Introduction to anatomy

It is not possible to postpone the mid-semestral test or to take it earlier.

Only Students who have not exceeded the allowed number of absences and have received at least 50% from all mid-semestral tests are allowed to take the final anatomy exam (both practical exam and the test).

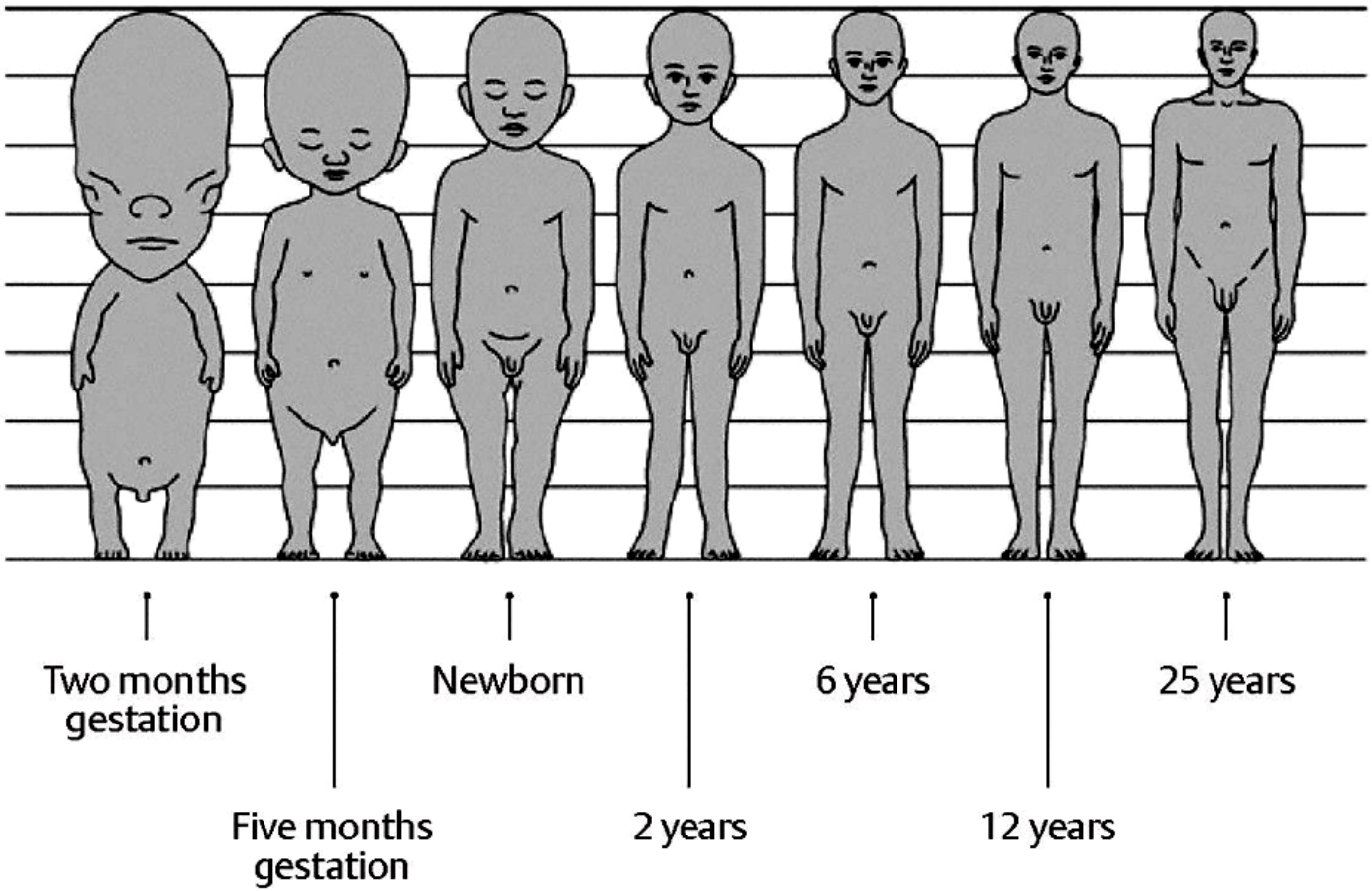
Grading system, both for the mid-semestral tests, practical exams and the final exam is as follows:

- ✓ excellent = approximately 90% of all possible points
- ✓ very good = 80%
- ✓ good = 70%
- ✓ satisfactory = 60%
- ✓ sufficient = 50%

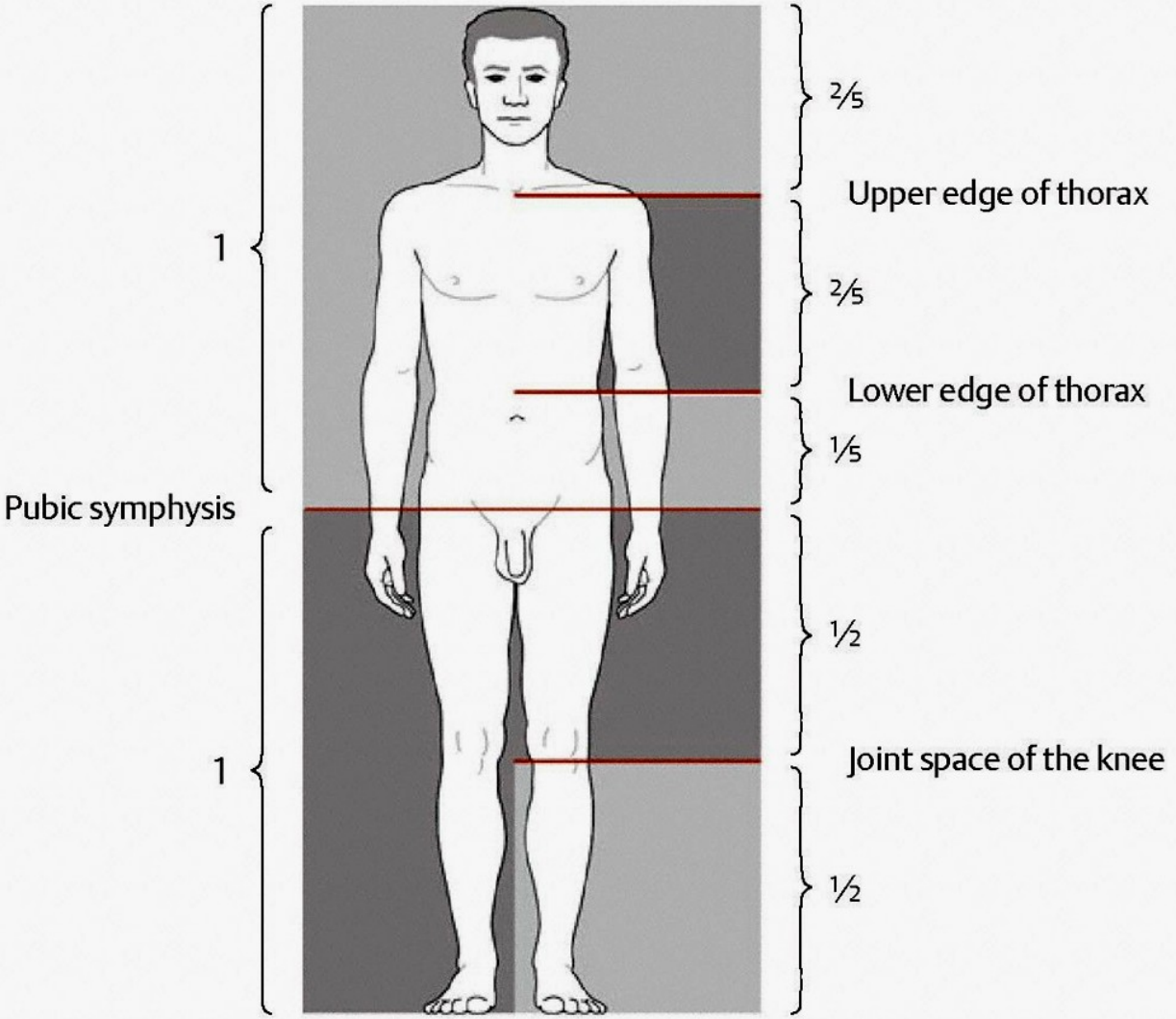
A Student can be exempted from the final exam if the results of all mid-semestral tests (including both practical and theoretical tests) exceed 90%.

A Student is exempted from the final practical exam if results of all practical mid-semestral tests exceed 80%.

