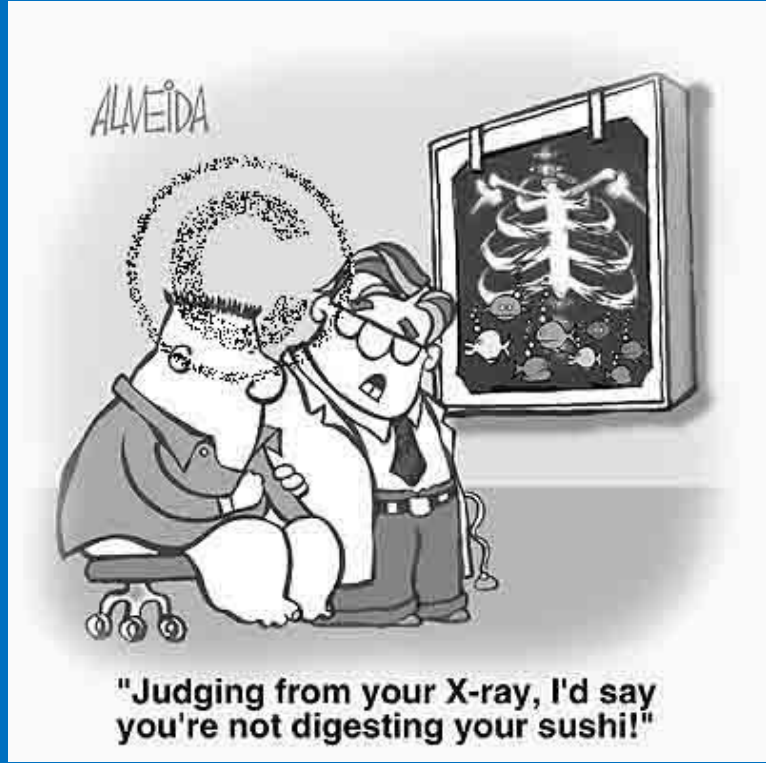
Iodine-based molecules

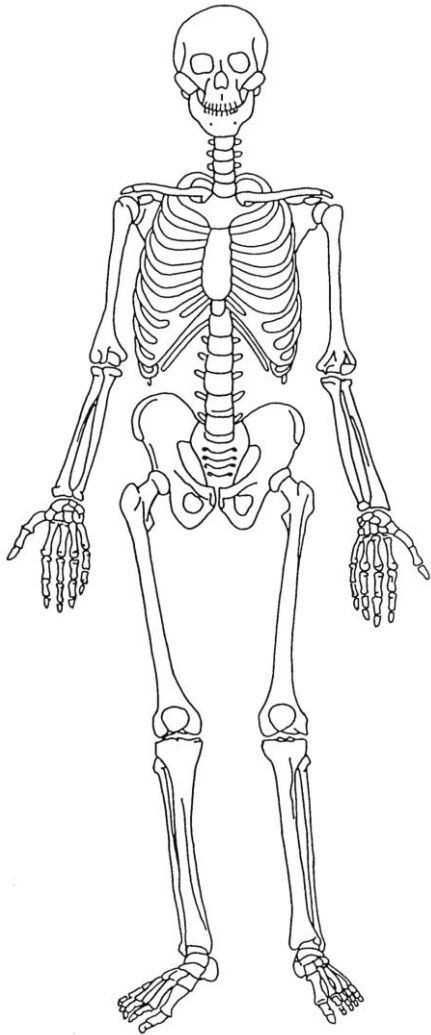


They are used to investigate the **hollow organs** of the digestive system, urinary system, reproductive system and blood vessels

We got the picture of the filling of the investigated area

Double contrast – barium and air (colon)





