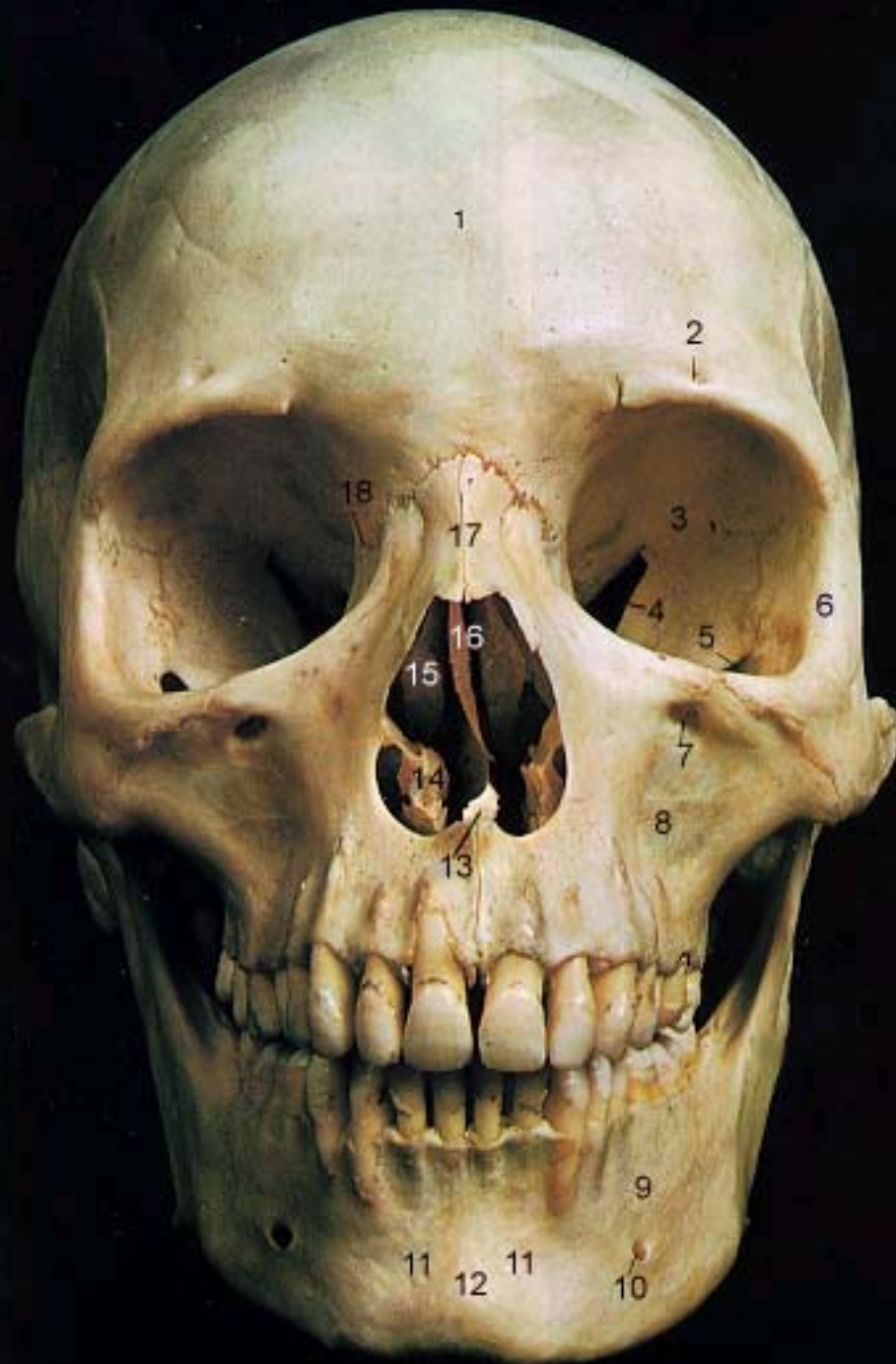
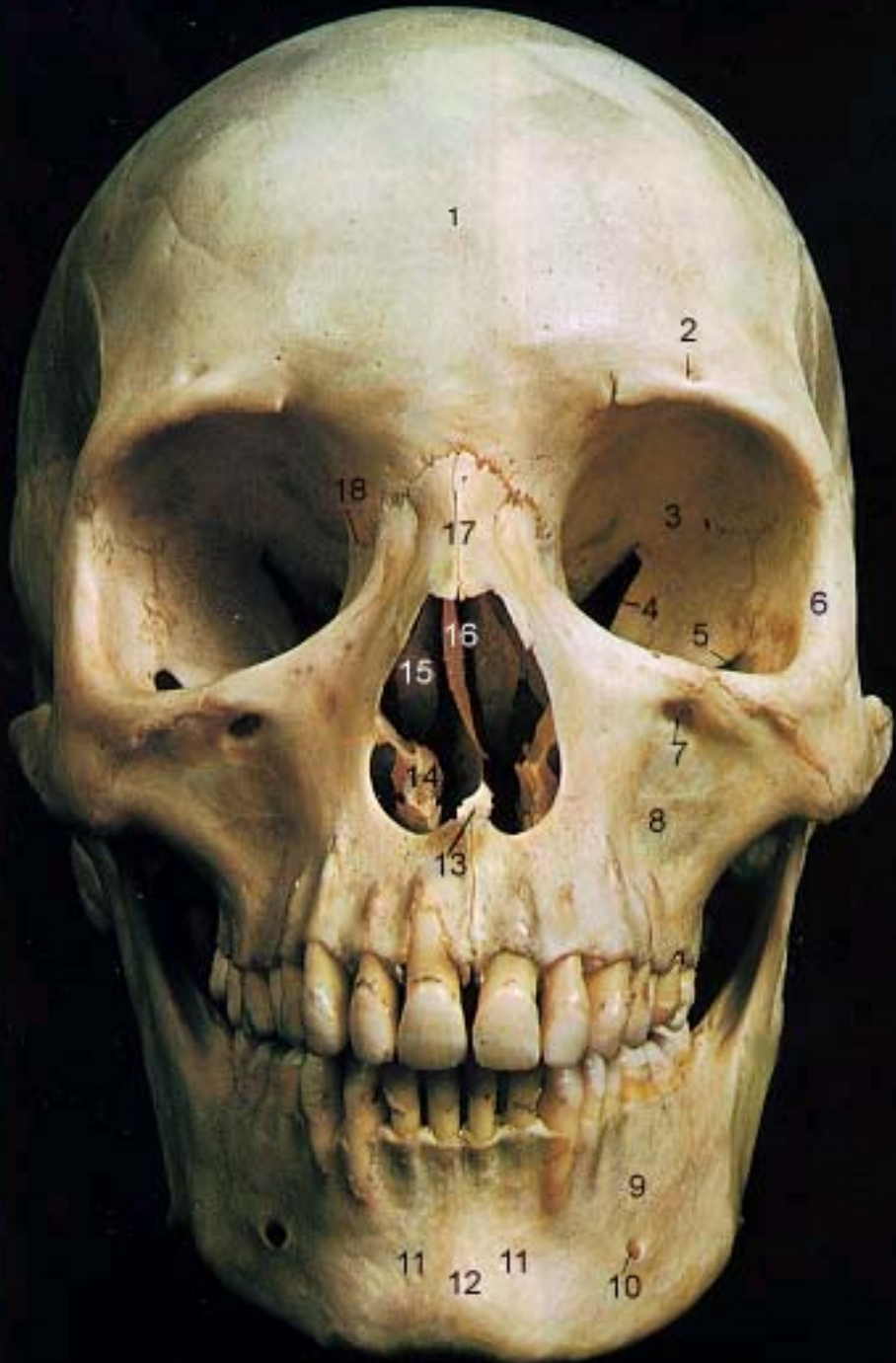


# Bone lab review





1. Frontal Bone
2. Supra-Orbital Foramen
3. Orbit (Orbital Cavity)
4. Superior Orbital Fissure
5. Inferior Orbital Fissure
6. Zygomatic Bone
7. Infra-Orbital Foramen
8. Maxilla
9. Mandible
10. Mental Foramen
11. Incisive Fossa
12. Symphysis
13. Vomer
14. Inferior Nasal Concha
15. Middle Nasal Concha
16. Perpendicular Plate of Ethmoid
17. Nasal Bone
18. Lacrimal Bone