BASIC ANATOMICAL TERMS

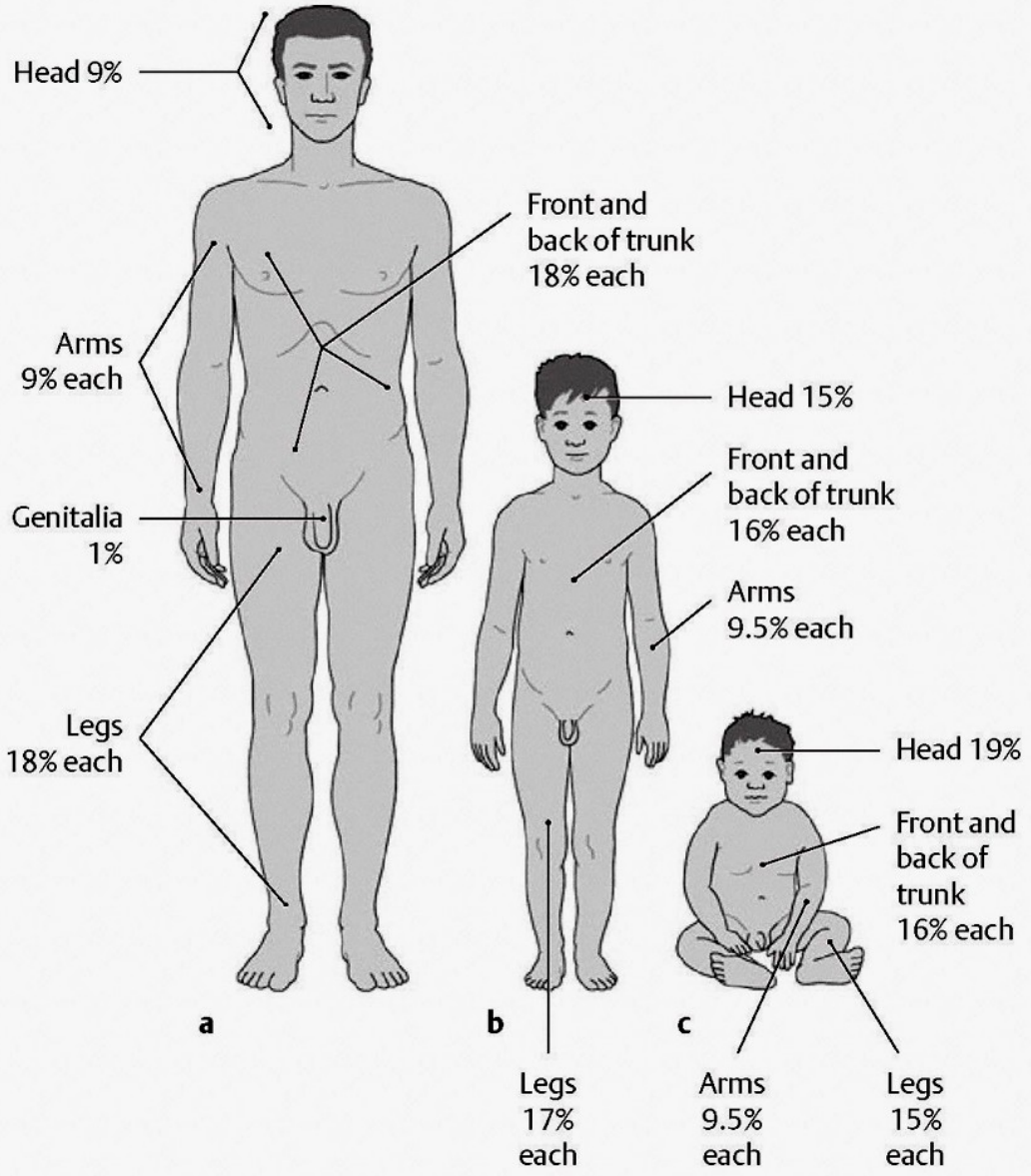


Change in body proportions during growth

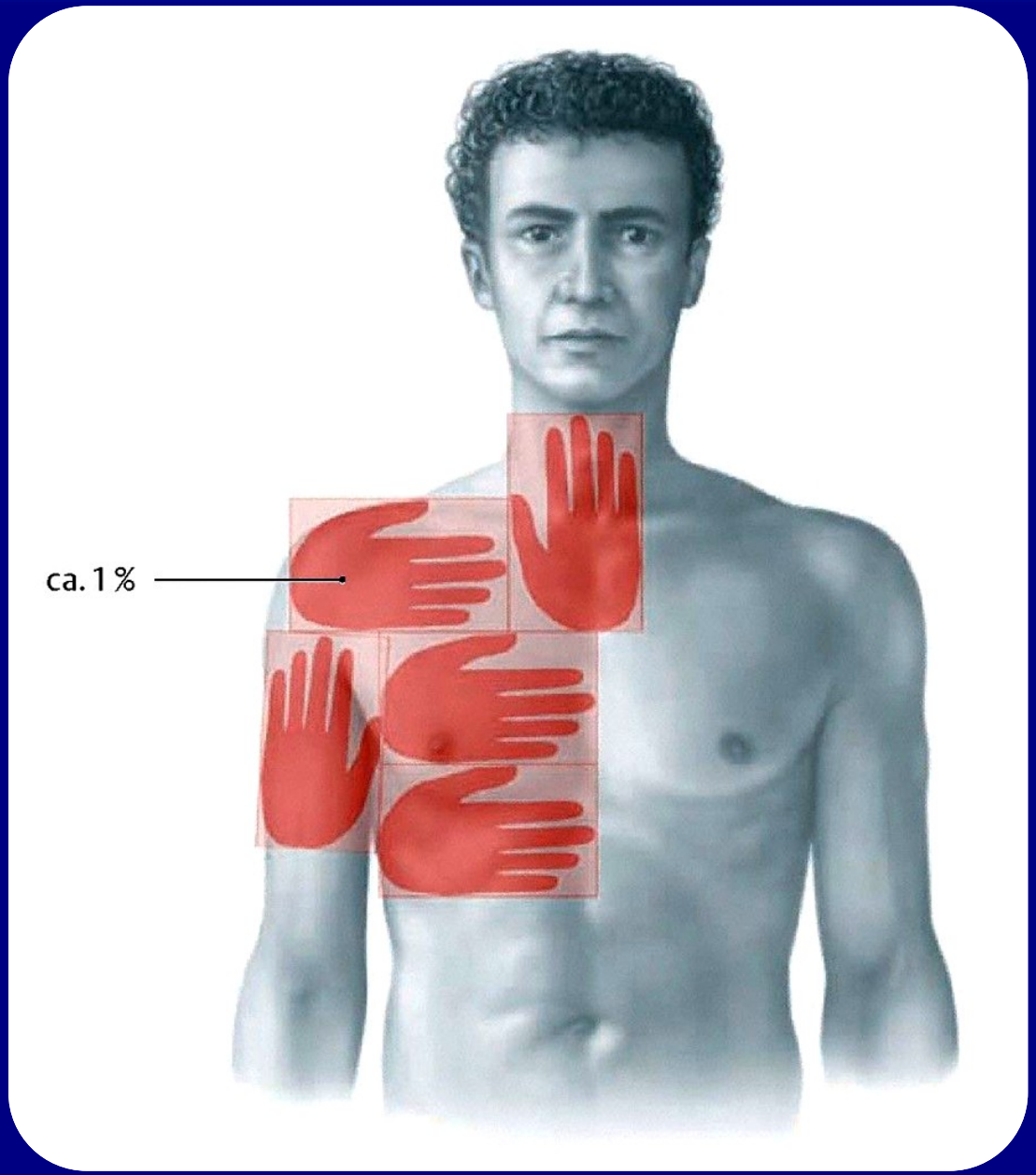


Normal

body proportions

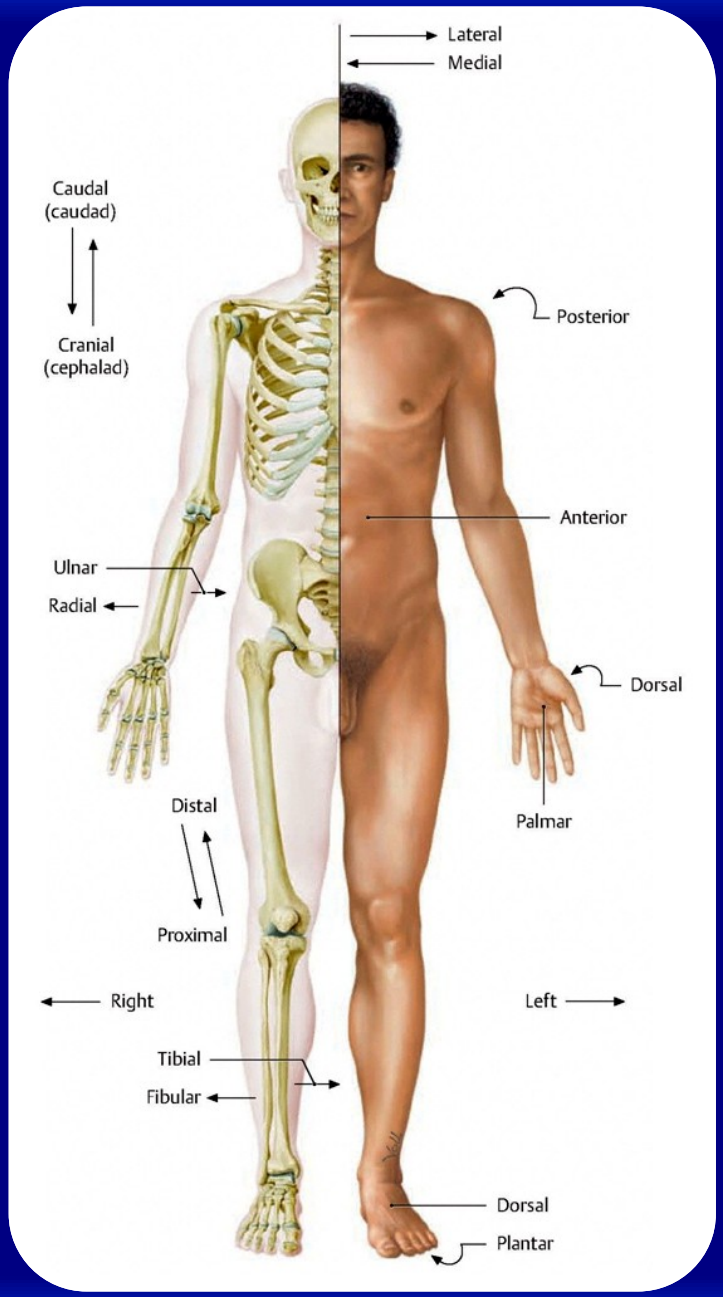


Distribution of body surface area in adults, children, and infants

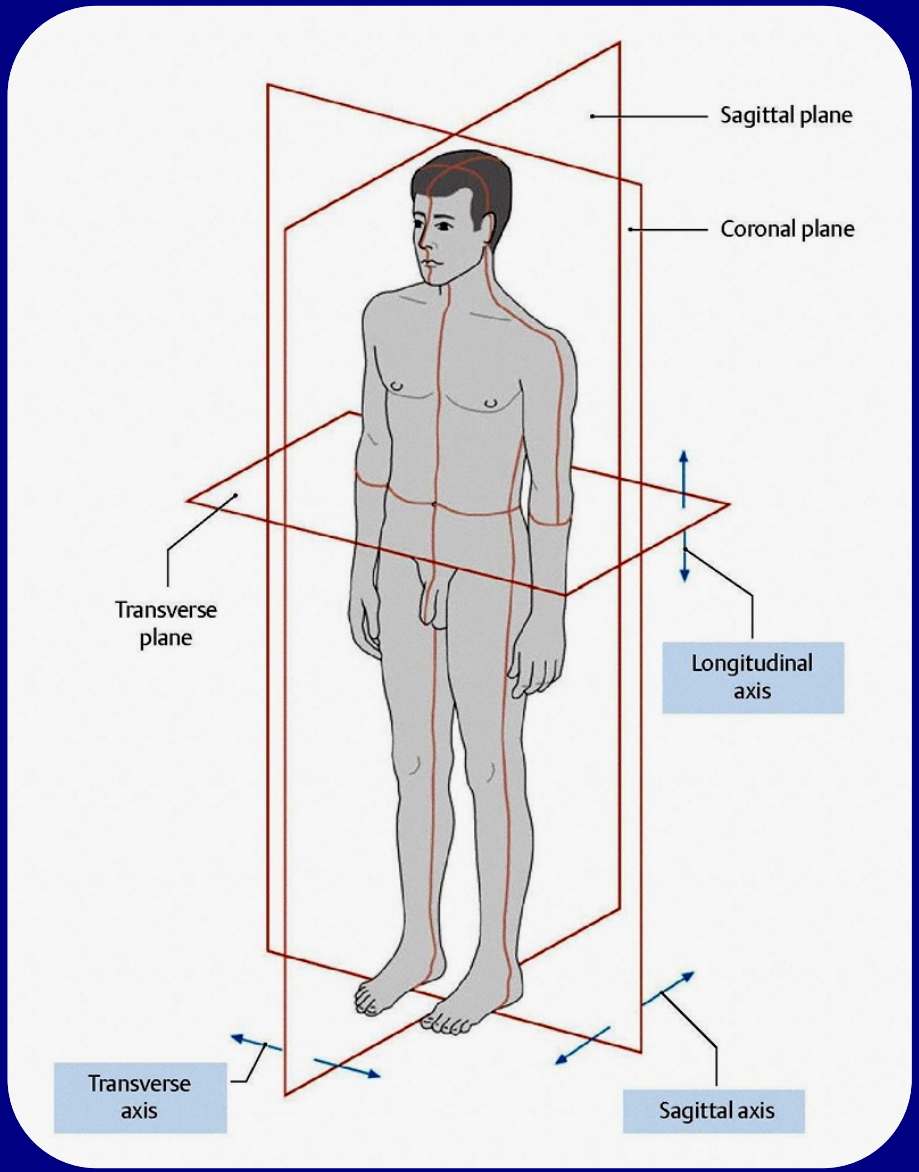


Hand area rule

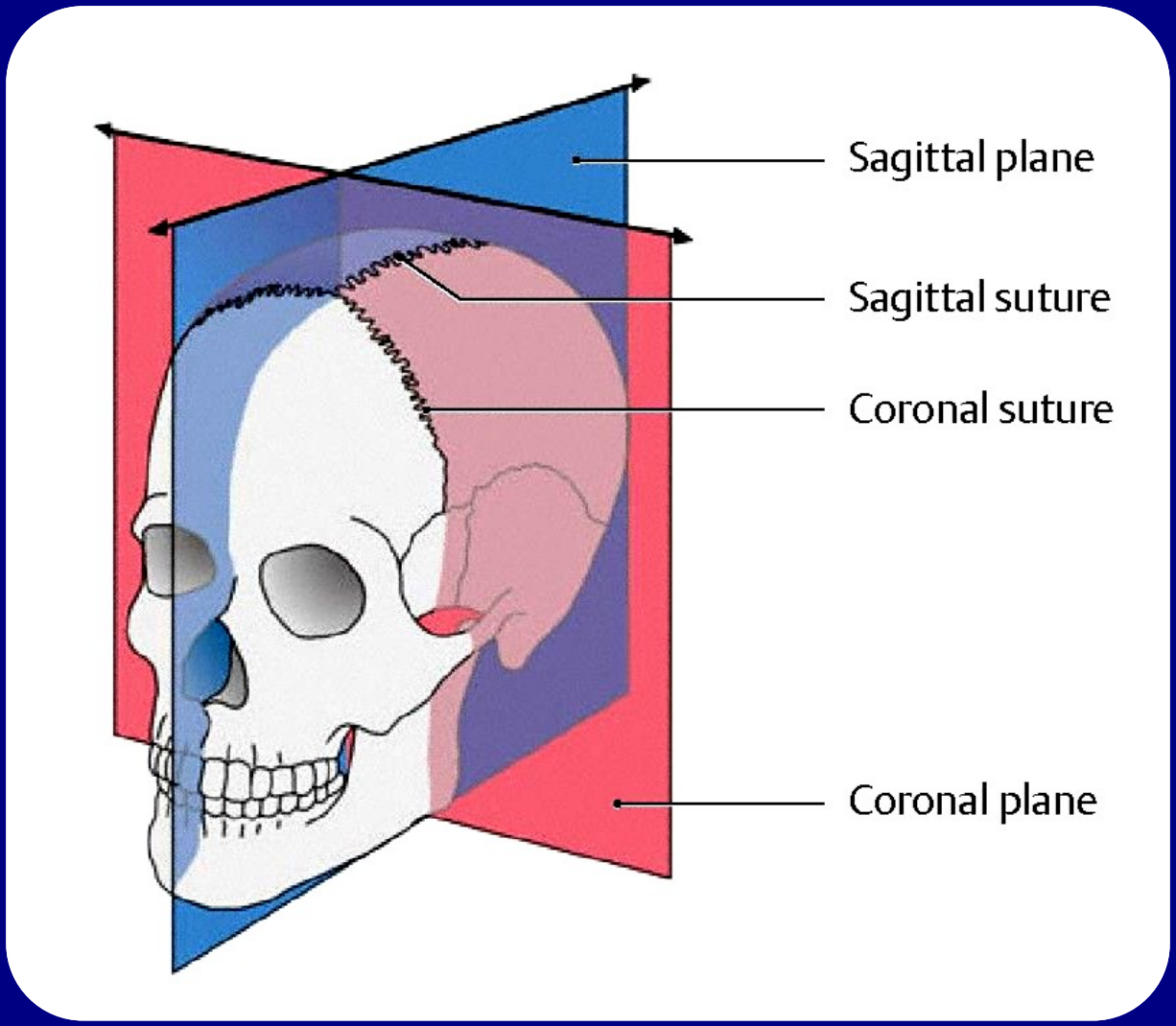
$$BMI = kg/m^2$$



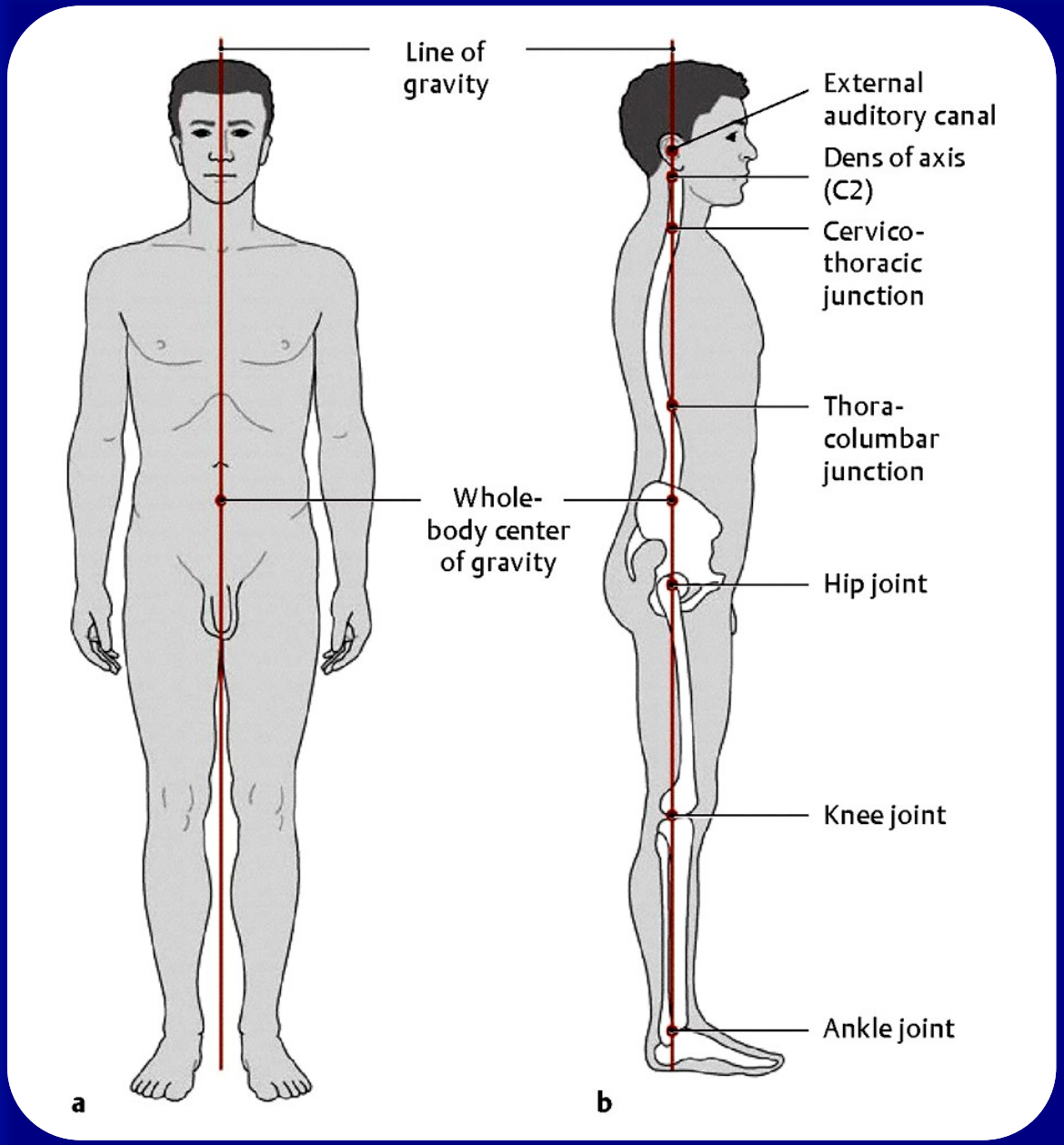
The anatomical body position



Cardinal planes and axes in the human body (neutral position, left anterolateral view)



Coronal and sagittal planes in the skull



The whole-body center of gravity and the line of gravity

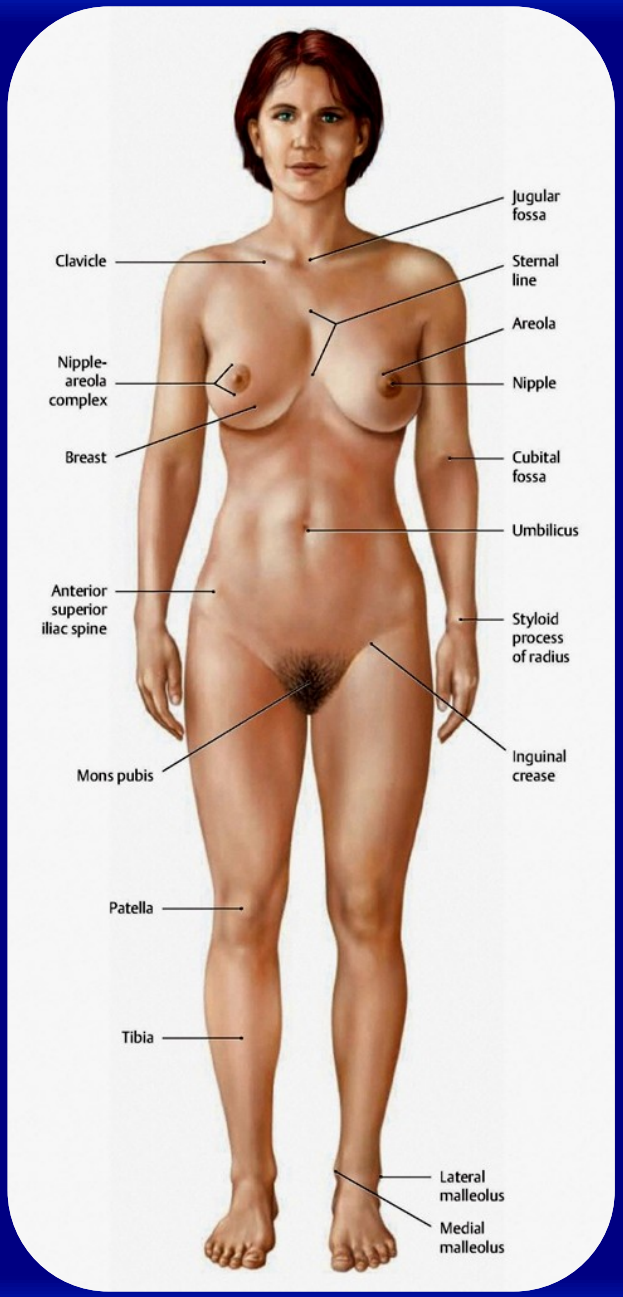
General terms of location and direction
Upper body (head, neck, and trunk)