How to describe bones

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

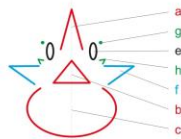
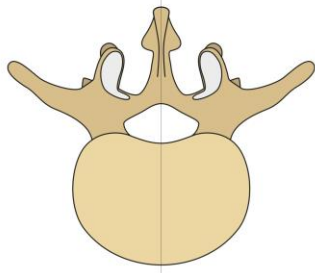
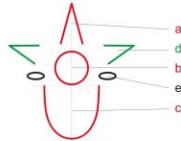
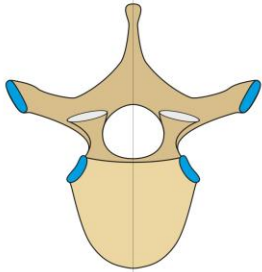
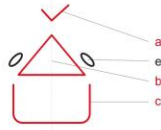
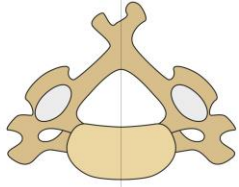
In describing bones we proceed according to the following outline::

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

Special features



a - proc. spinosus
 b - páteřní kanál
 c - tělo obratle
 d - proc. transversus
 e - proc. articularis
 f - proc. costarius
 g - proc. mammillaris
 h - proc. accessorius