1. Parietal Bone
2. Coronal Suture
3. Frontal Bone
4. Nasal Bone
5. Vomer
6. Lacrimal Bone
7. Orbital Part of Ethmoid
8. Zygomatic Bone
9. Maxilla
10. Body of Mandible
11. Ramus of Mandible
12. Coronoid Process
13. Mandibular Condyle
14. Mental Foramen
15. Styloid Process



- 1 External Acoustic Meatus
6. Mastoid Process
- 1 Zygomatic Process
7. Temporal Bone
- 1 Greater Wing of Sphenoid
8. Inferior Temporal Line
9. Superior Temporal Line
- 2 Squamosal Suture
0. Lambdoidal Suture
- 2 Occipital Bone
1. Occipital Bone
2. Occipital Bone
2. Occipital Bone
3. Occipital Bone
2. Occipital Bone
4. Occipital Bone
5. Occipital Bone





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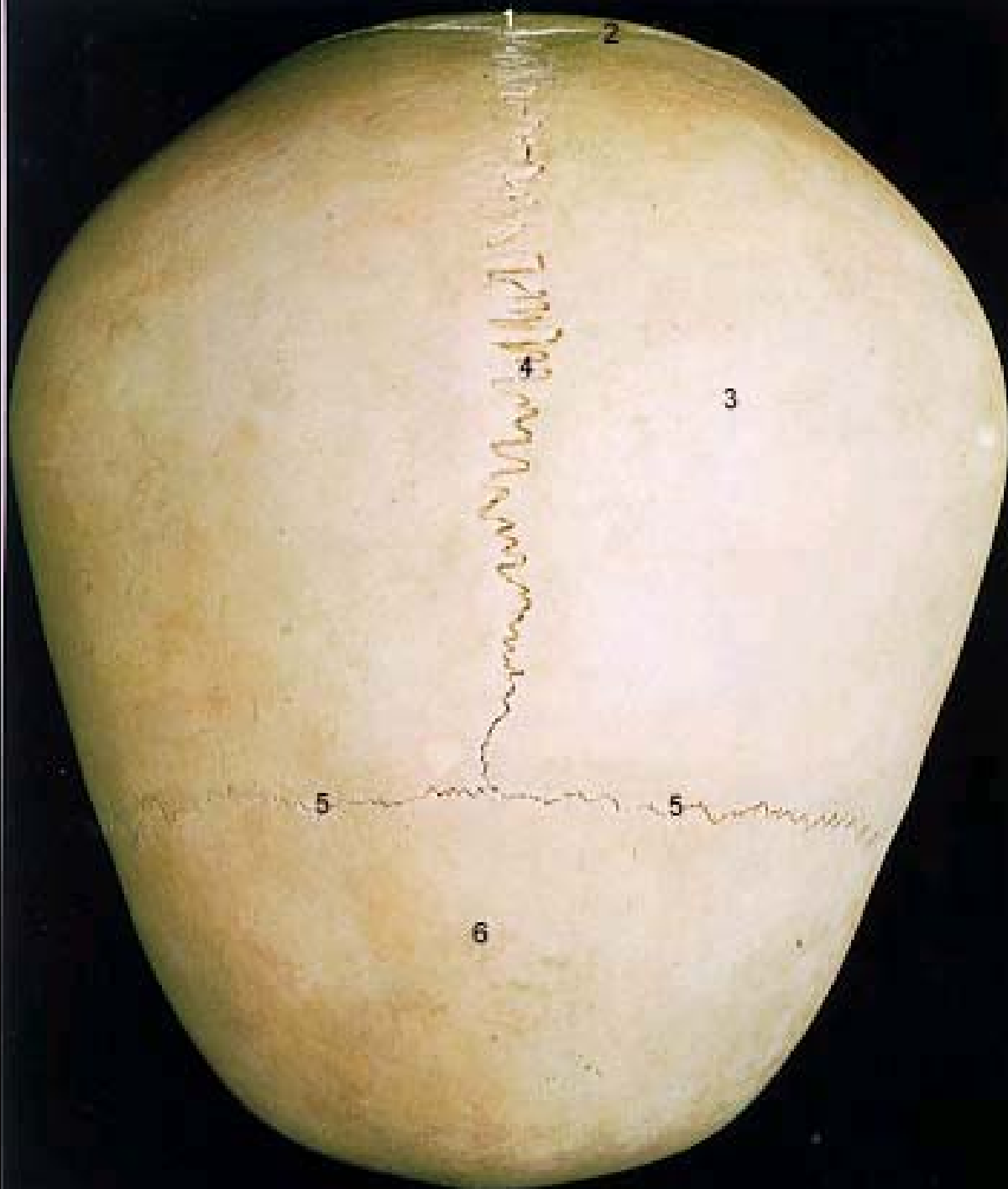
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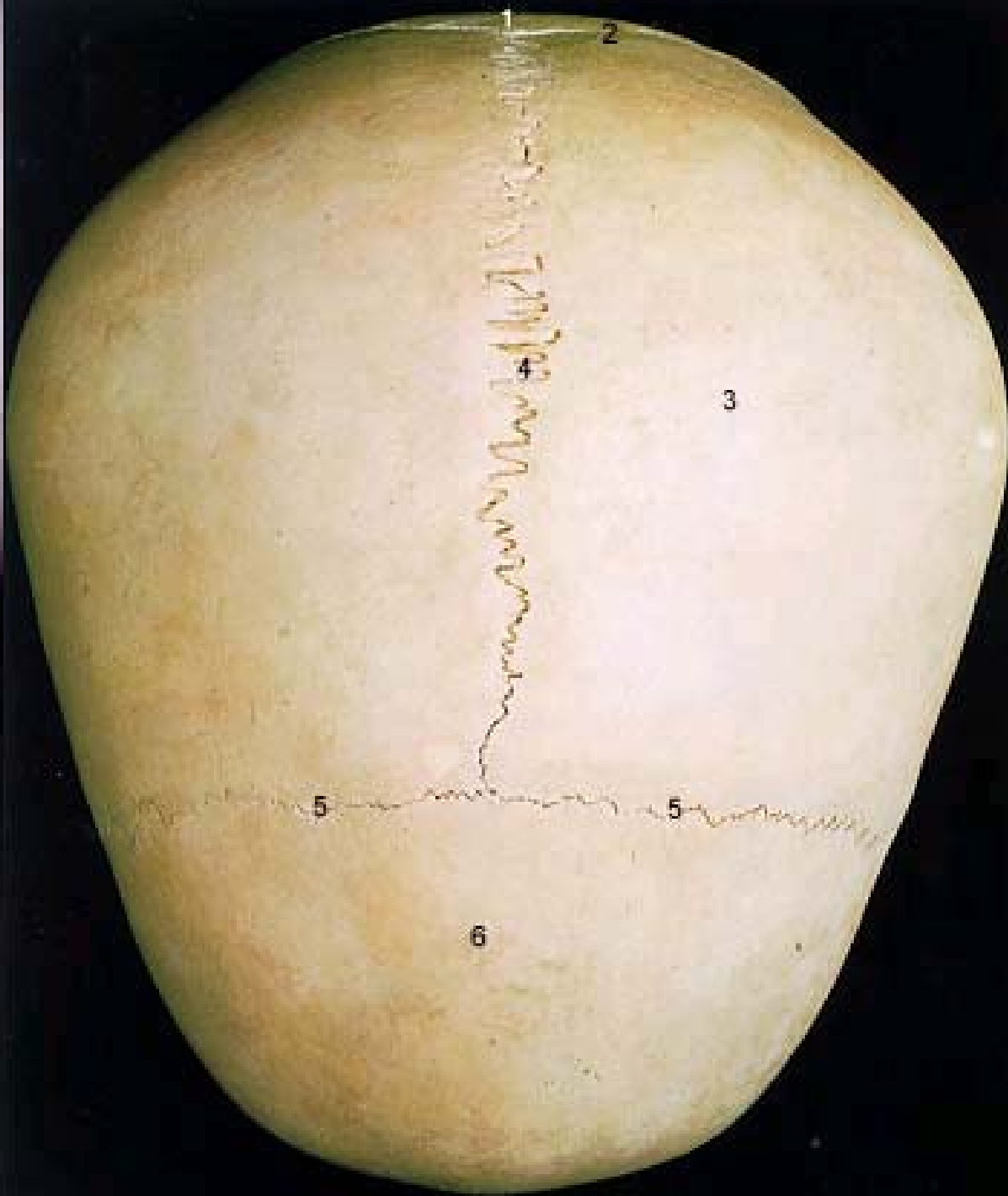
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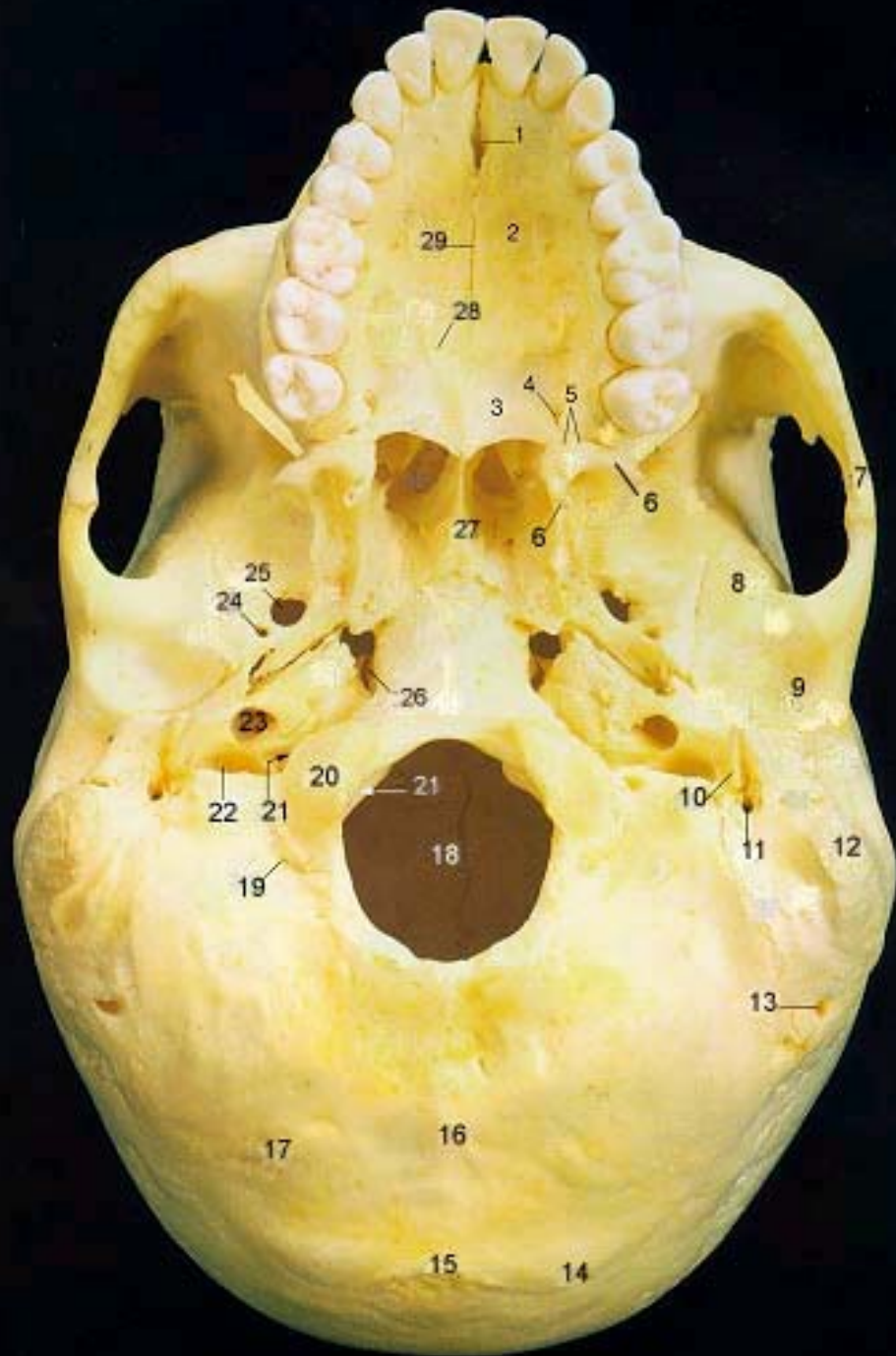
1. Parietal Bone
2. Sagittal Suture
3. Lambdoid Suture
4. Occipital Bone
5. External Occipital Protruberance
6. Superior Nuchal Line
7. Inferior Nuchal Line