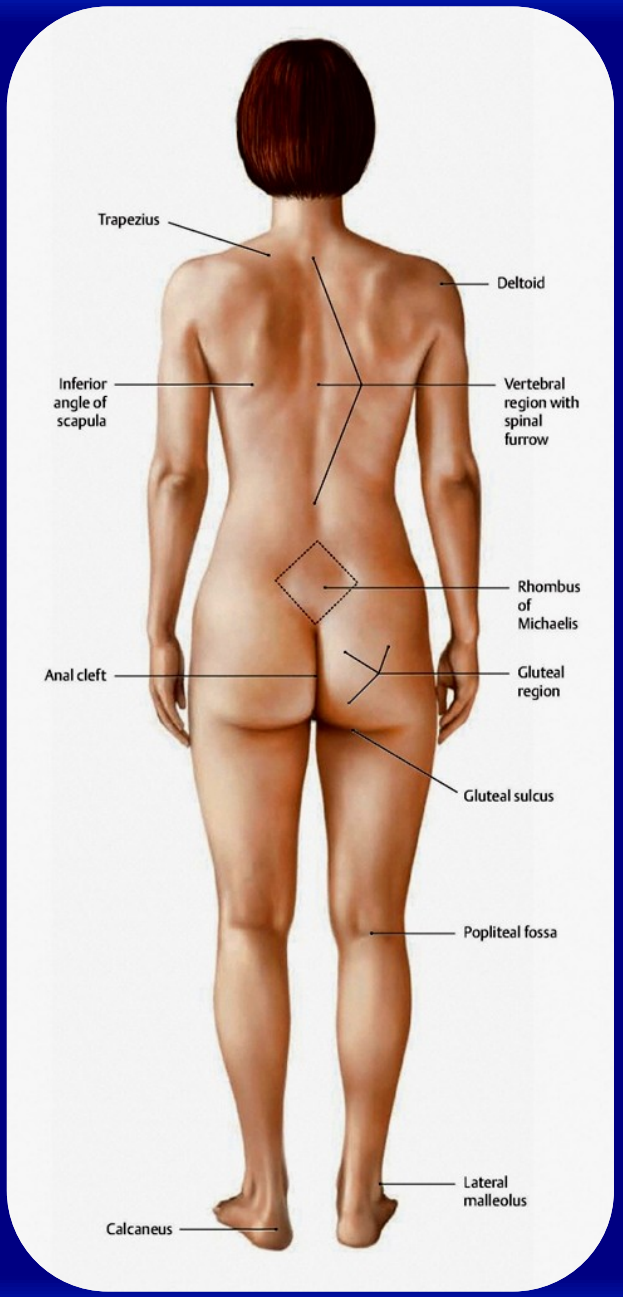
Cranial	Pertaining to, or located toward the head)
Cephalad	Directed toward the head
Caudal	Pertaining to. or located toward the tail
Caudad	Directed toward the tail
Anterior	Pertaining to, or located toward, the front Synonym: Ventral (used for all animals)
Posterior	Pertaining to. or located toward, the back Synonym: Dorsal (used for all animals)
Superior	Upper or above
Inferior	Lower or below
Medius	Located in the middle
Flexor	Pertaining to a flexor muscle or surface
Extensor	Pertaining to an extensor muscle or surface
Axial	Pertaining to the axis of a structure
Transverse	Situated at right angles to the long axis of a structure
Longitudinal	Parallel to the long axis of a structure
Horizontal	Parallel to the plane of the horizon
Vertical	Perpendicular to the plane of the horizon
Medial	Toward the median plane
Lateral	Away from the medial plane (toward the side)
Median	Situated in the median plane or midline
Central	Situated at the center or interior of the body
Peripheral	Situated away from the center
Superficial	Situated near the surface
Deep	Situated deep beneath the surface
External	Outer or lateral
Internal	Inner or medial
Apical	Pertaining to the tip or apex
Basal	Pertaining to the bottom or base
Occipital	Pertaining to the back of the head
Temporal	Pertaining to the lateral region of the head (the temple)
Sagittal	Situated parallel to the sagittal suture
Coronal	Situated parallel to the coronal suture (pertaining to the crown of the head)
Rostral	Situated toward the nose or brow
Frontal	Pertaining to the forehead
Basilar	Pertaining to the skull base

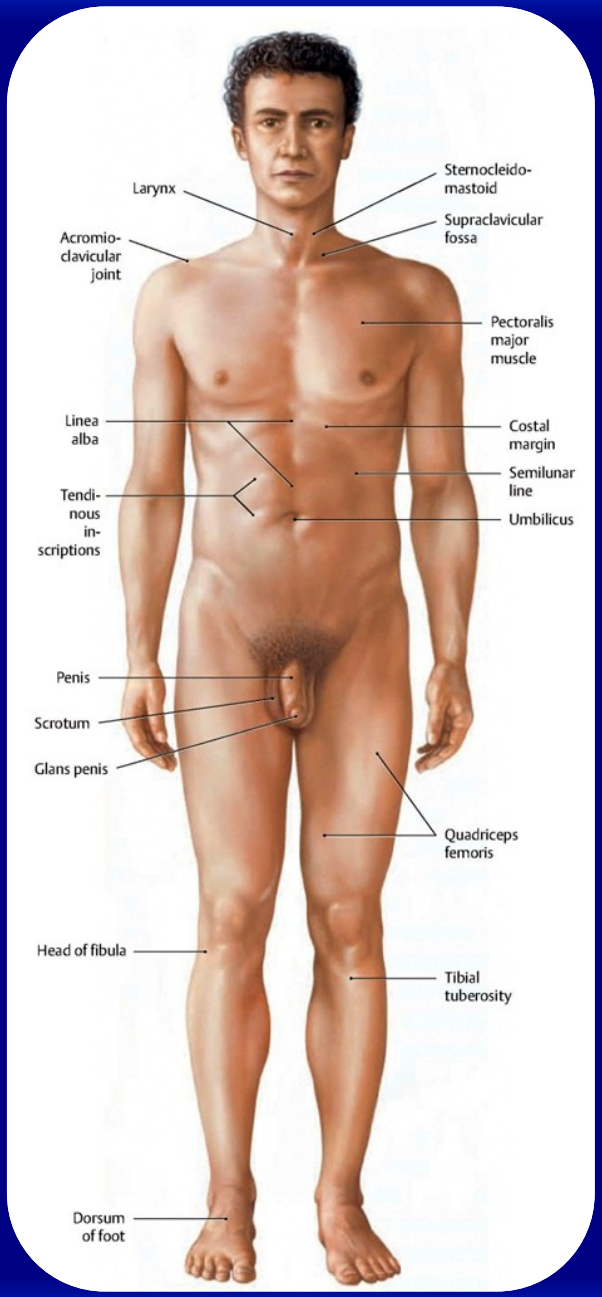
General terms of location and direction

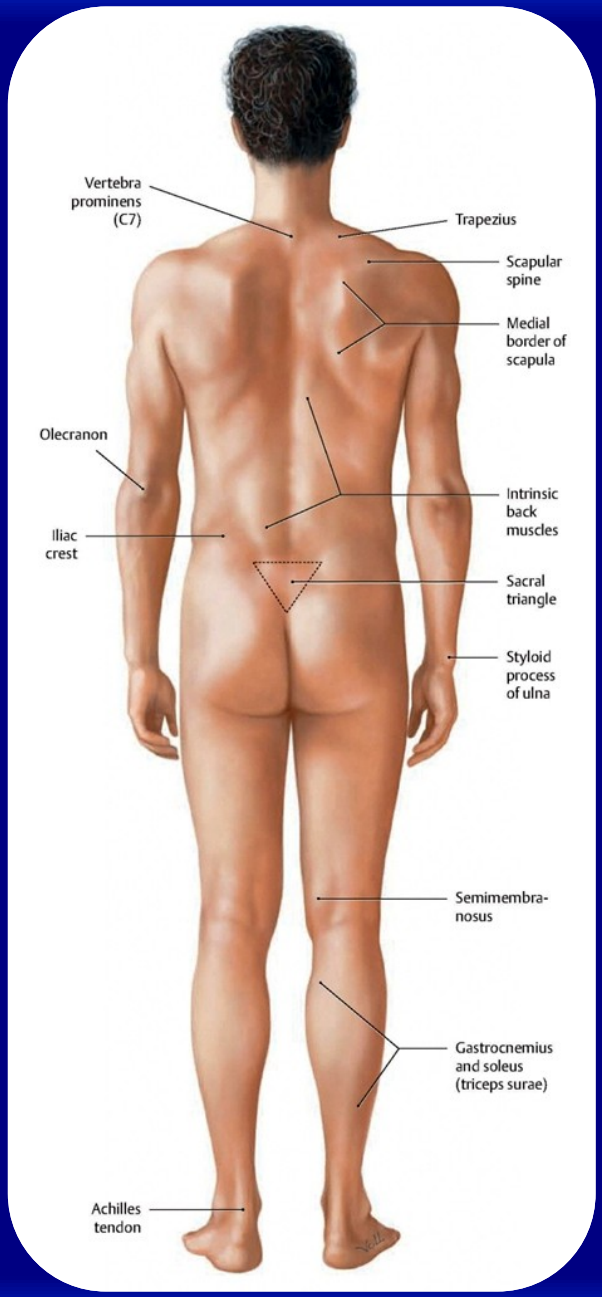
Limb

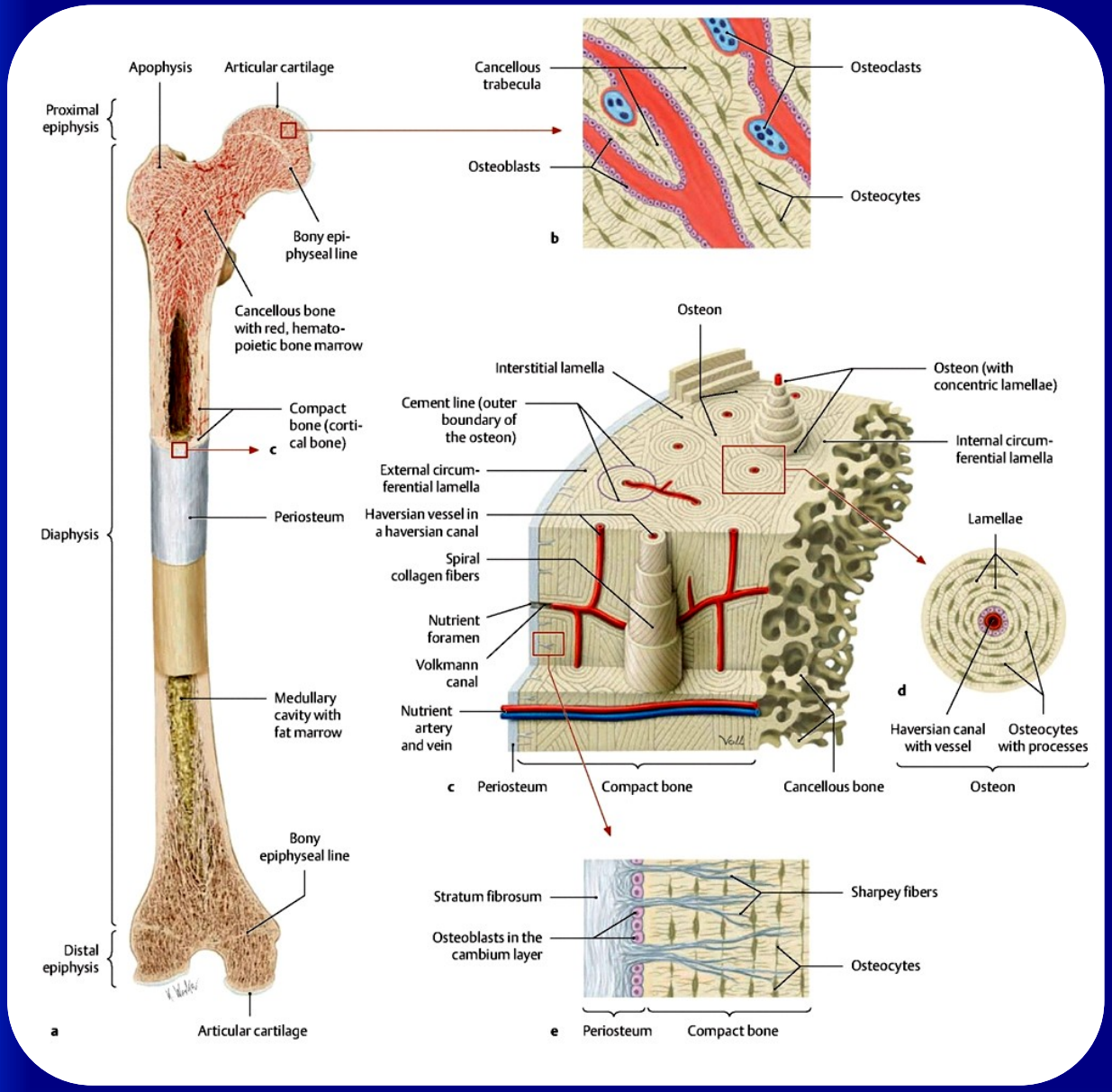
Proximal	Close to or toward the trunk
Distal	Away from the trunk (toward the end of the limb)
Radial	Pertaining to the radius or the lateral side of the forearm
Ulnar	Pertaining to the ulna or the medial side of the forearm
Tibial	Pertaining to the tibia or the medial side of the leg
Fibular	Pertaining to the fibula or the lateral side of the leg
Palmar (volar)	Pertaining to the palm of the hand
Plantar	Pertaining to the sole of the foot
Dorsal	Pertaining to the back of the hand or top of the foot


Jugular fossa
Clavicle
Sternal line
Areola
Nipple-areola complex
Nipple
Breast
Cubital fossa
Umbilicus
Anterior superior iliac spine
Styloid process of radius
Inguinal crease
Mons pubis
Patella
Tibia
Lateral malleolus
Medial malleolus

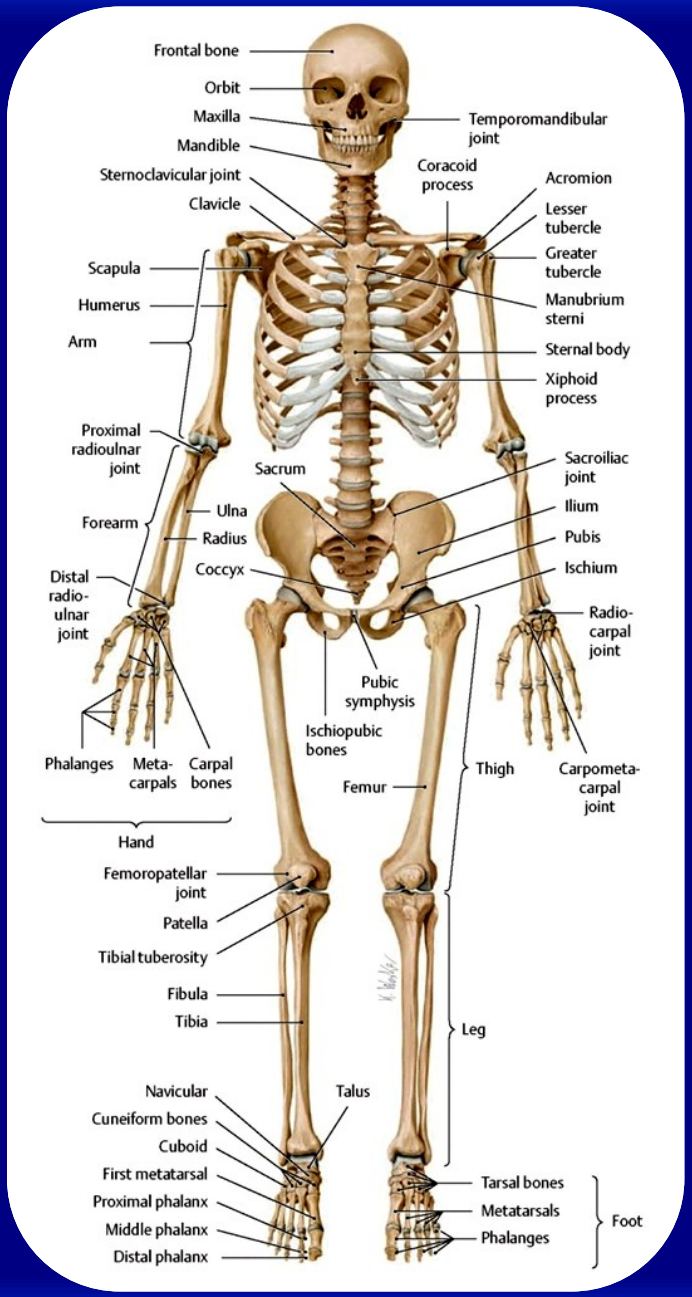

Trapezius
Deltoid
Inferior angle of scapula
Vertebral region with spinal furrow
Rhombus of Michaelis
Anal cleft
Gluteal region
Gluteal sulcus
Popliteal fossa
Lateral malleolus
Calcaneus