General features
of all vertebrae

Corpus vertebrae

Arcus vertebrae

Processus articulares

Processus transversus

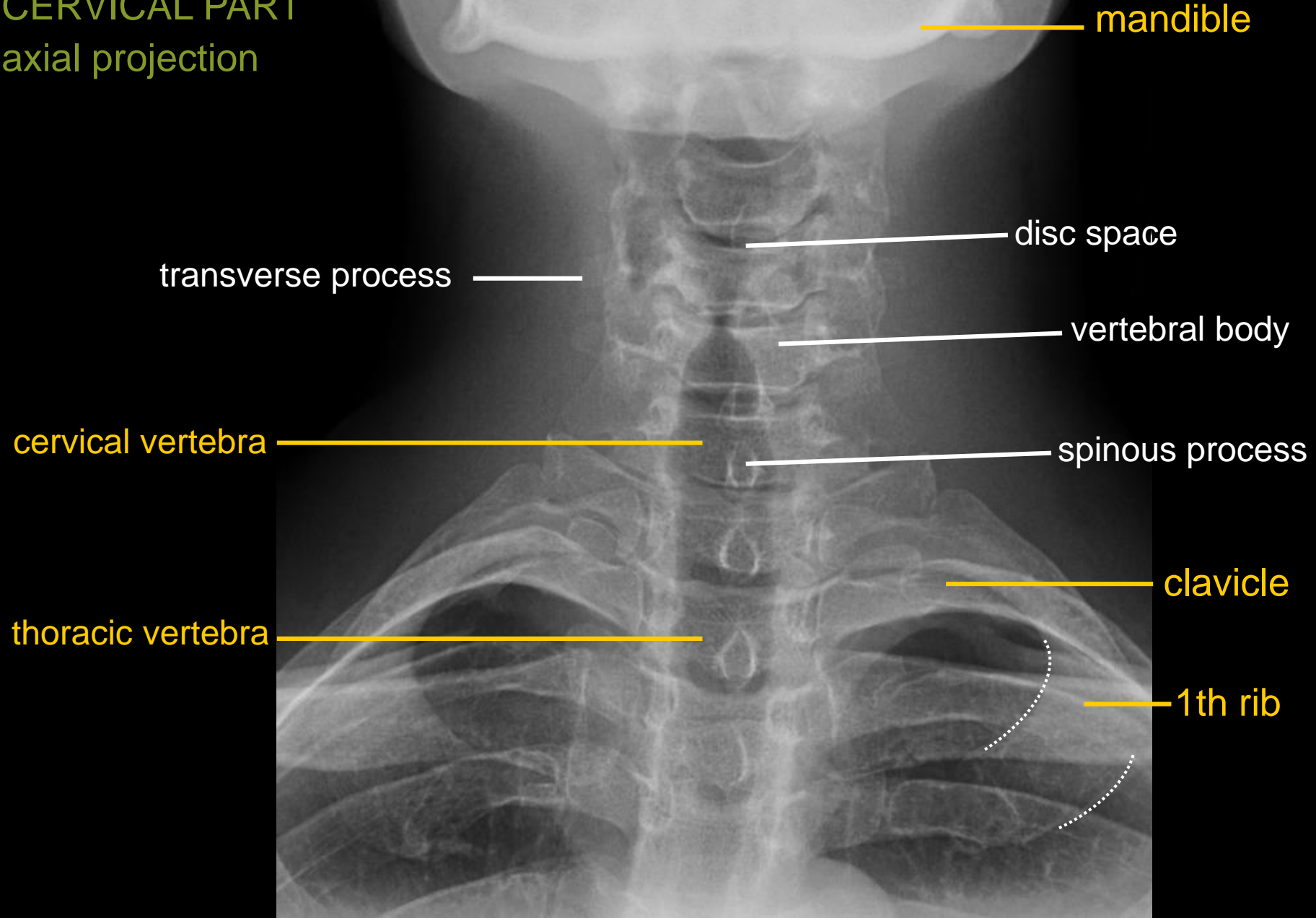
Processus spinosus