1. Occipital Bone
2. Lambdoidal Suture
3. Parietal Bone
4. Sagittal Suture
5. Coronal Suture
6. Frontal Bone



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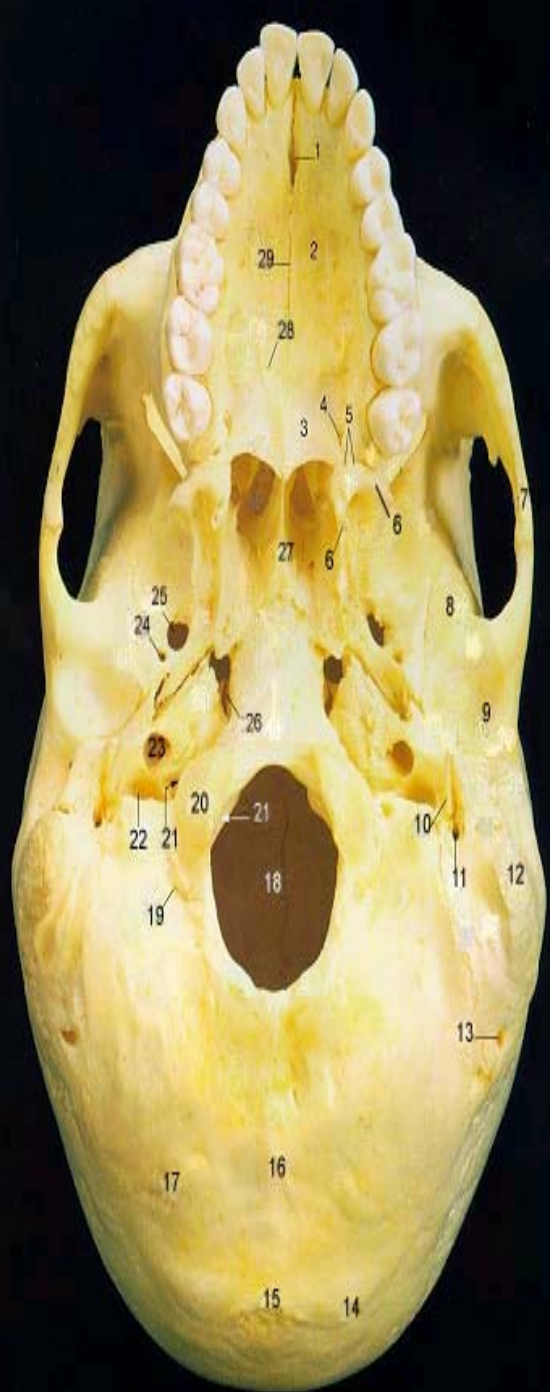
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1. Anterior Palatine Foramen
2. Palatine Process of Maxilla
3. Palatine
4. Greater Palatine Foramen
5. Lesser Palatine Foramen
6. Pterygoid Processes of Sphenoid
7. Zygomatic Process
8. Squamous Part of Temporal Bone
9. Mandibular Fossa
10. Styloid Process
11. Stylomastoid Foramen
12. Mastoid Process
13. Mastoid Foramen
14. Superior Nuchal Line
15. External Occipital Protruberance
16. Median Nuchal Line
17. Inferior Nuchal Line
18. Foramen Magnum
19. Condylloid Canal
20. Occipital Condyle
21. Hypoglossal Canal
22. Jugular Foramen
23. Carotid Canal
24. Foramen Spinosum
25. Foramen Ovale
26. Foramen Lacerum
27. Vomer
28. Transverse Palatine Suture
29. Median Palatine Suture