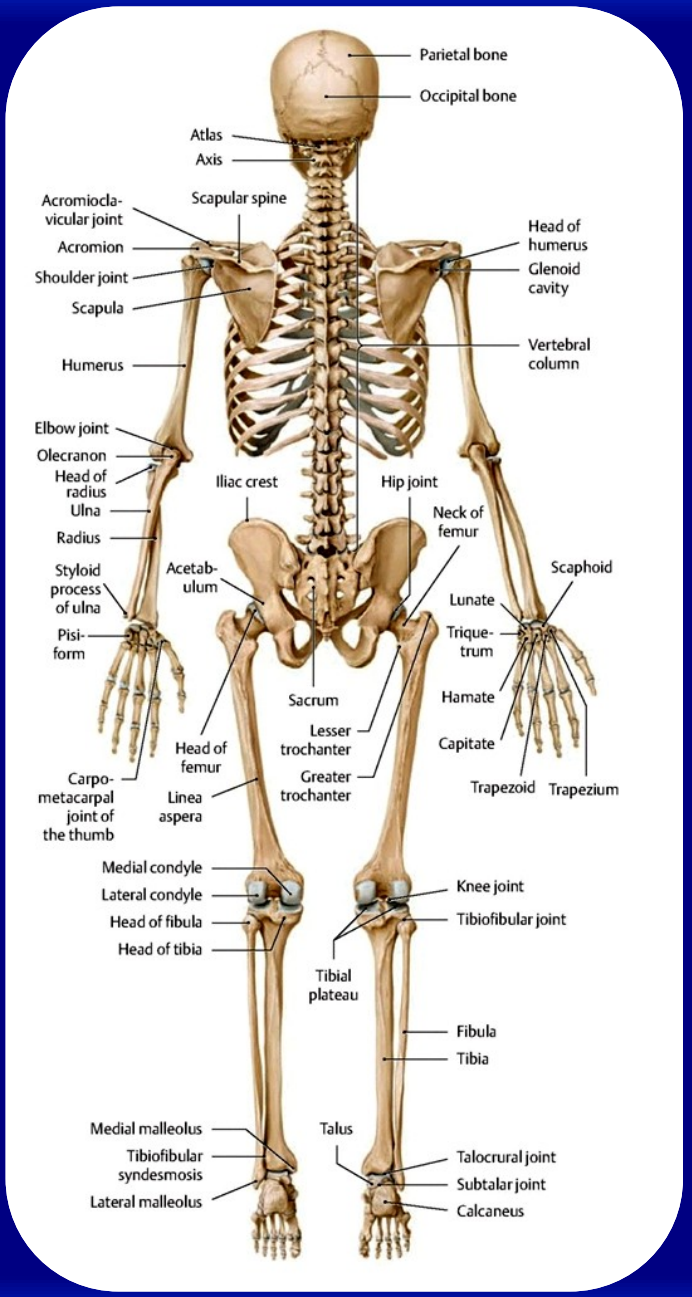

Larynx
Sternocleido-mastoid
Supraclavicular fossa
Acromio-clavicular joint
Pectoralis major muscle
Linea alba
Costal margin
Semilunar line
Tendi-nous in-scriptions
Umbilicus
Penis
Scrotum
Glans penis
Quadriceps femoris
Head of fibula
Tibial tuberosity
Dorsum of foot


Vertebra prominens (C7)
Trapezius
Scapular spine
Medial border of scapula
Olecranon
Intrinsic back muscles
Iliac crest
Sacral triangle
Styloid process of ulna
Semimembra-nosus
Gastrocnemius and soleus (triceps surae)
Achilles tendon



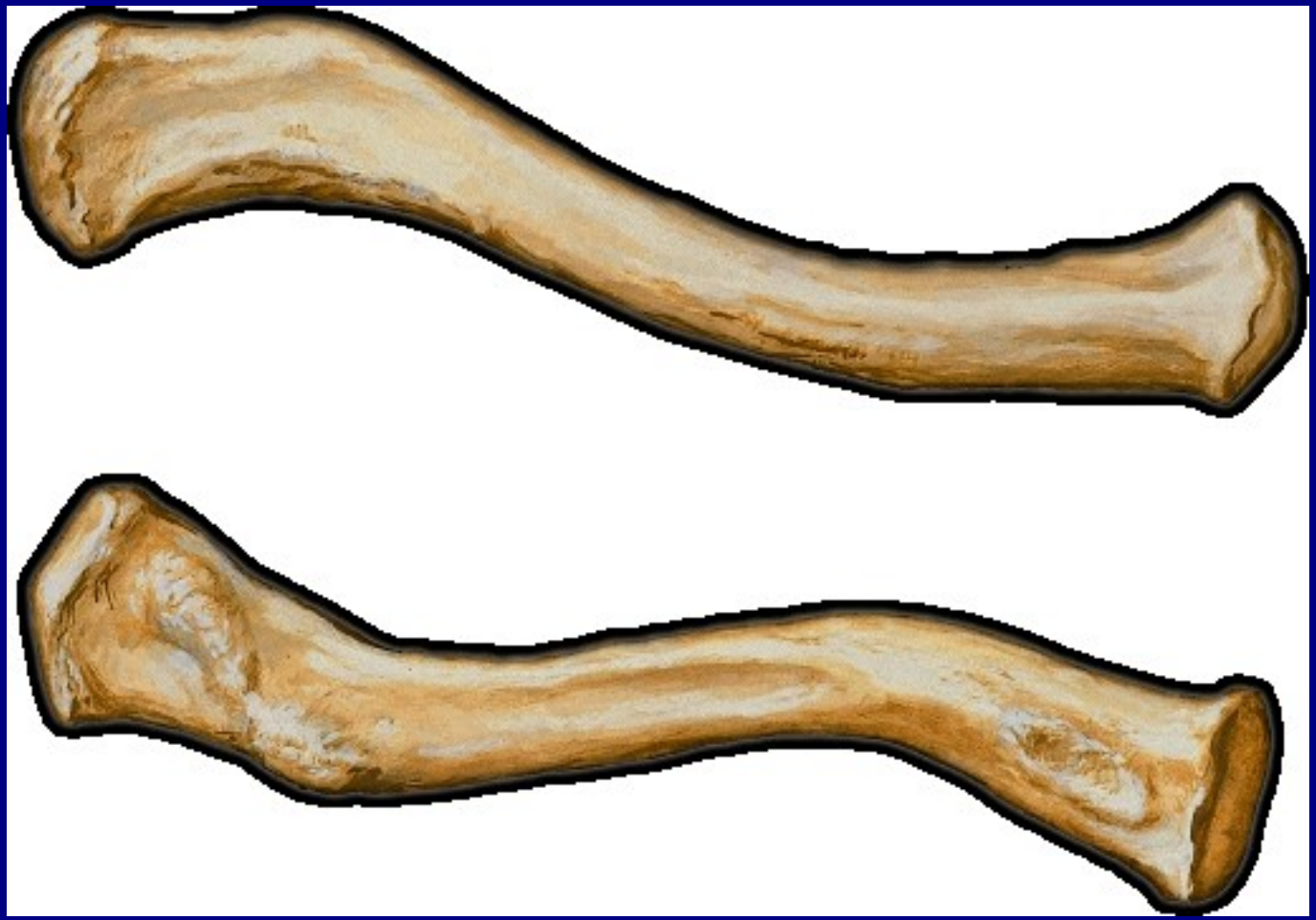
Structure of a typical tubular bone, illustrated for the femur


Frontal bone
Orbit
Maxilla
Mandible
Sternoclavicular joint
Clavicle
Scapula
Humerus
Arm
Proximal radioulnar joint
Forearm
Ulna
Radius
Distal radio-ulnar joint
Phalanges
Meta-carpals
Carpal bones
Hand
Femoropatellar joint
Patella
Tibial tuberosity
Fibula
Tibia
Navicular
Cuneiform bones
Cuboid
First metatarsal
Proximal phalanx
Middle phalanx
Distal phalanx
Talus
Temporomandibular joint
Coracoid process
Acromion
Lesser tubercle
Greater tubercle
Manubrium sterni
Sternal body
Xiphoid process
Sacrum
Coccyx
Sacroiliac joint
Ilium
Pubis
Ischium
Pubic symphysis
Ischiopubic bones
Femur
Thigh
Leg
Radio-carpal joint
Carpometa-carpal joint
Tarsal bones
Metatarsals
Phalanges
Foot


Parietal bone
Occipital bone
Atlas
Axis
Acromiocla-vicular joint
Acromion
Shoulder joint
Scapula
Scapular spine
Humerus
Elbow joint
Olecranon
Head of radius
Ulna
Radius
Styloid process of ulna
Pisi-form
Carpo-metacarpal joint of the thumb
Head of humerus
Glenoid cavity
Vertebral column
Iliac crest
Hip joint
Neck of femur
Acetab-ulum
Sacrum
Head of femur
Linea aspera
Lesser trochanter
Greater trochanter
Scaphoid
Lunate
Trique-trum
Hamate
Capitate
Trapezoid
Trapezium
Medial condyle
Lateral condyle
Head of fibula
Head of tibia
Knee joint
Tibiofibular joint
Tibial plateau
Fibula
Tibia
Medial malleolus
Tibiofibular syndesmosis
Lateral malleolus
Talus
Talocrural joint
Subtalar joint
Calcaneus