Costa

X-rays of the spine

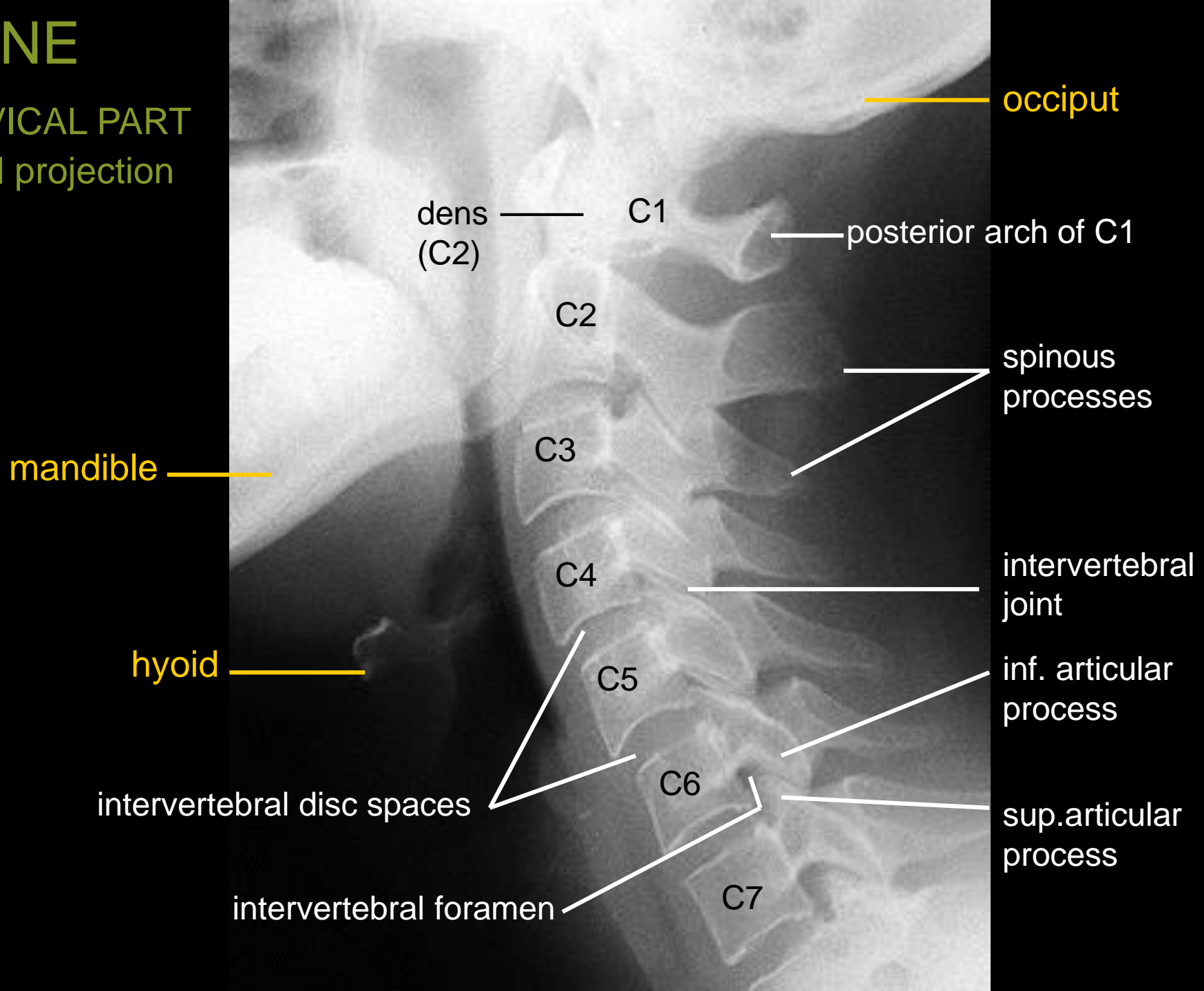
SPINE

CERVICAL PART
axial projection



SPINE

CERVICAL PART
lateral projection



occiput

dens (C2)