- 1/ Tuberosity –**
- 2. Trochanter –**
- 3. Tubercle –**
- 4. Epicondyle –**
- 5. Condyle –**
- 6. Fossa –**
- 7. Fissure –**
- 8. Foramen –**

- 1/ Tuberosity – large, rounded projection**
- 2. Trochanter – large, irregularly shaped process**
- 3. Tubercle – small, rounded projection**
- 4. Epicondyle – raised area on or above a condyle**
- 5. Condyle – rounded articular projection**
- 6. Fossa – shallow, superficial depression**
- 7. Fissure – narrow slit-like opening**
- 8. Foramen – round opening**

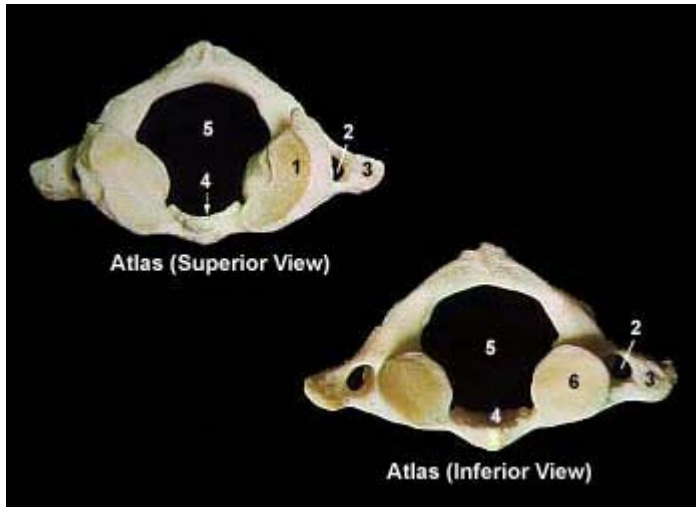


**Atlas (Superior View)**



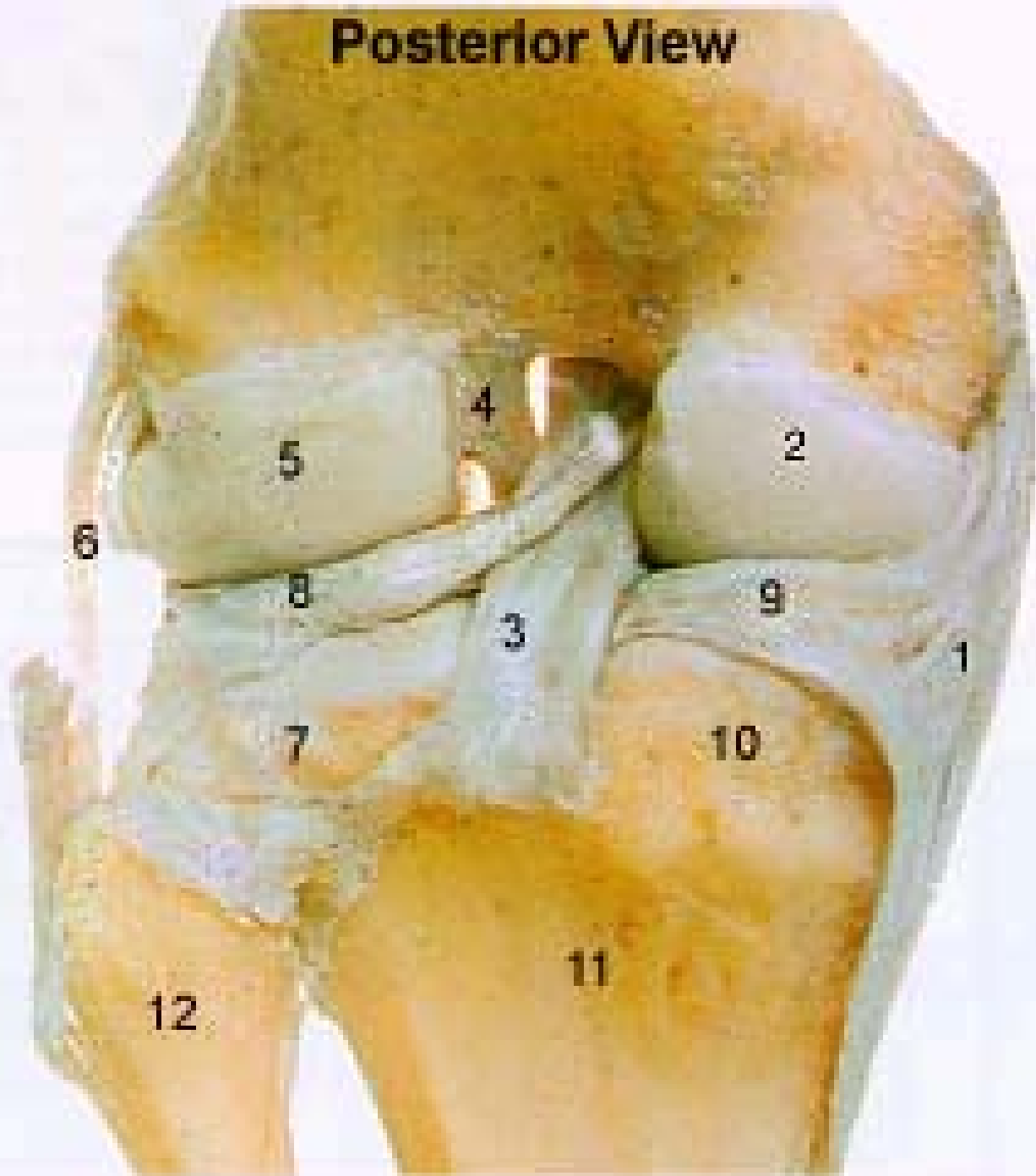