Tibia and fibula of right leg

Anterior view

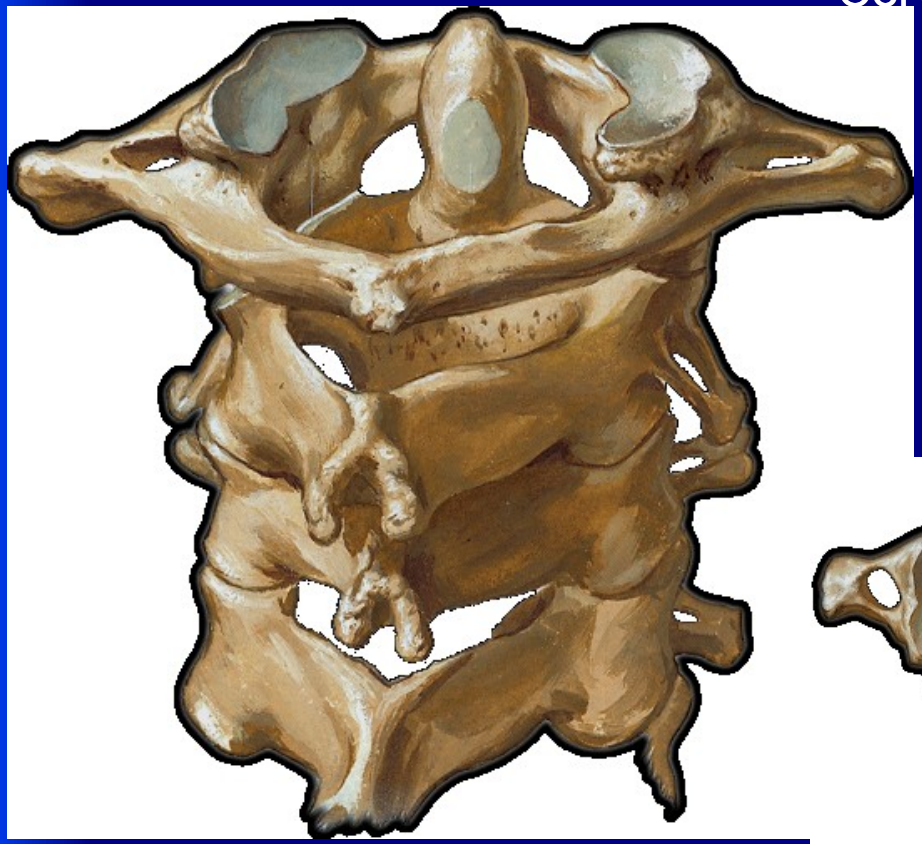


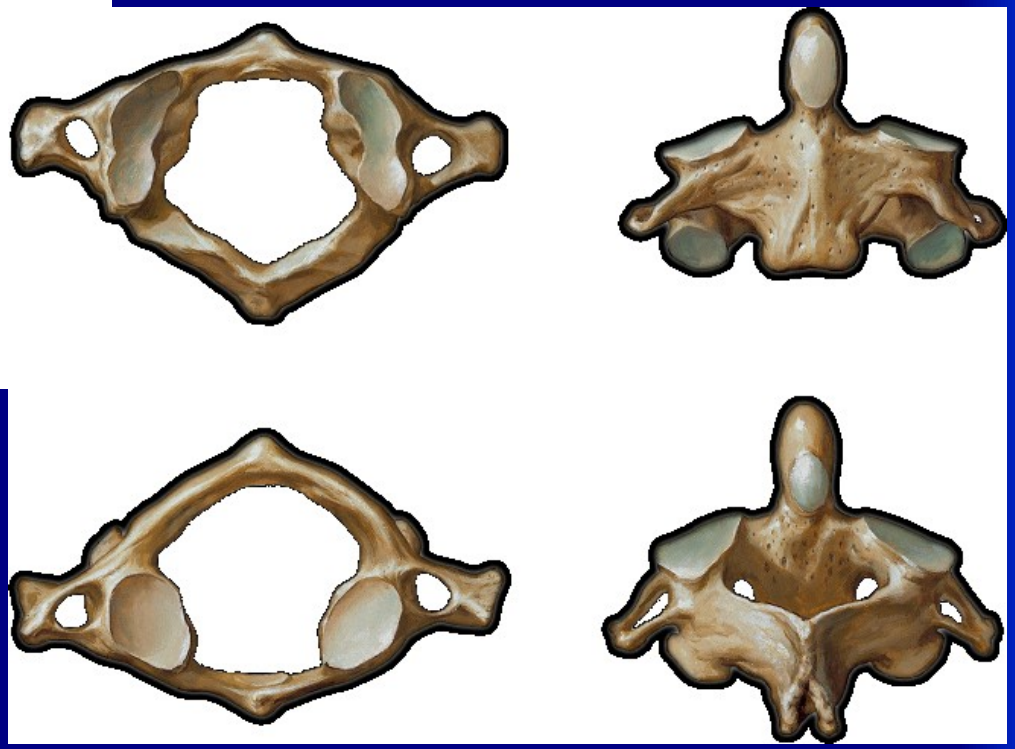
Carpal bones

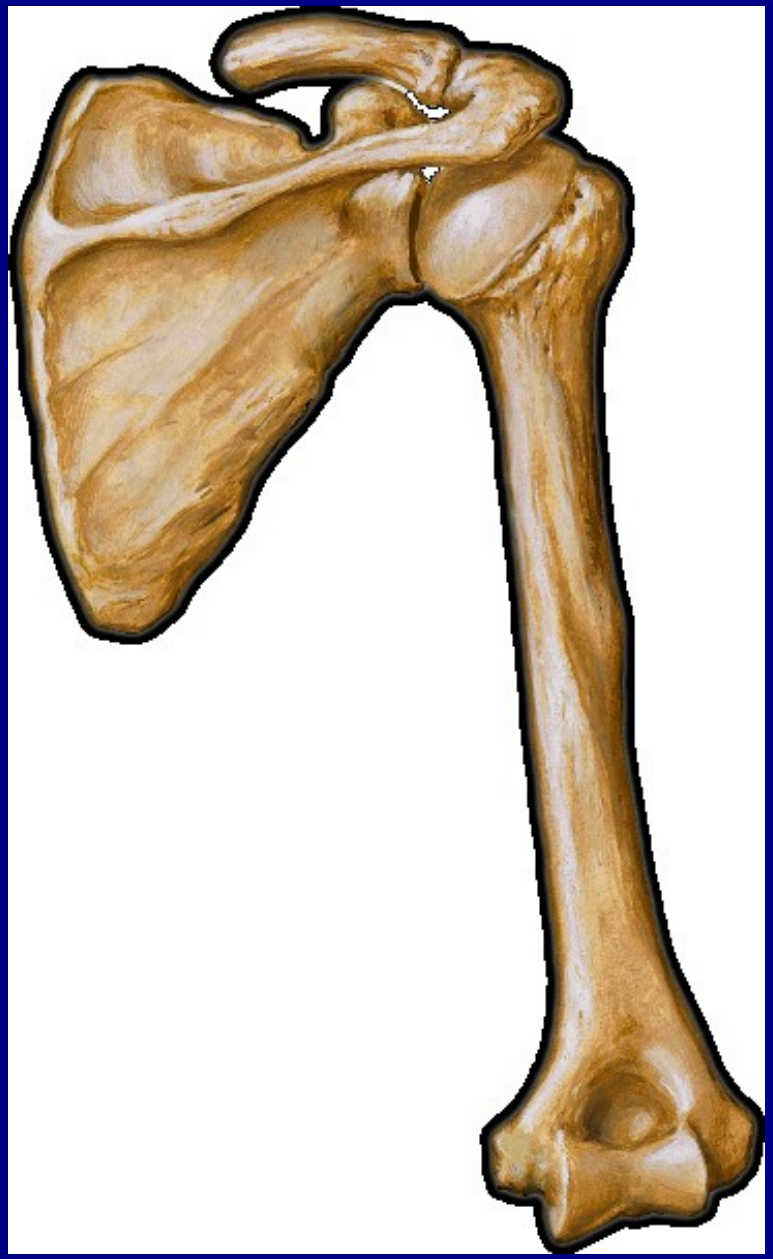
Posterior (dorsal) view

Cervical vertebrae (C 1-4) - assembled

Posterosuperior view

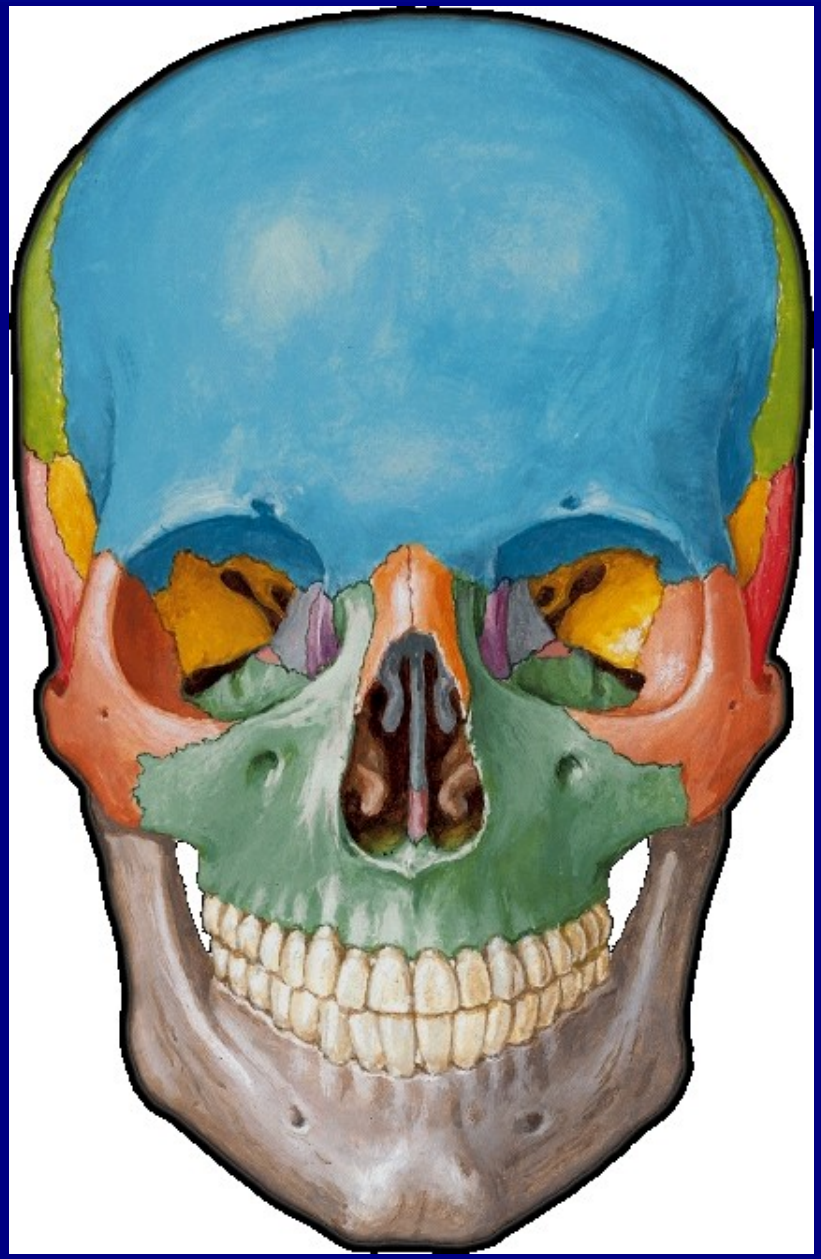






Humerus and scapula

Posterior view: features



Skull

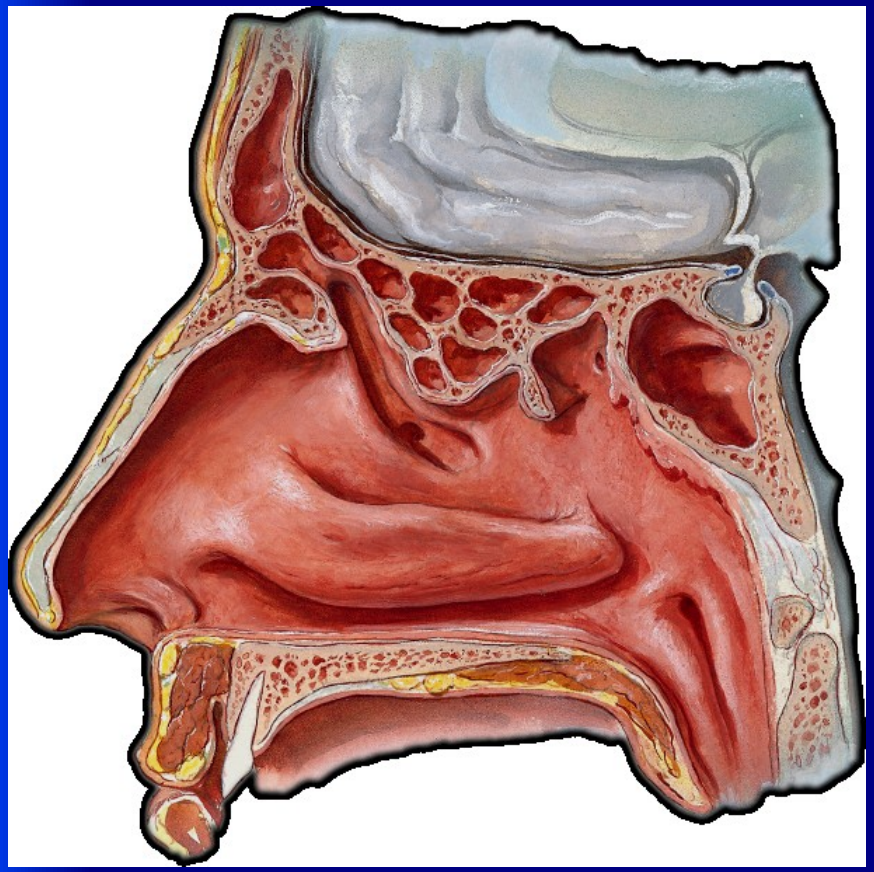
Anterior view

Paranasal sinues

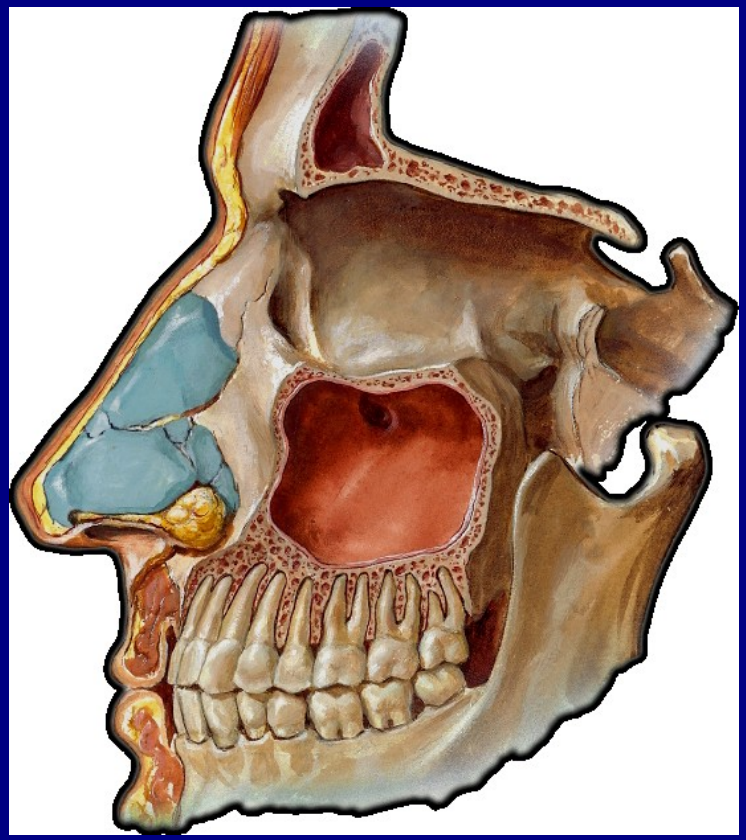
Coronal section

Horizontal section

Paranasal sinuses

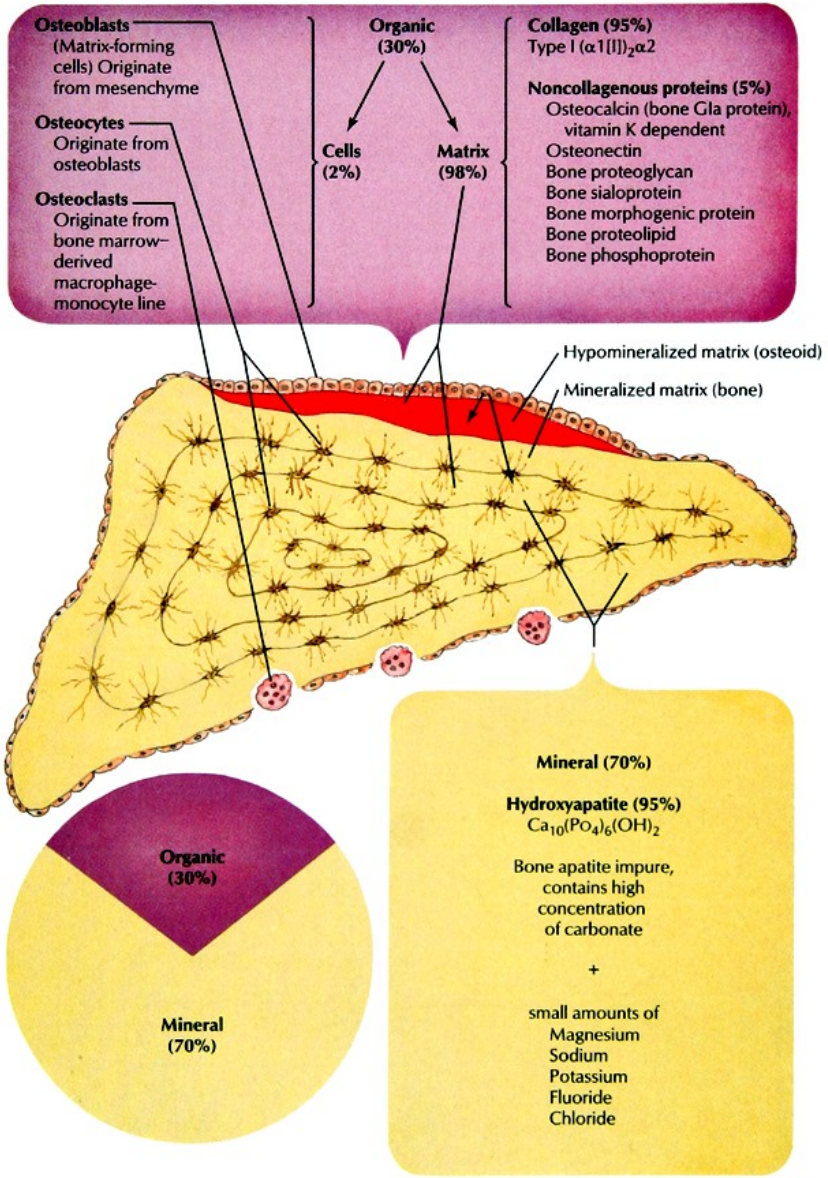


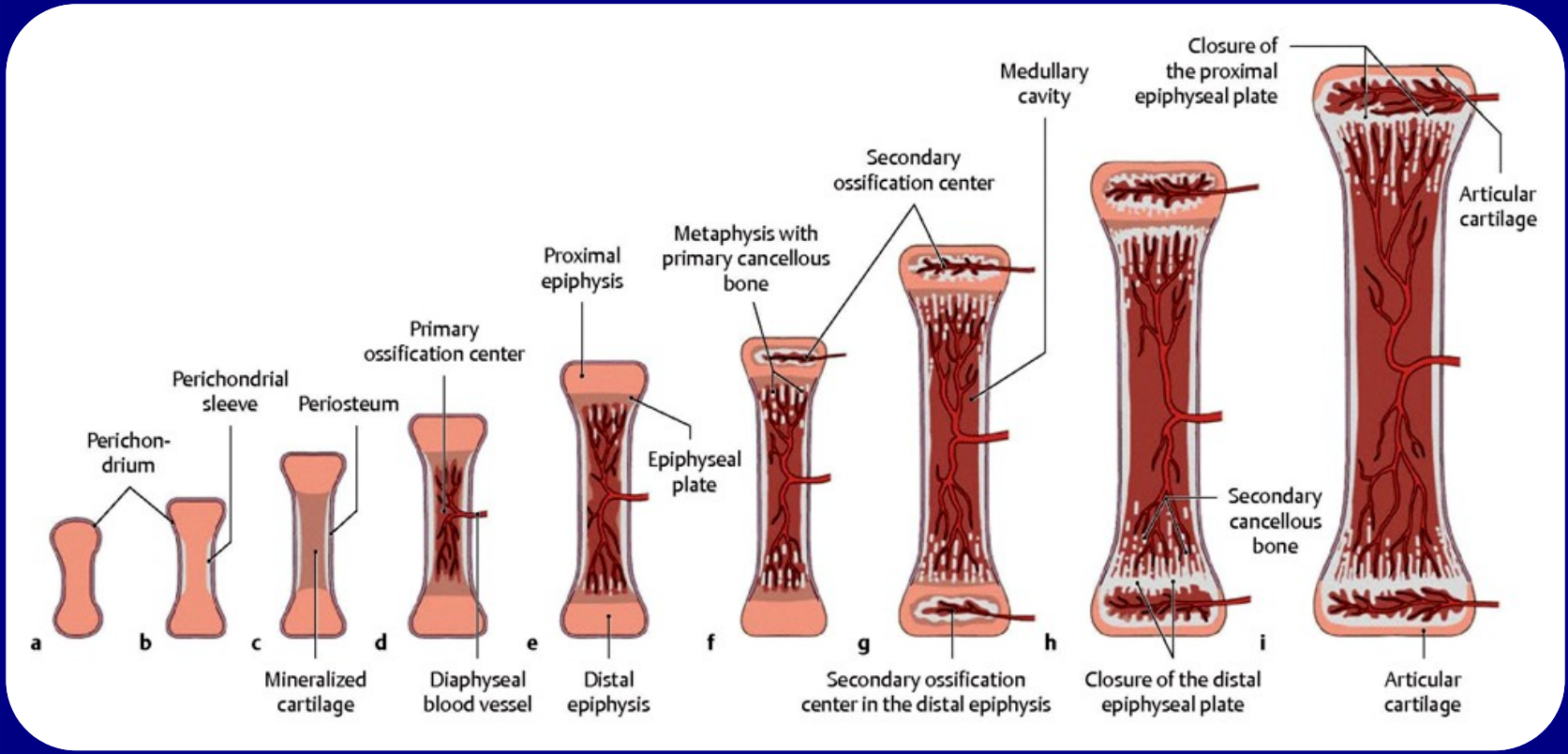
Sagittal section



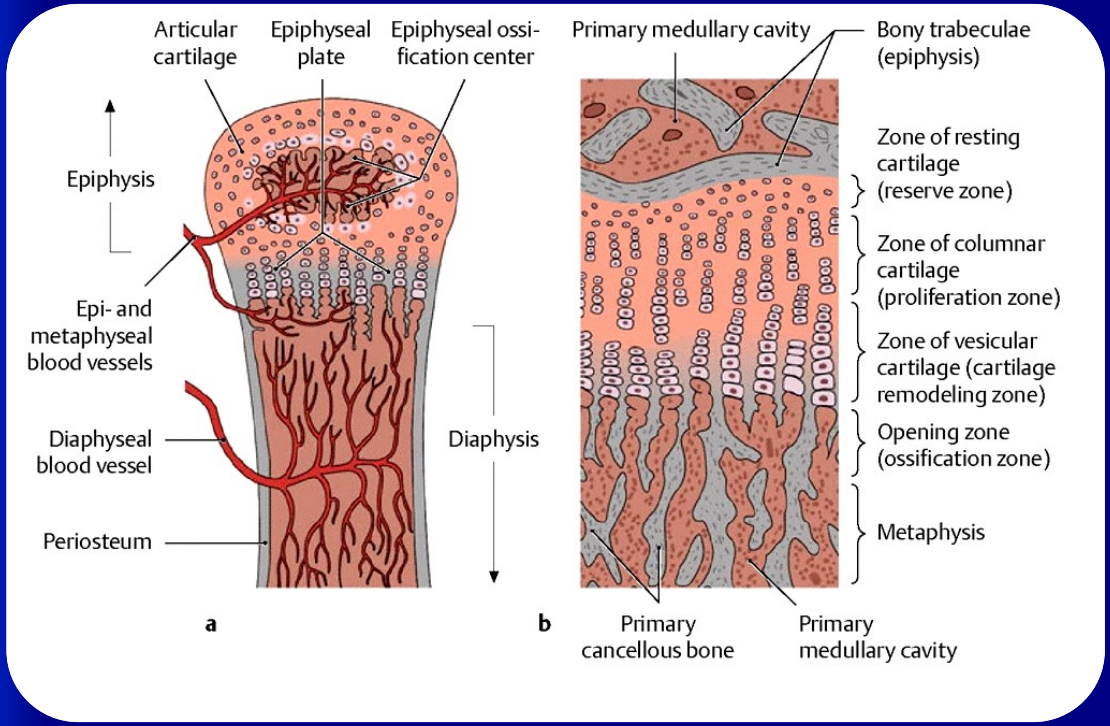
Lateral dissection

Composition of bone

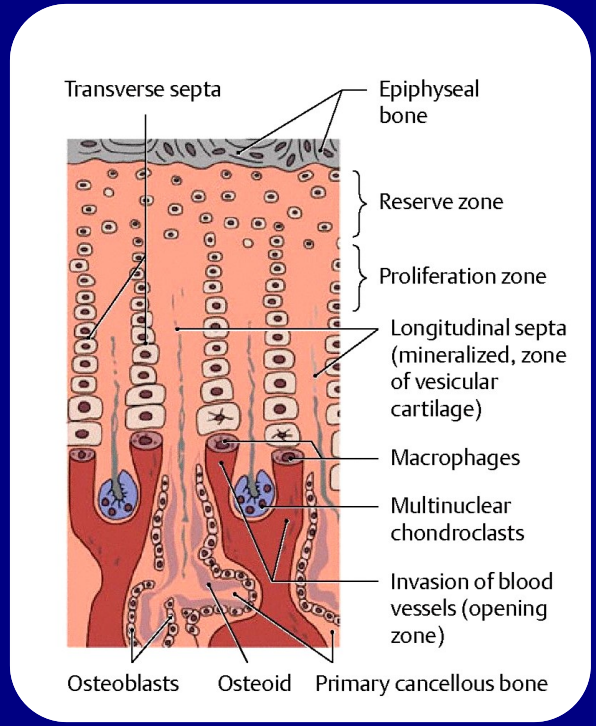




Development of a long bone

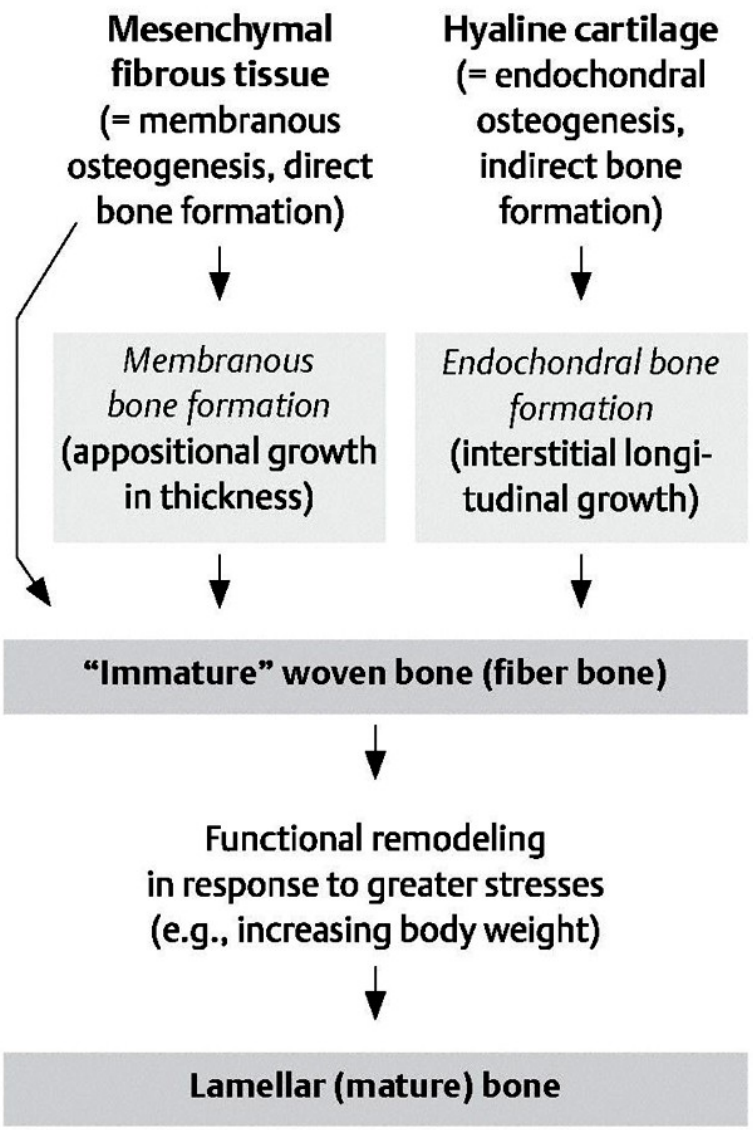


Structure of the epiphyseal plate



Schematic representation of cellular processes within the epiphyseal plate

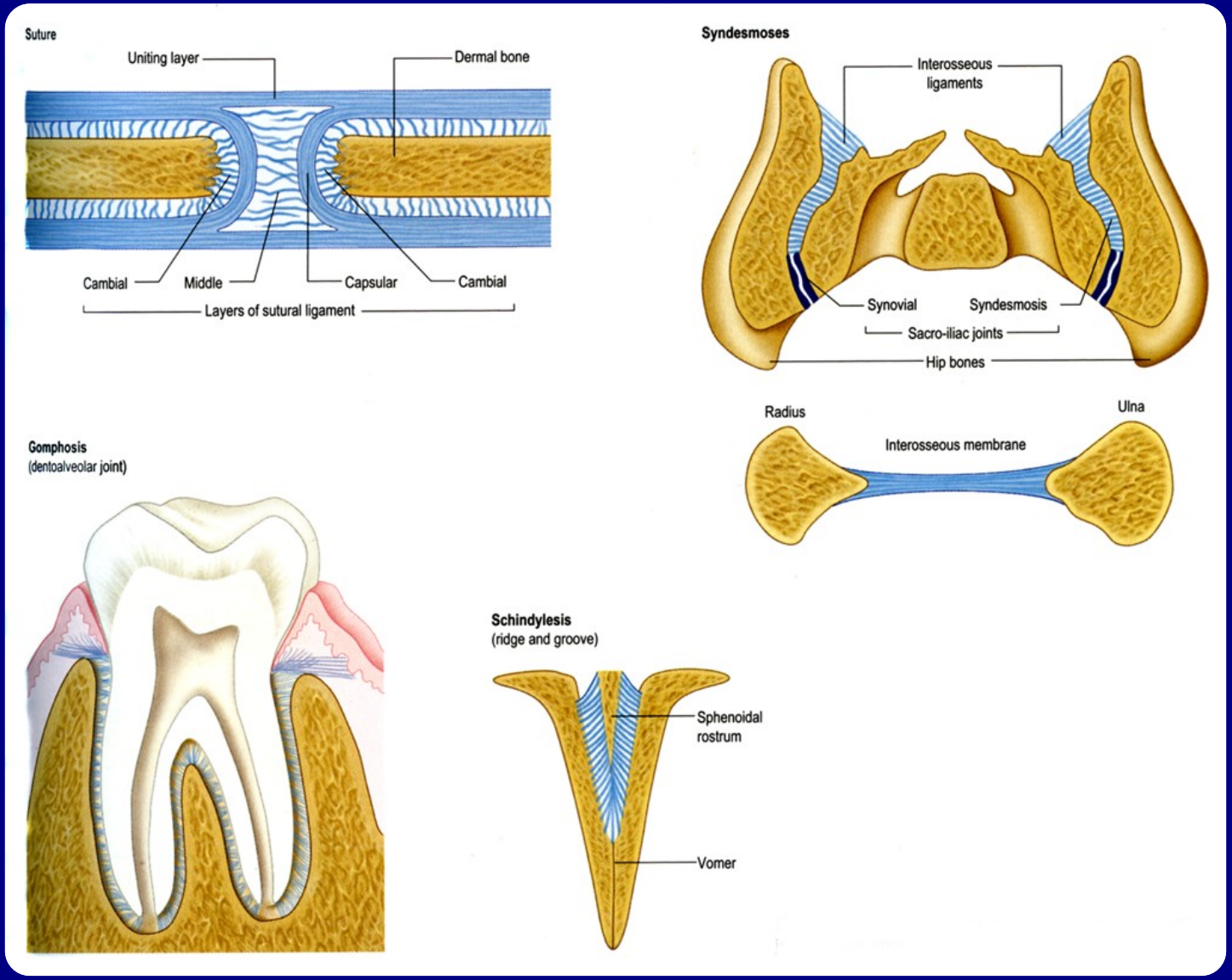
E Types of bone development (osteogenesis)



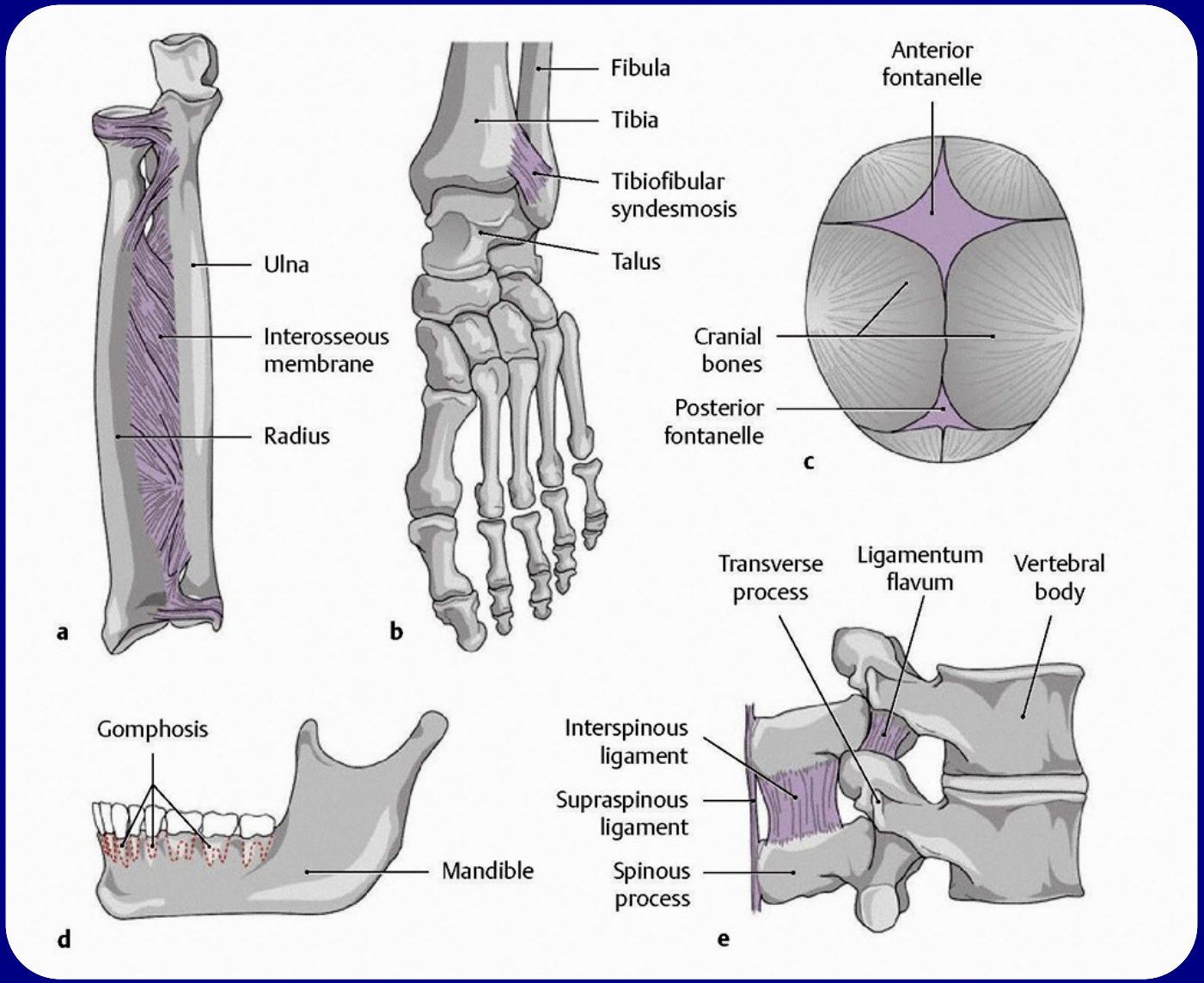
A Different types of bone-to-bone connections

False joints	True joints	