C1

posterior arch of C1

C2

spinous processes

mandible

C3

intervertebral joint

hyoid

C4

inf. articular process

C5

intervertebral disc spaces

C6

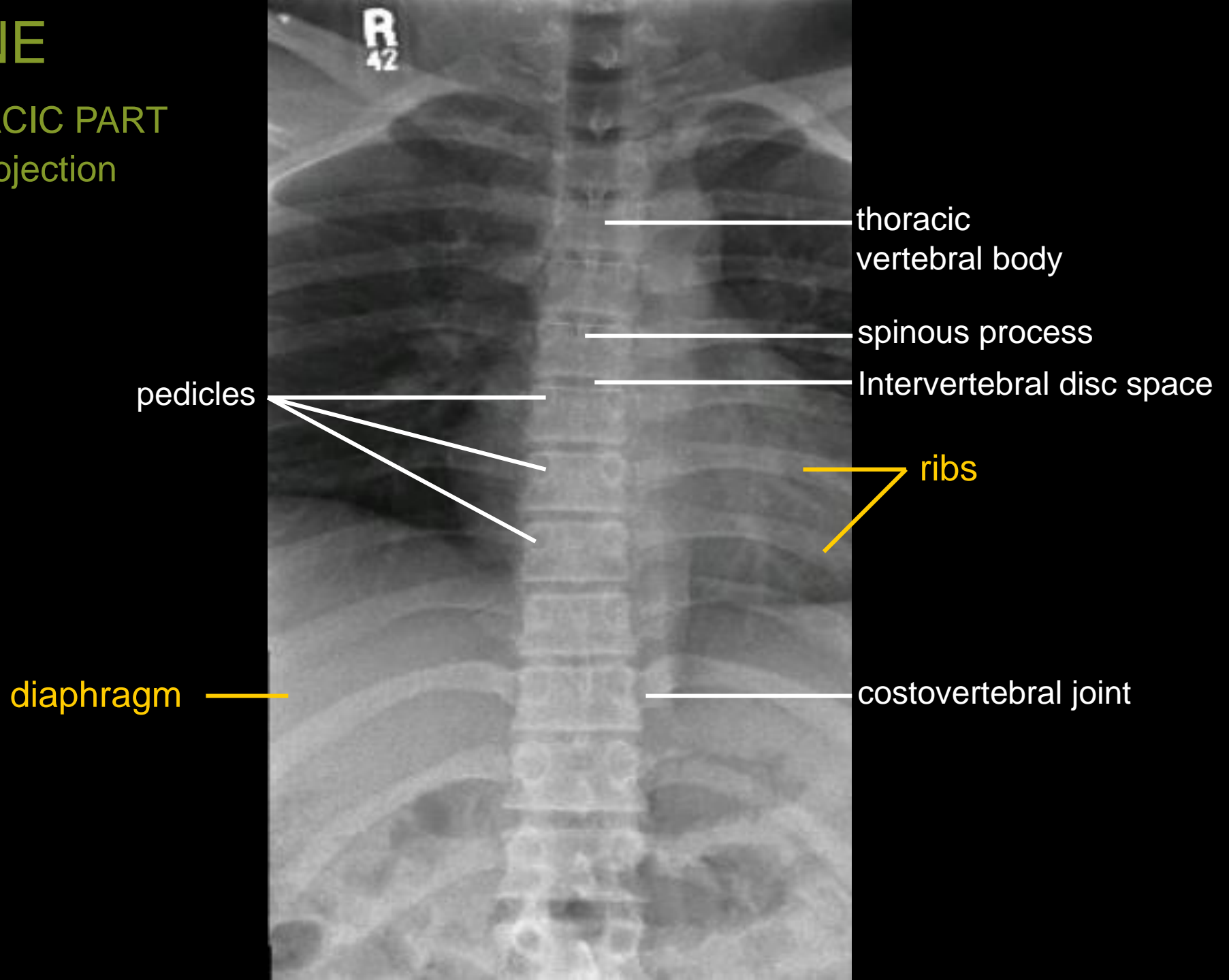
sup. articular process

intervertebral foramen