**Atlas (Inferior View)**



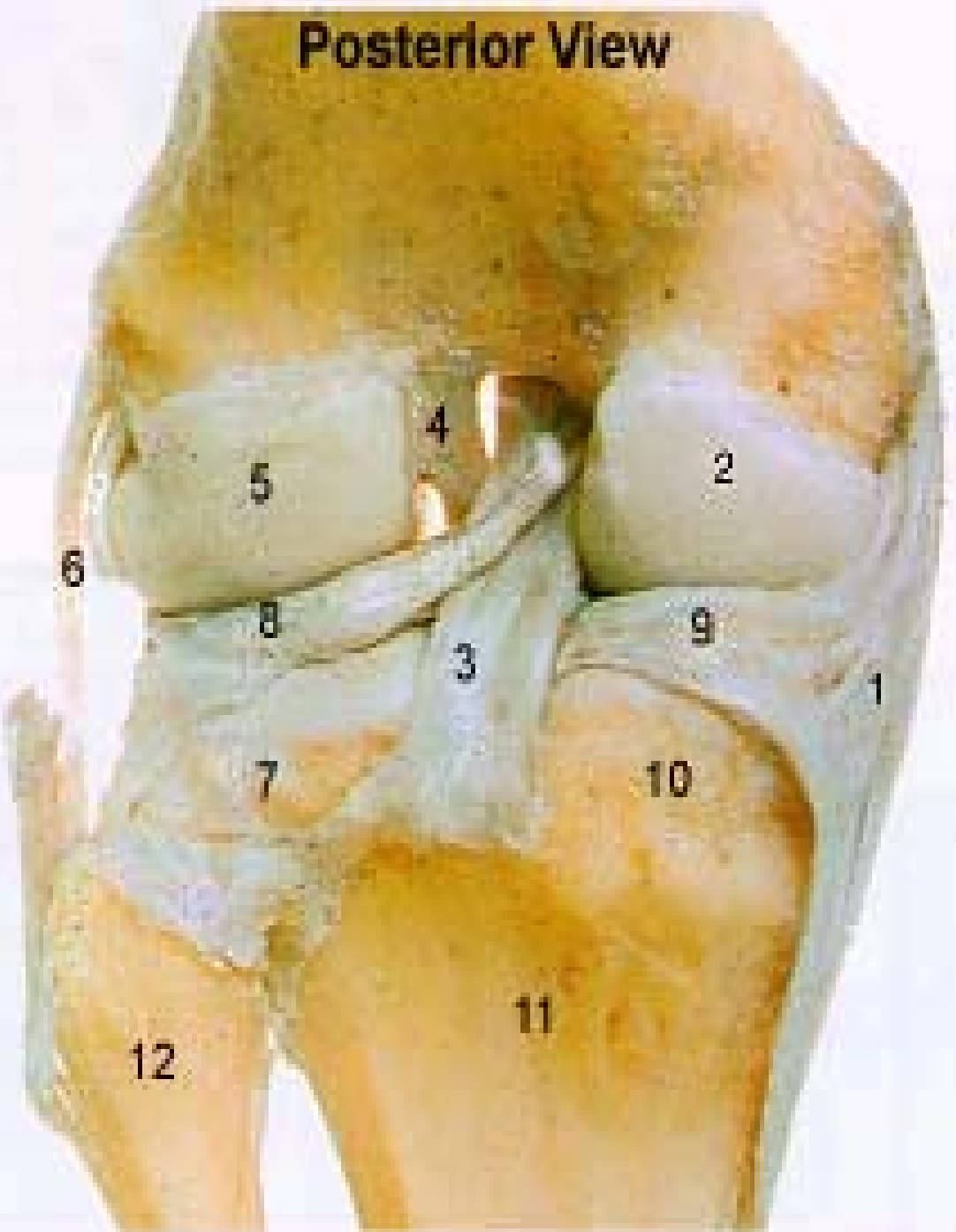


1. Superior Articular Surface
2. Transverse Foramen
3. Transverse Process
4. Odontoid (Dens) Facet
5. Vertebral Foramen
6. Inferior Articular Surface

# Posterior View

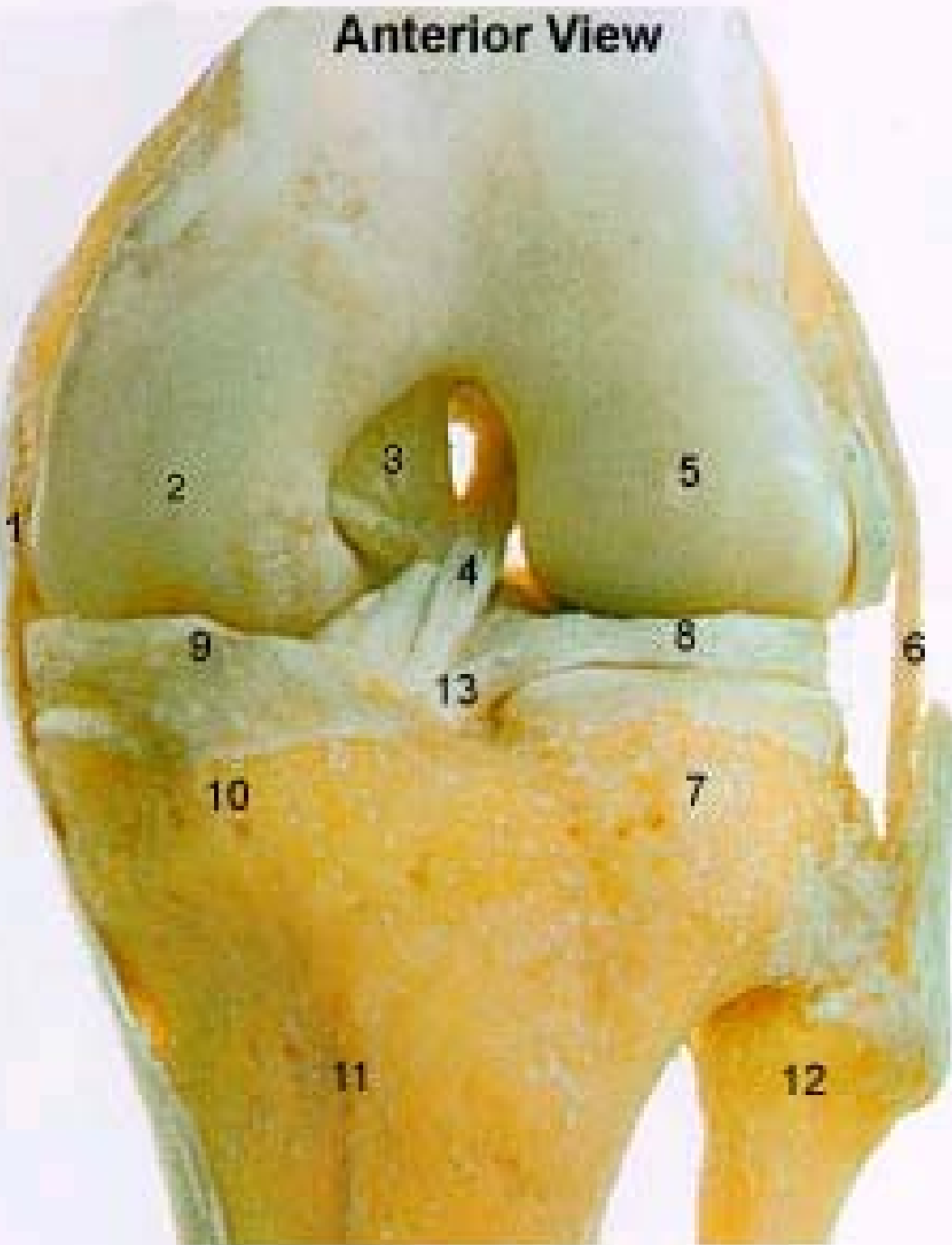


## Posterior View



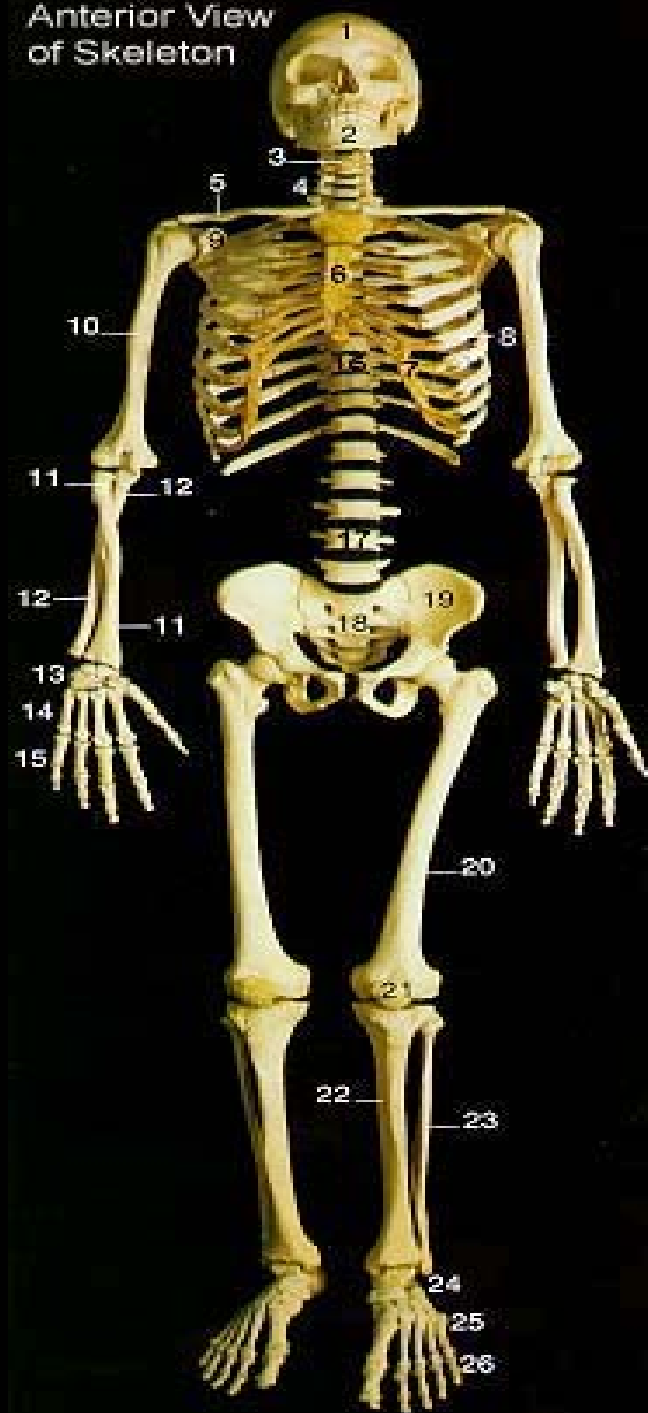
1. Tibial Collateral Ligament
2. Medial Condyle of Femur
3. Posterior Cruciate Ligament
4. Anterior Cruciate Ligament
5. Lateral Condyle of Femur
6. Fibular Collateral Ligament
7. Lateral Condyle of Tibia
8. Lateral Meniscus
9. Medial Meniscus
10. Medial Condyle of Tibia
11. Tibia
12. Fibula
13. Transverse Ligament