(= continuous bone connections in which the intervening tissue consists of fibrous connective tissue, cartilage, or bone): • Low to moderate mobility	(= discontinuous connections in which the bones are separated by a joint space): • Mobility is variable, depending on the attached ligaments	
Synarthroses • Syndesmoses (fibrous joints) • Synchondroses (cartilaginous joints) (If the intervening tissue is mostly fibrocartilage, the joint is called a symphysis, e.g., the pubic symphysis.) • Synostoses (sites of bony fusion) (Because a synostosis is immobile, it is no longer classified as a synarthrosis in the strict sense.)	***Diarthroses*** Classified according to various criteria: (see p. 38) • Shape and arrangement of the articular surfaces • Number of joint axes • Number of degrees of freedom	***Amphiarthroses*** "Stiff joints" whose mobility is greatly limited by strong ligaments (e.g., the sacroiliac joint and proximal tibiofibular joint)

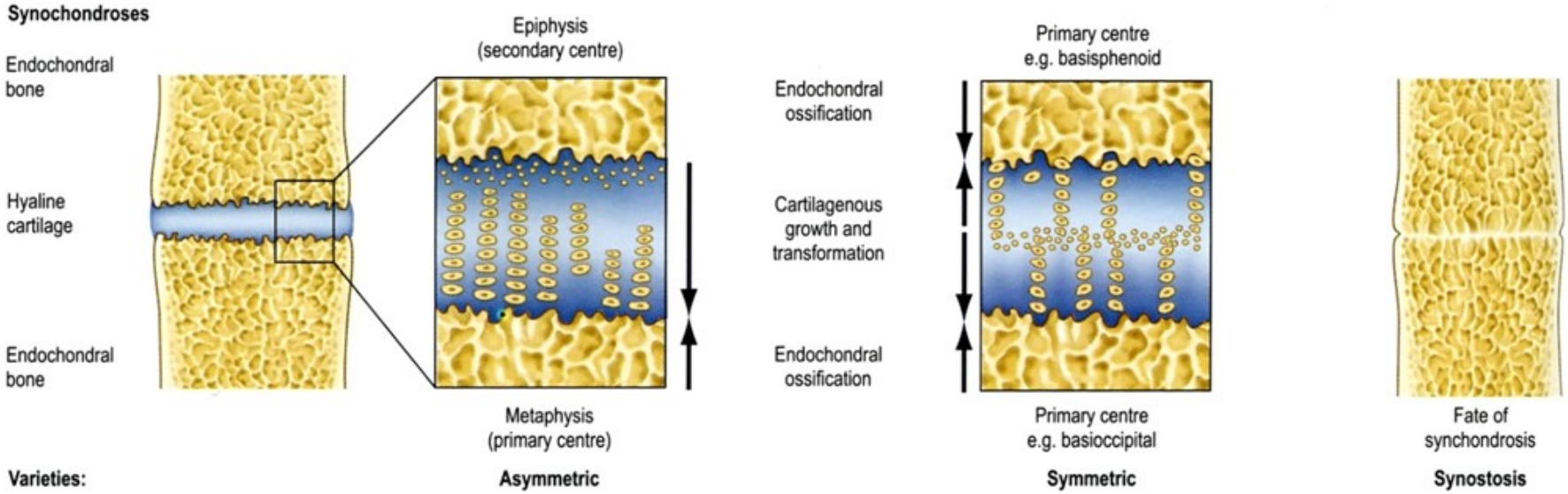
Ankylosis = abnormal bony fixation of a true joint
Arthrodesis = surgical fusion of a joint for therapeutic reasons
Pseudarthrosis (nonunion) = "false joint" due to abnormal fracture healing



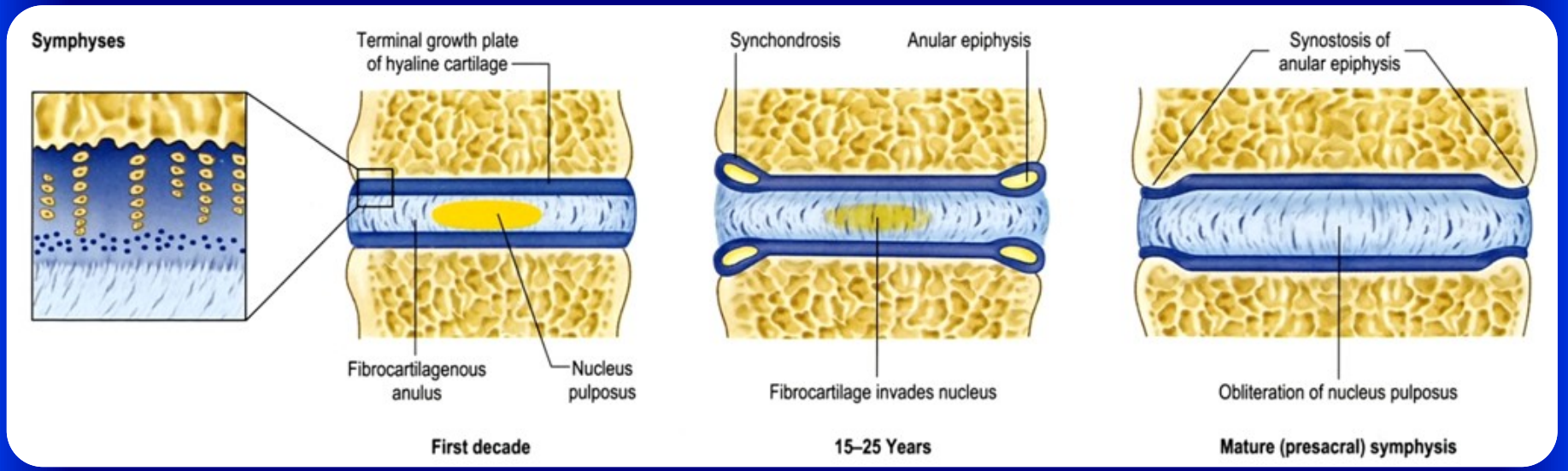
Examples of the principal varieties of fibrous joints, each shown in section.