C7

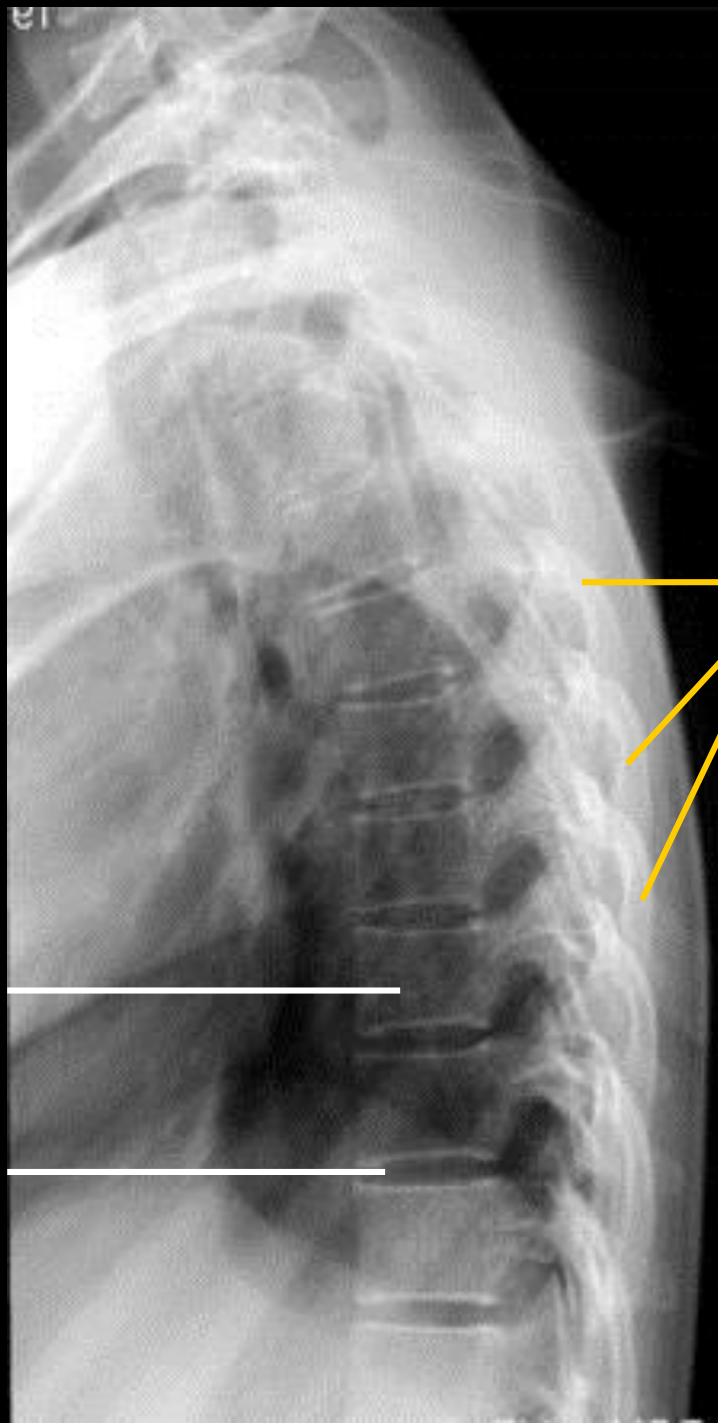
SPINE

THORACIC PART
axial projection



SPINE

THORACIC PART
lateral projection



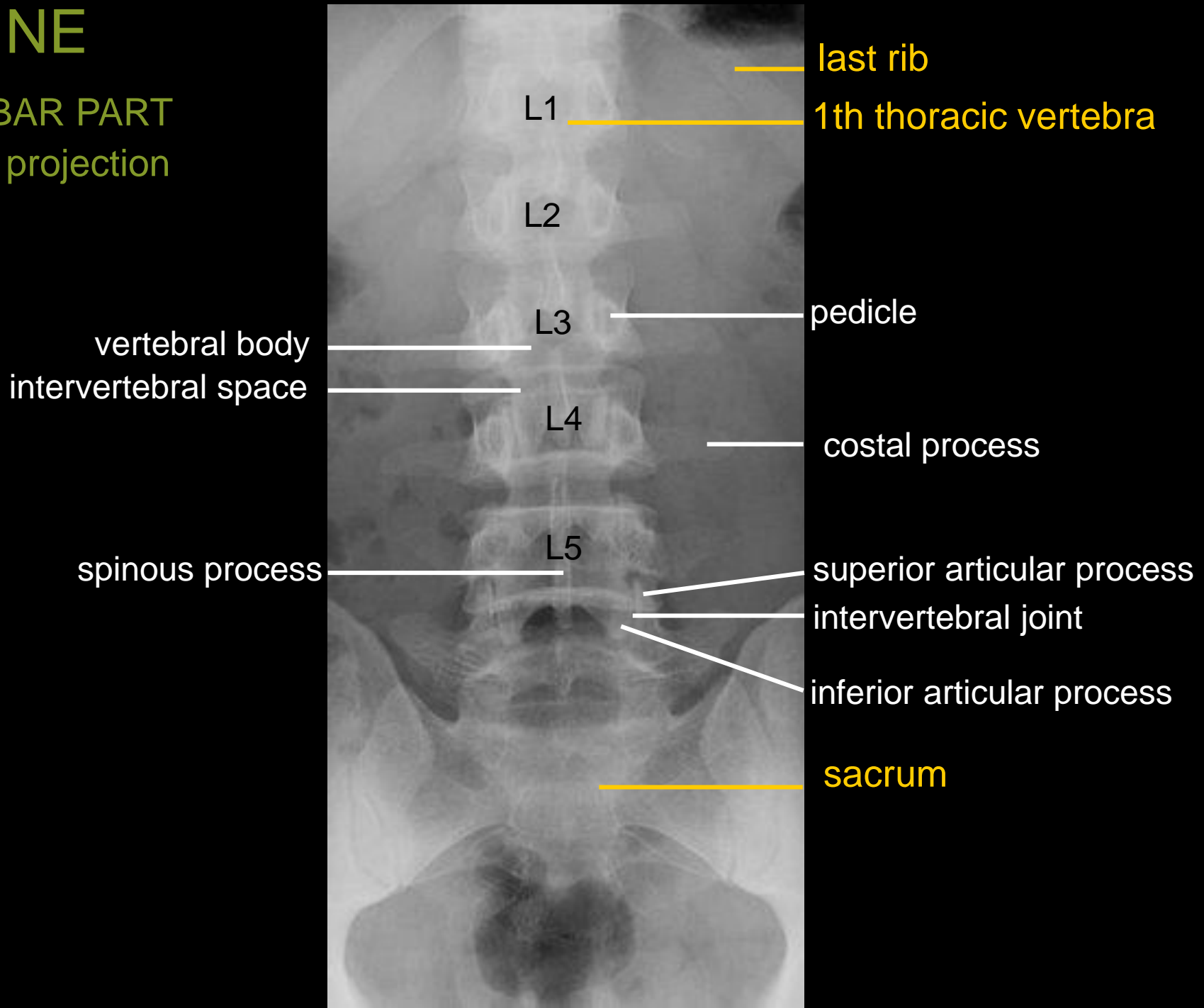
ribs

thoracic
vertebral body

intervertebral
disc space

SPINE