## Anterior View



1. Tibial Collateral Ligament
2. Medial Condyle of Femur
3. Posterior Cruciate Ligament
4. Anterior Cruciate Ligament
5. Lateral Condyle of Femur
6. Fibular Collateral Ligament
7. Lateral Condyle of Tibia
8. Lateral Meniscus
9. Medial Meniscus
10. Medial Condyle of Tibia
11. Tibia
12. Fibula
13. Transverse Ligament

Anterior View  
of Skeleton



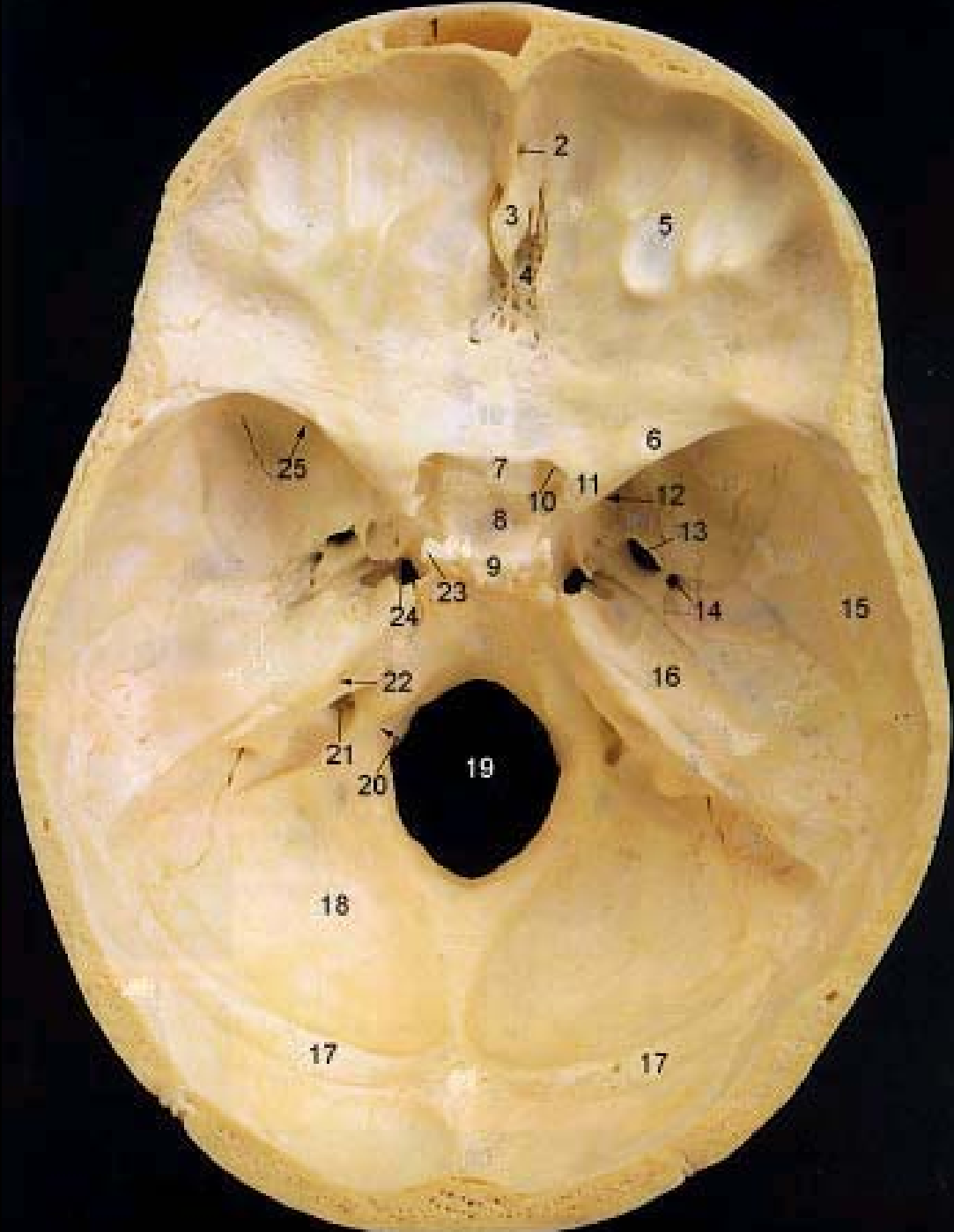
Anterior View  
of Skeleton



1. Skull
2. Mandible
3. Hyoid Bone
4. Cervical Vertebra
5. Clavicle
6. Sternum
7. Costal Cartilage
8. Ribs
9. Scapula
10. Humerus
11. Radius
12. Ulna
13. Carpal Bones
14. Metacarpal Bones
15. Phalanges of Fingers

16.	Thoracic Vertebra
17.	Lumbar Vertebra
18.	Sacrum
19.	Os Coxa
20.	Femur
21.	Patella
22.	Tibia
23.	Fibula
24.	Tarsal Bones
25.	Metatarsal Bones
26.	Phalanges of Toes