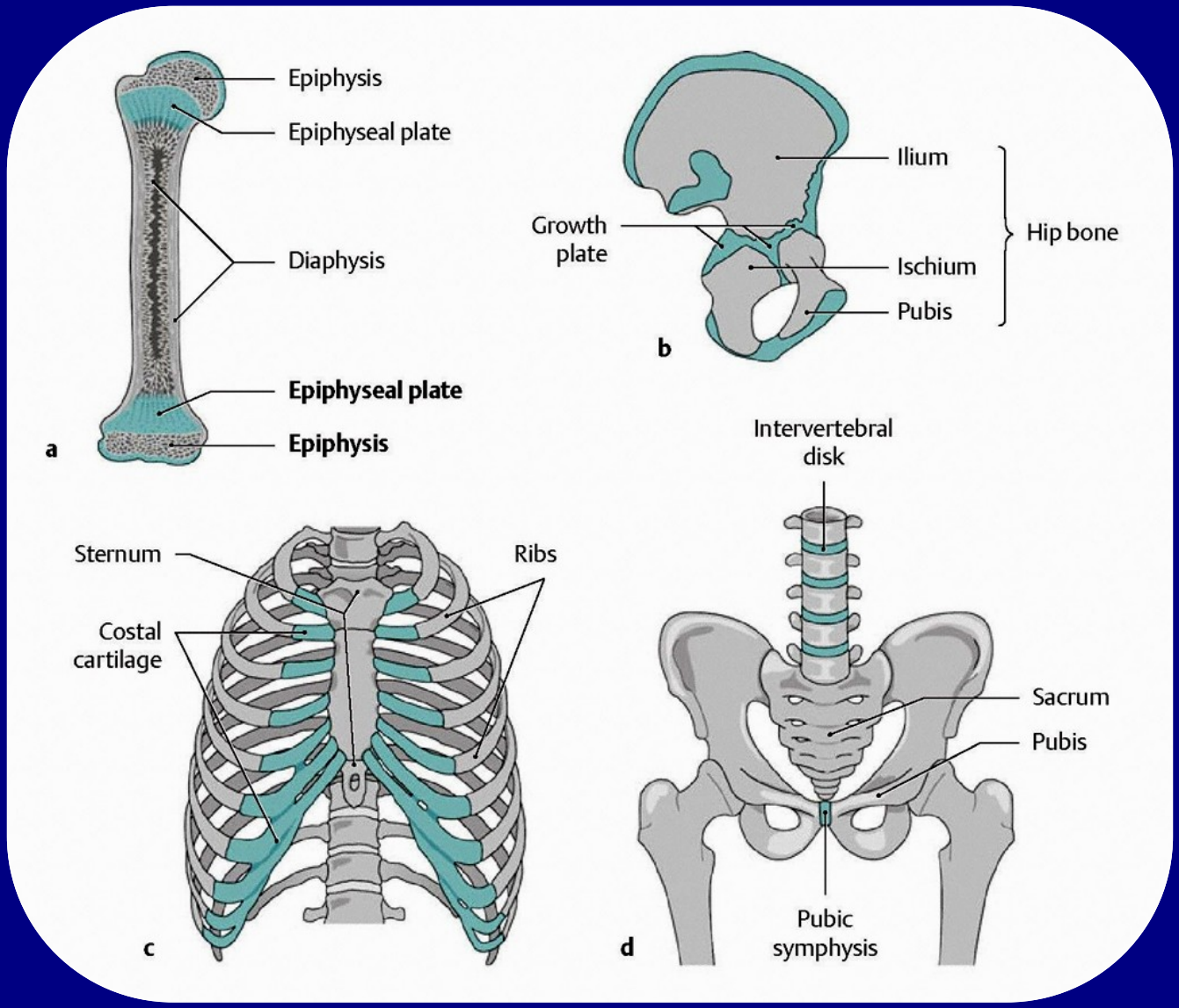
Syndesmoses



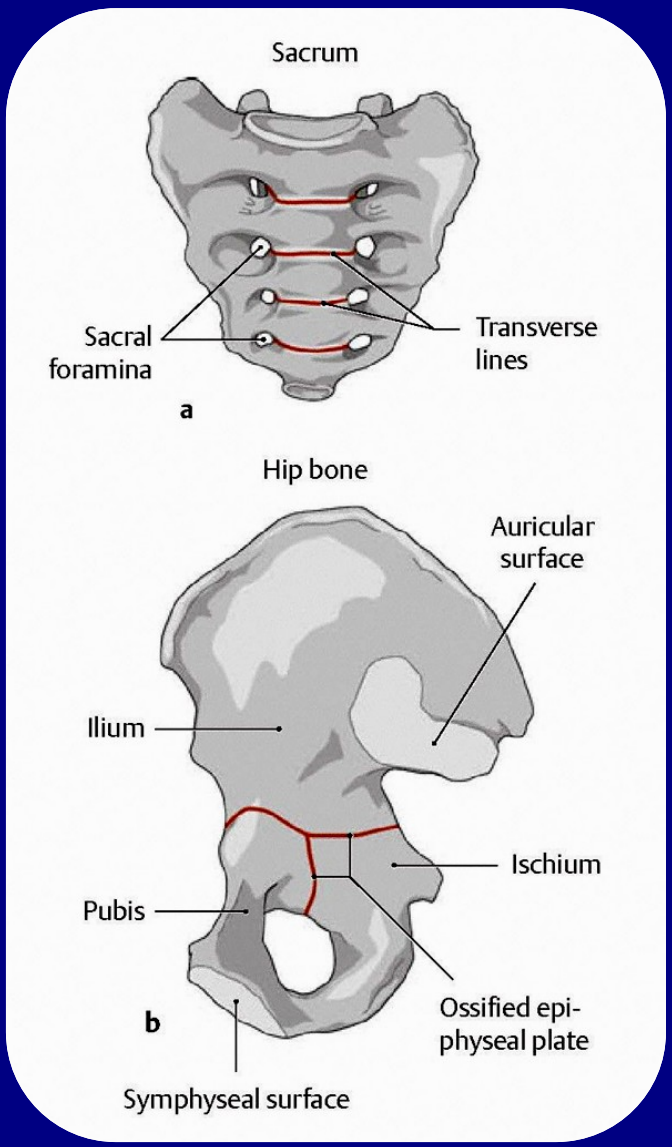
Sectional view of the principal tissues involved, more detailed architecture and main growth patterns of symmetrical and asymmetrical synchondroses. Lesser degrees of asymmetry occur in some locations. Synostosis is the normal fate of almost all synchondroses when endochondral growth has ceased.

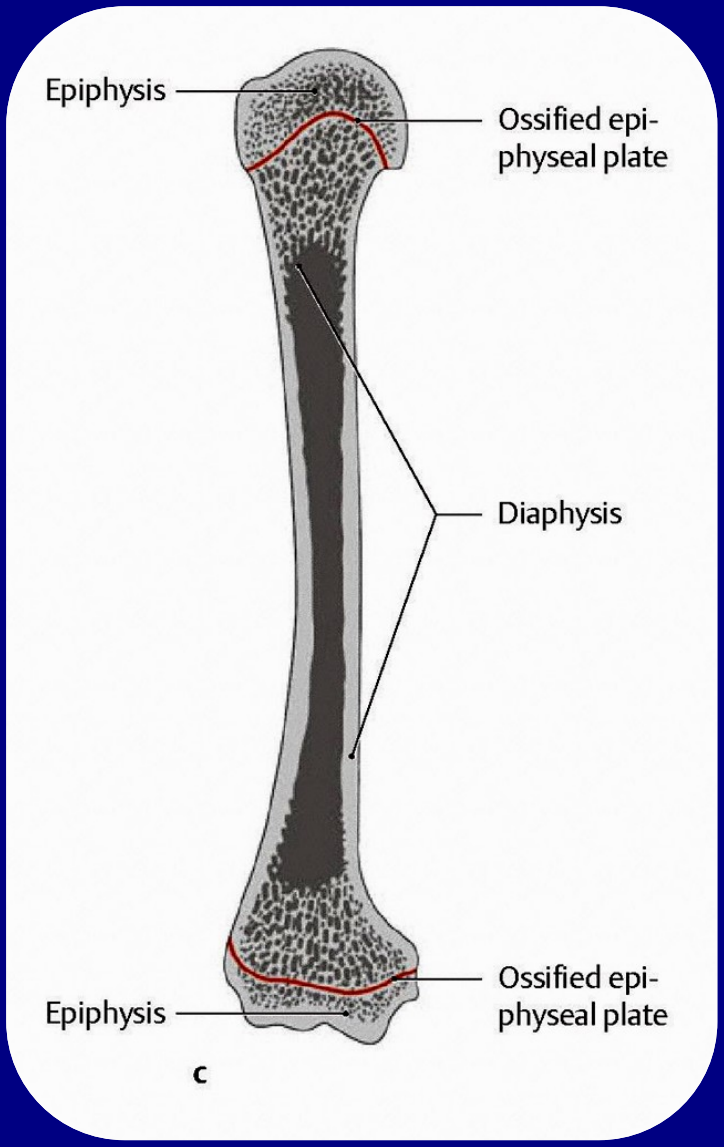


Intervertebral symphyses (presacral), shown in section, displaying age-related changes. Partial or complete synostosis is the normal fate of sacral and coccygeal symphyses.