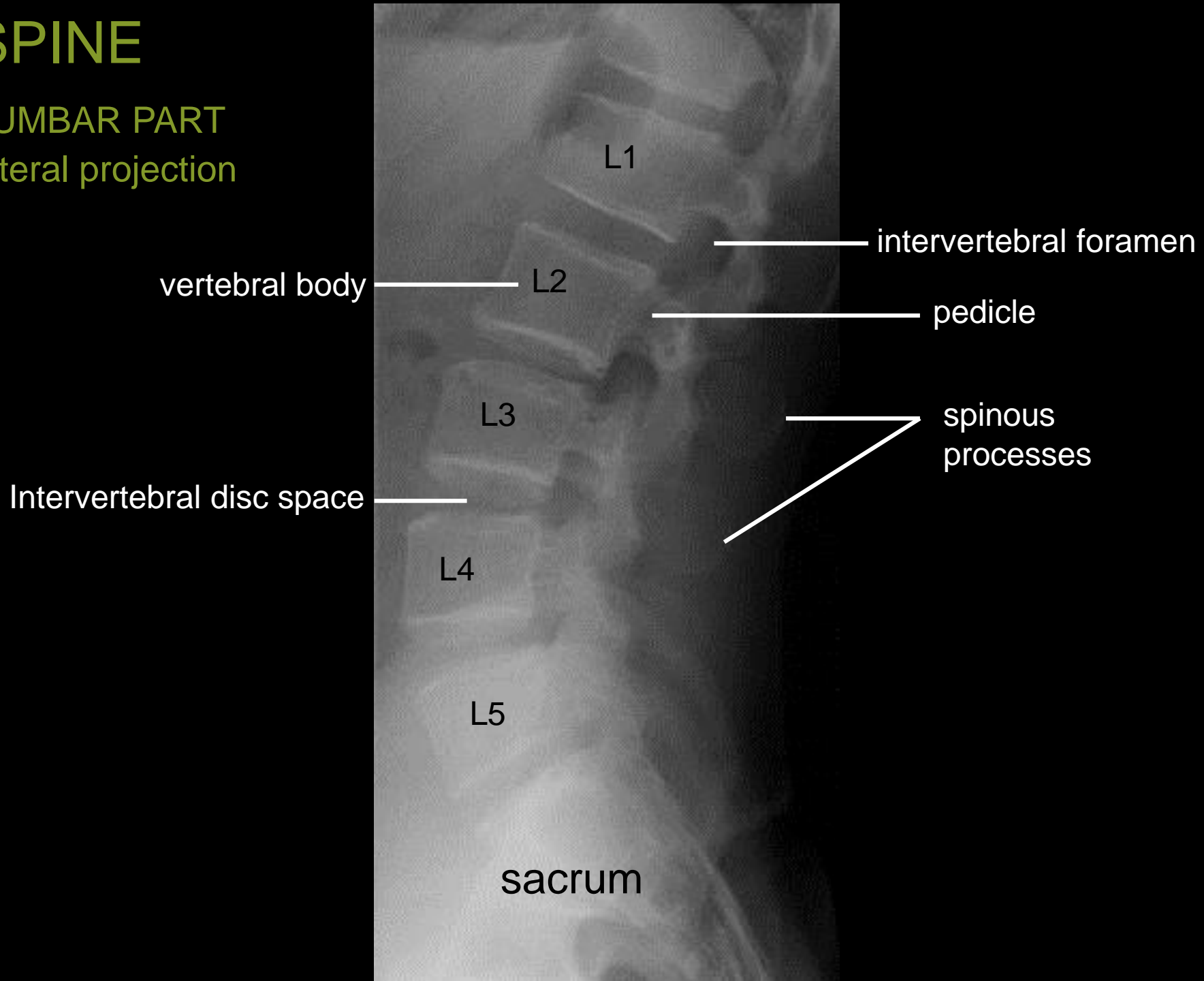
LUMBAR PART
axial projection



SPINE

LUMBAR PART

lateral projection



L1

intervertebral foramen

vertebral body

L2

pedicle

L3

spinous
processes

Intervertebral disc space

L4

L5

sacrum