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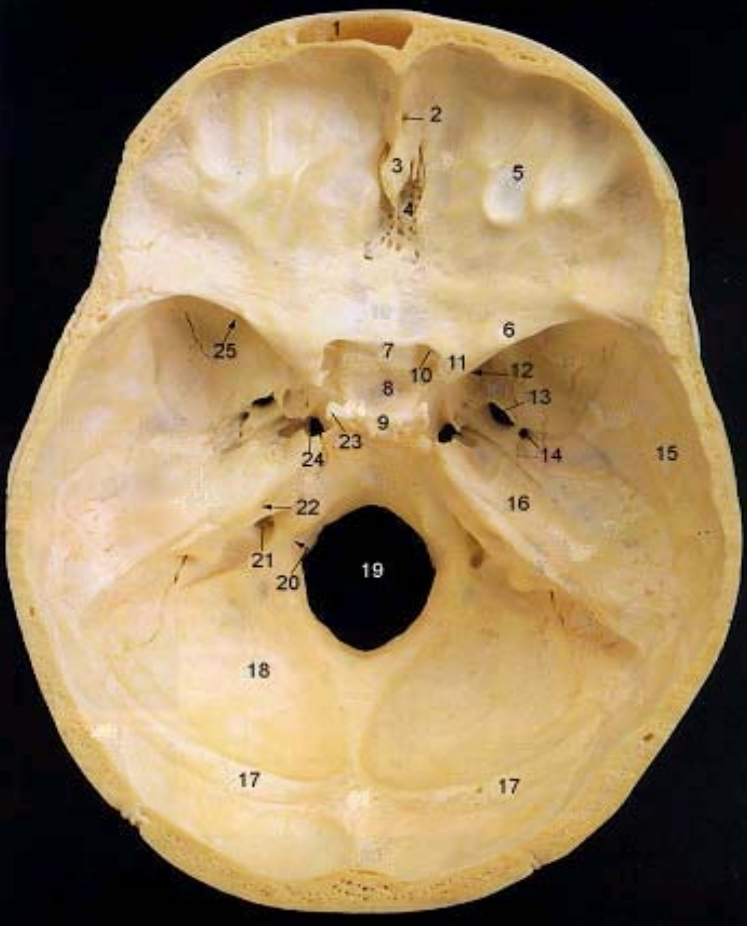
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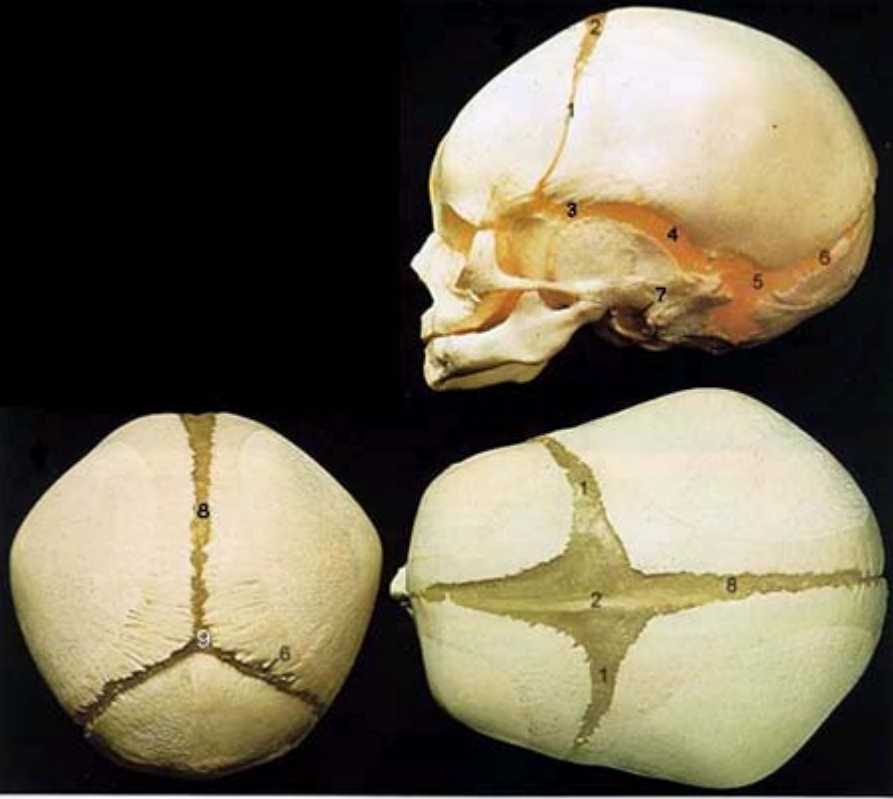
- |     |                           |    |                             |
|-----|---------------------------|----|-----------------------------|
| 1.  | Frontal Sinus             | 16 | Petrous Part of Temporal    |
| 2.  | Foramen Cecum             | .  |                             |
| 3.  | Crista Galli              | 17 | Groove for Transverse Sinus |
| 4.  | Cribriform Plate          | .  |                             |
| 5.  | Anterior Cranial Fossa    | 18 | Posterior Cranial Fossa     |
| 6.  | Lesser Wing of Sphenoid   | 19 | Foramen Magnum              |
| 7.  | Chiasmatic Groove         | .  |                             |
| 8.  | Hypophyseal Fossa         | 20 | Hypoglossal Canal           |
| 9.  | Dorsum Sella              | .  |                             |
| 10. | Optic Canal               | 21 | Jugular Foramen             |
| 11. | Anterior Clinoid Process  | .  |                             |
| 12. | Foramen Rotundum          | 22 | Internal Acoustic Meatus    |
| 13. | Foramen Ovale             | .  |                             |
| 14. | Foramen Spinosum          | 23 | Posterior Clinoid Process   |
| 15. | Squamous Part of Temporal | .  |                             |
| 16. | Petrous Part of Temporal  | 24 | Foramen Lacerum             |
|     |                           | .  |                             |
|     |                           | 25 | Superior Orbital Fissure    |
|     |                           | .  |                             |





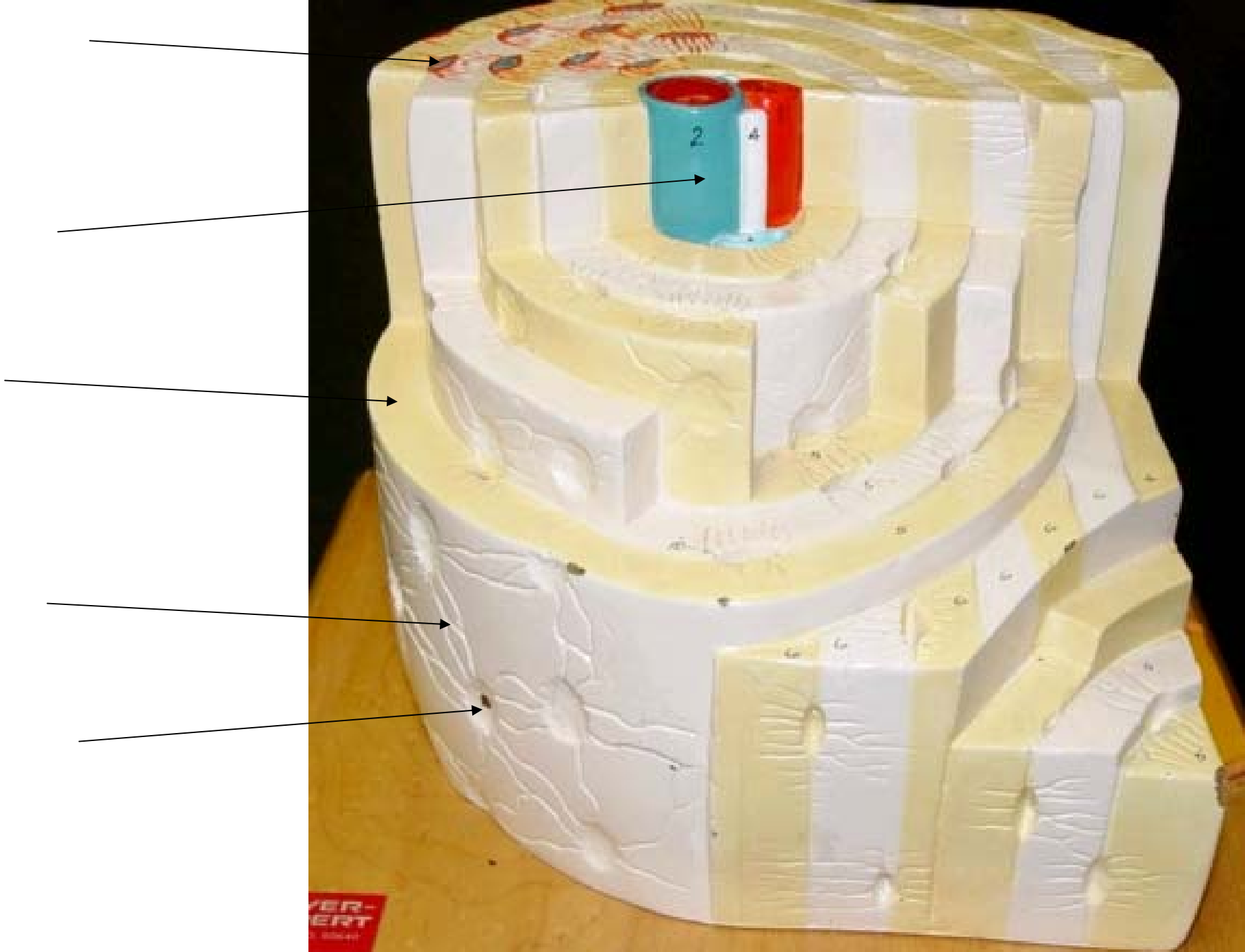
1. Mandibular Condyle
2. Mandibular Notch
3. Coronoid Process
4. Ramus
5. Angle
6. Oblique Line
7. Body
8. Alveolar Process
9. Mental Foramen
10. Mylohyoid Line
11. Mandibular Foramen