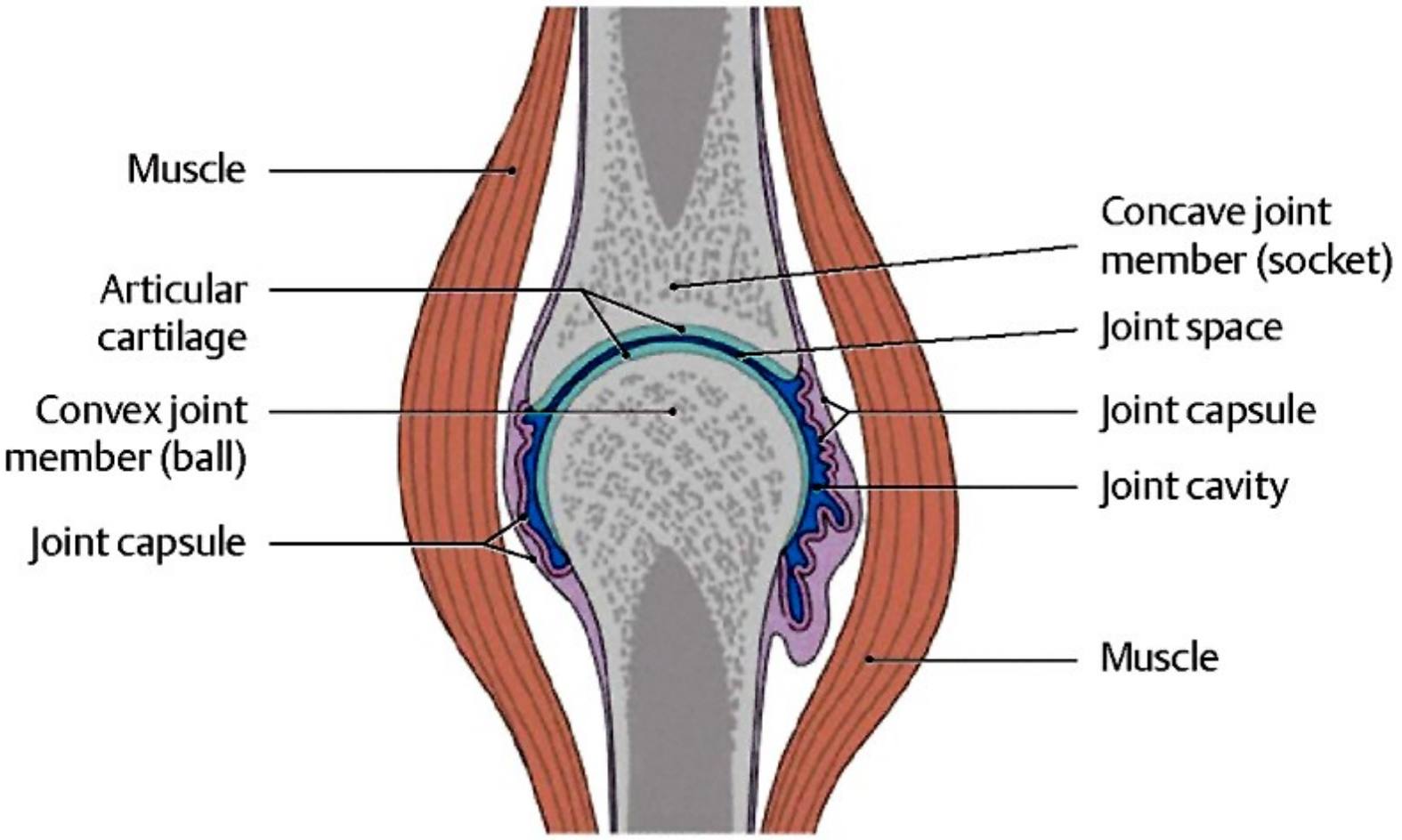


Synchondroses

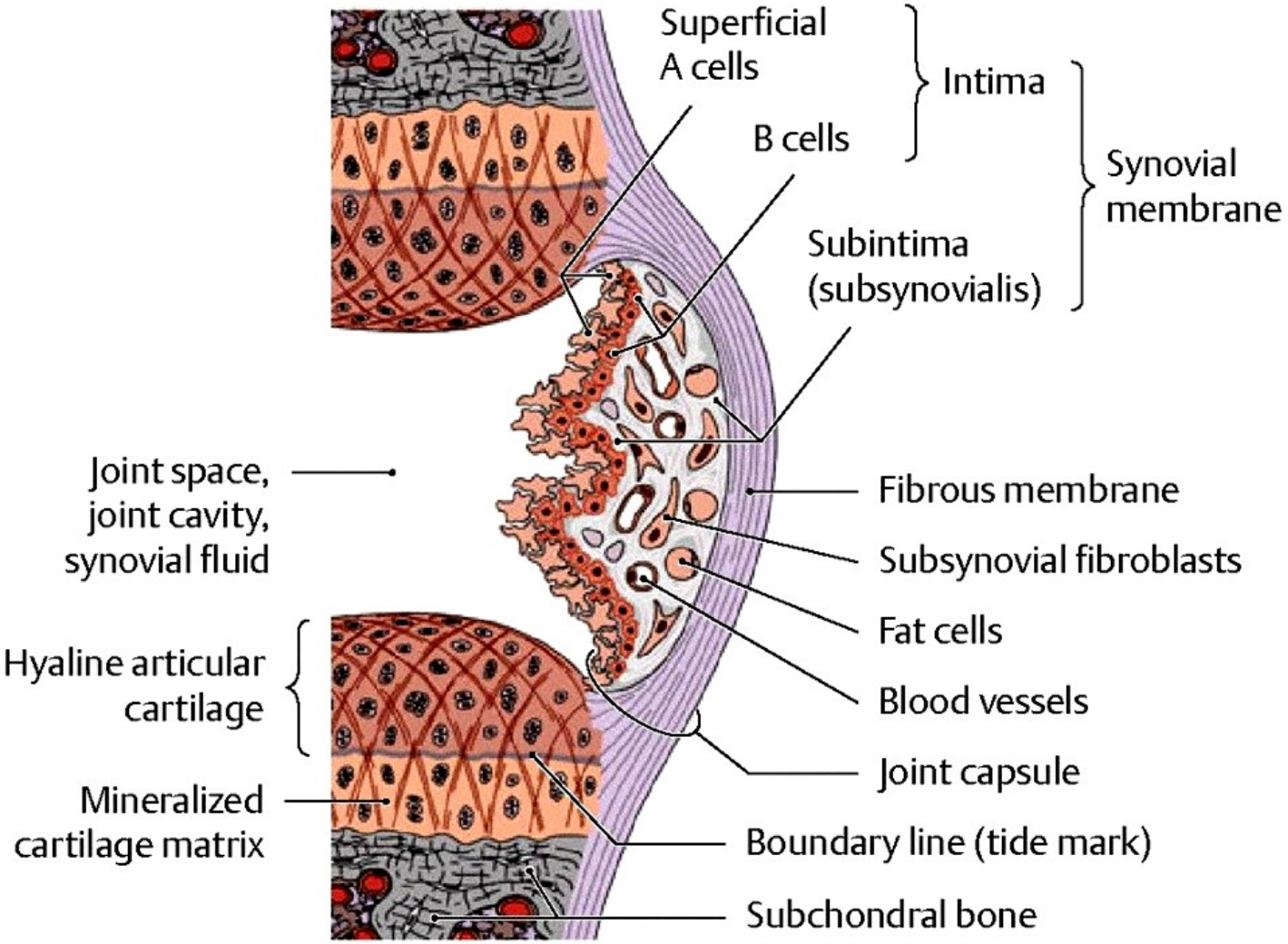




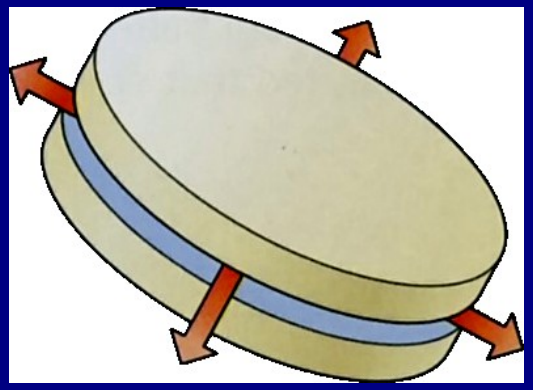
Synostosesoses



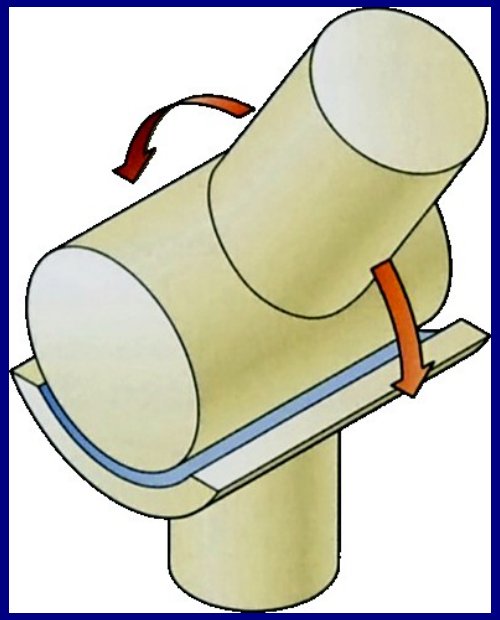
Structure of a true (synovial) joint

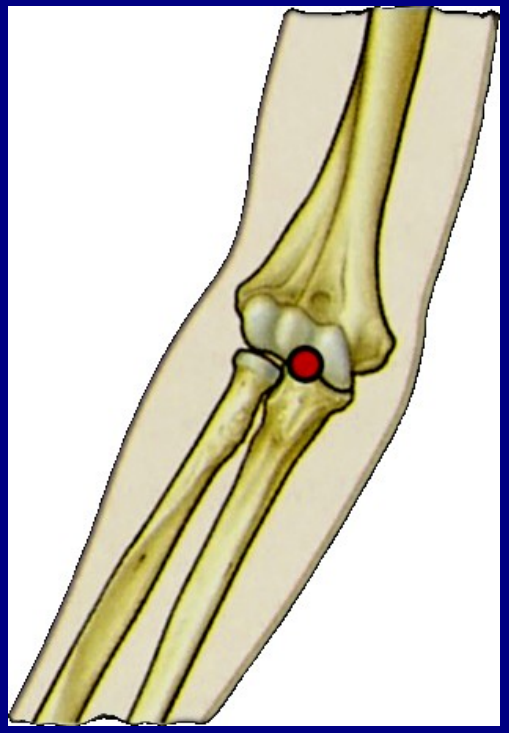


Structure of the joint capsule

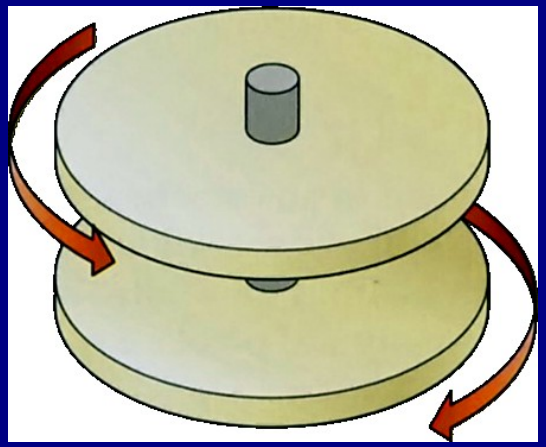


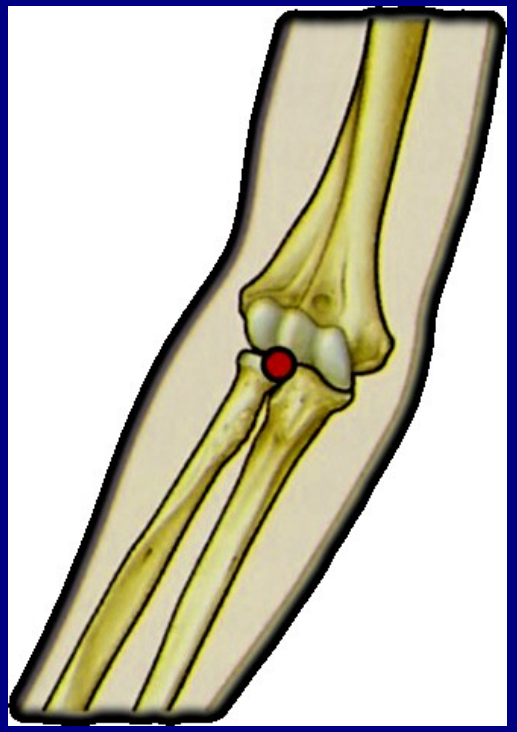
Plane joint



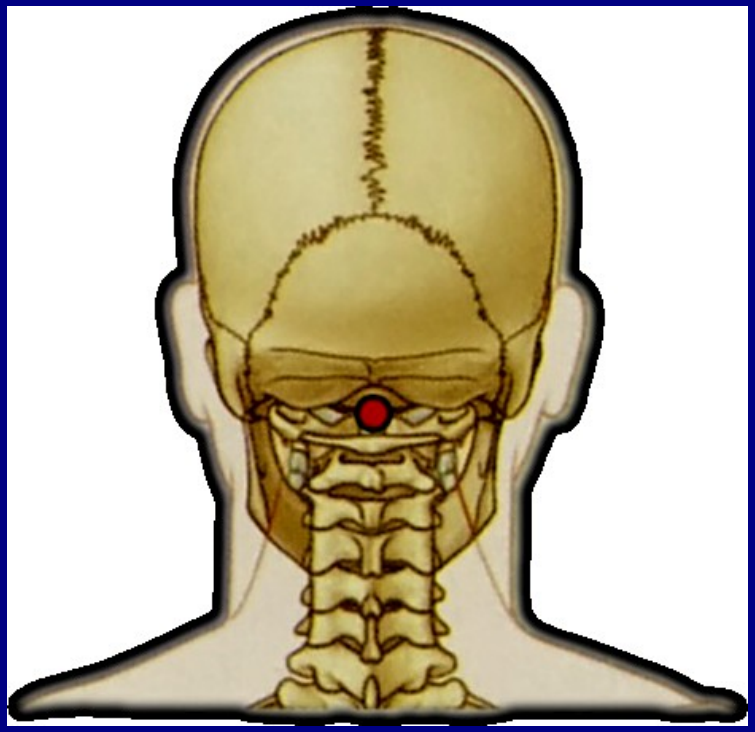


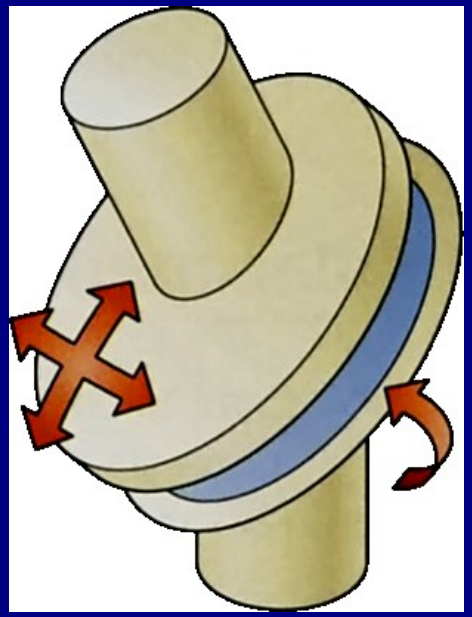
Hinge joint



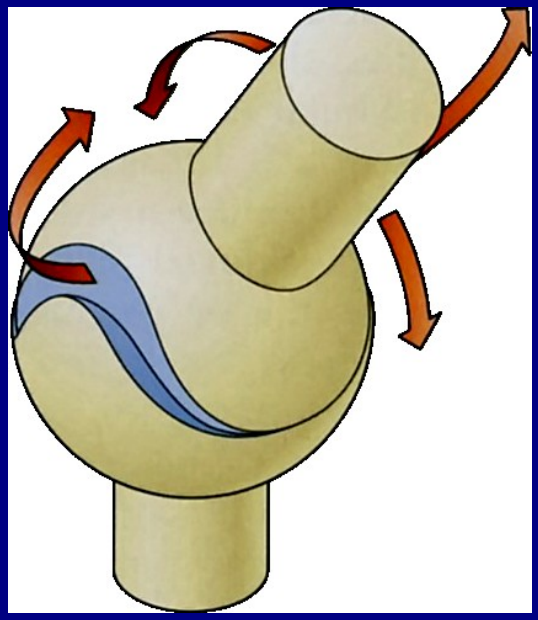


Pivot joint

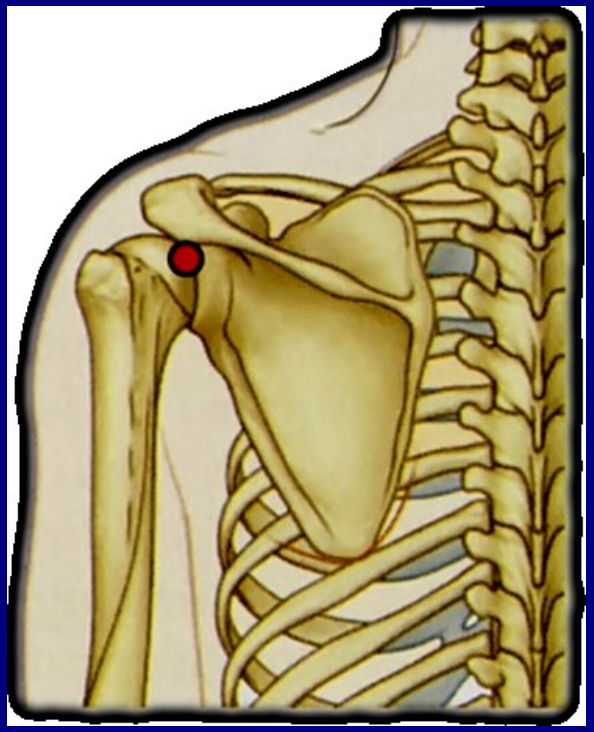


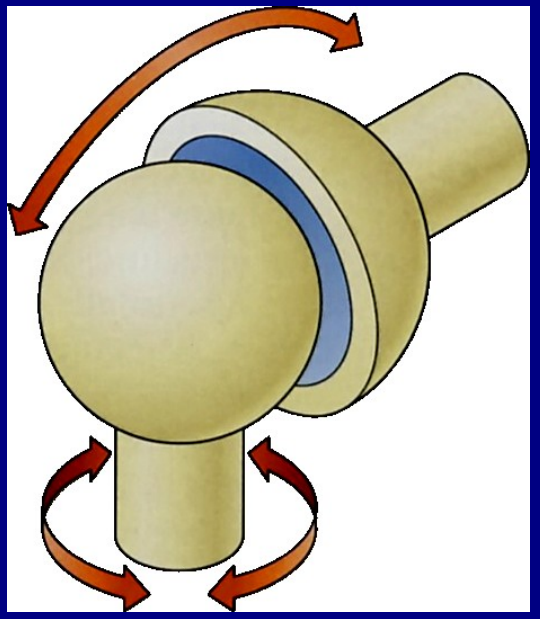


Ellipsoid joint

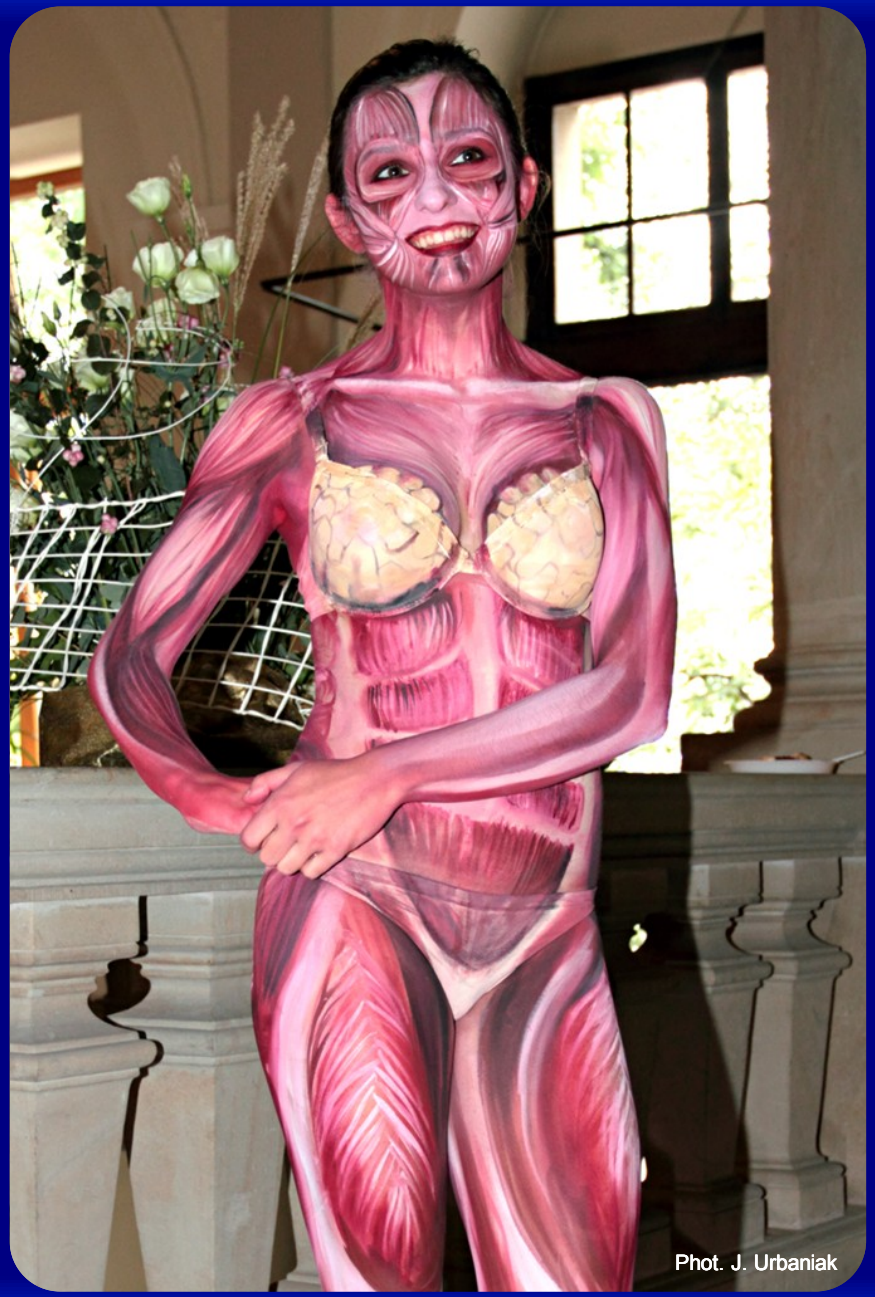


Saddle joint





Ball and socket joint



Thank you very much