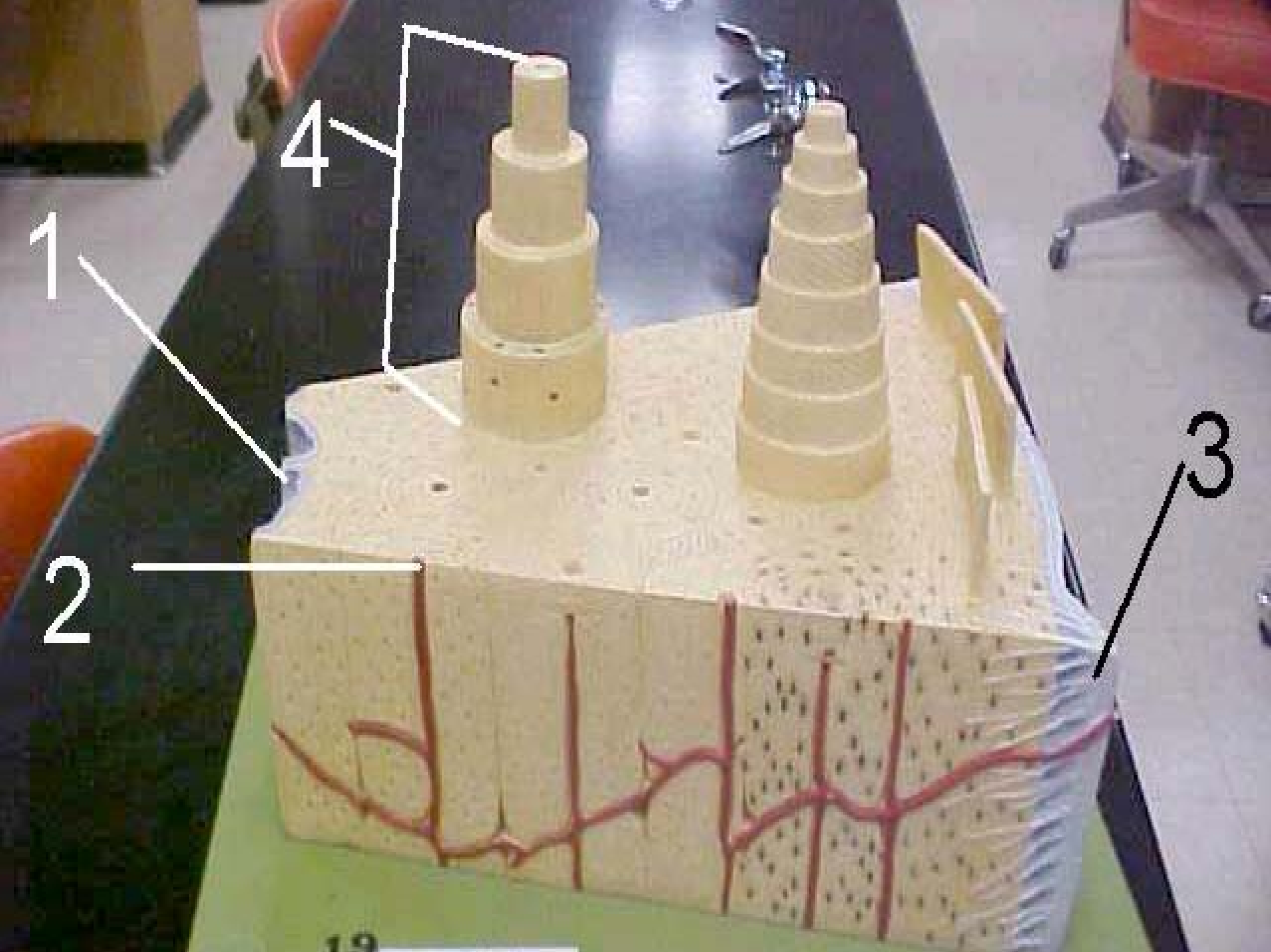


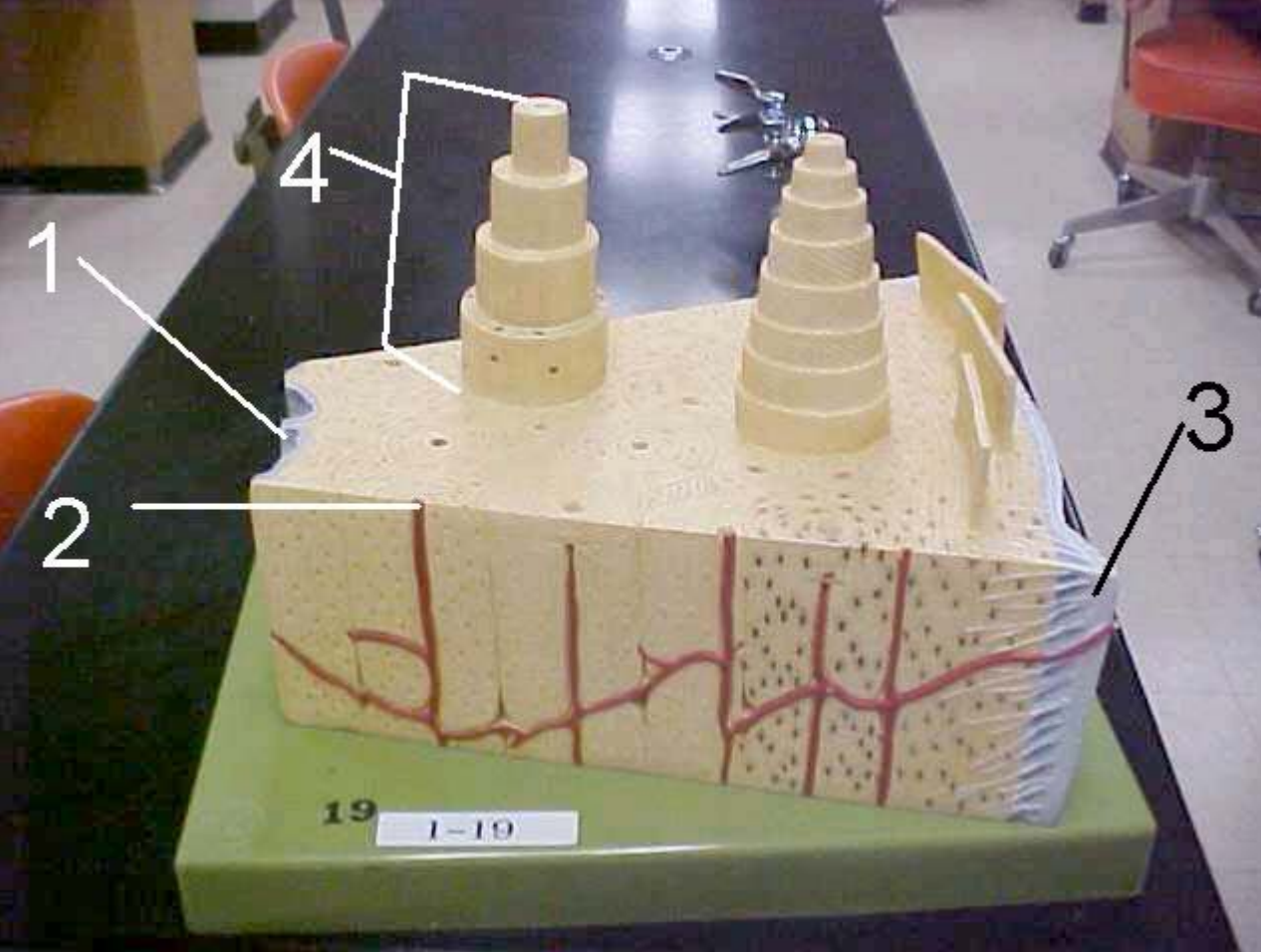


1. Future Coronal Suture
2. Anterior Fontanel
3. Anterolateral Fontanel
4. Future Squamosal Suture
5. Posterolateral Fontanel
6. Future Lamdoidal Suture
7. External Acoustic Meatus
8. Future Sagittal Suture
9. Posterior Fontanel









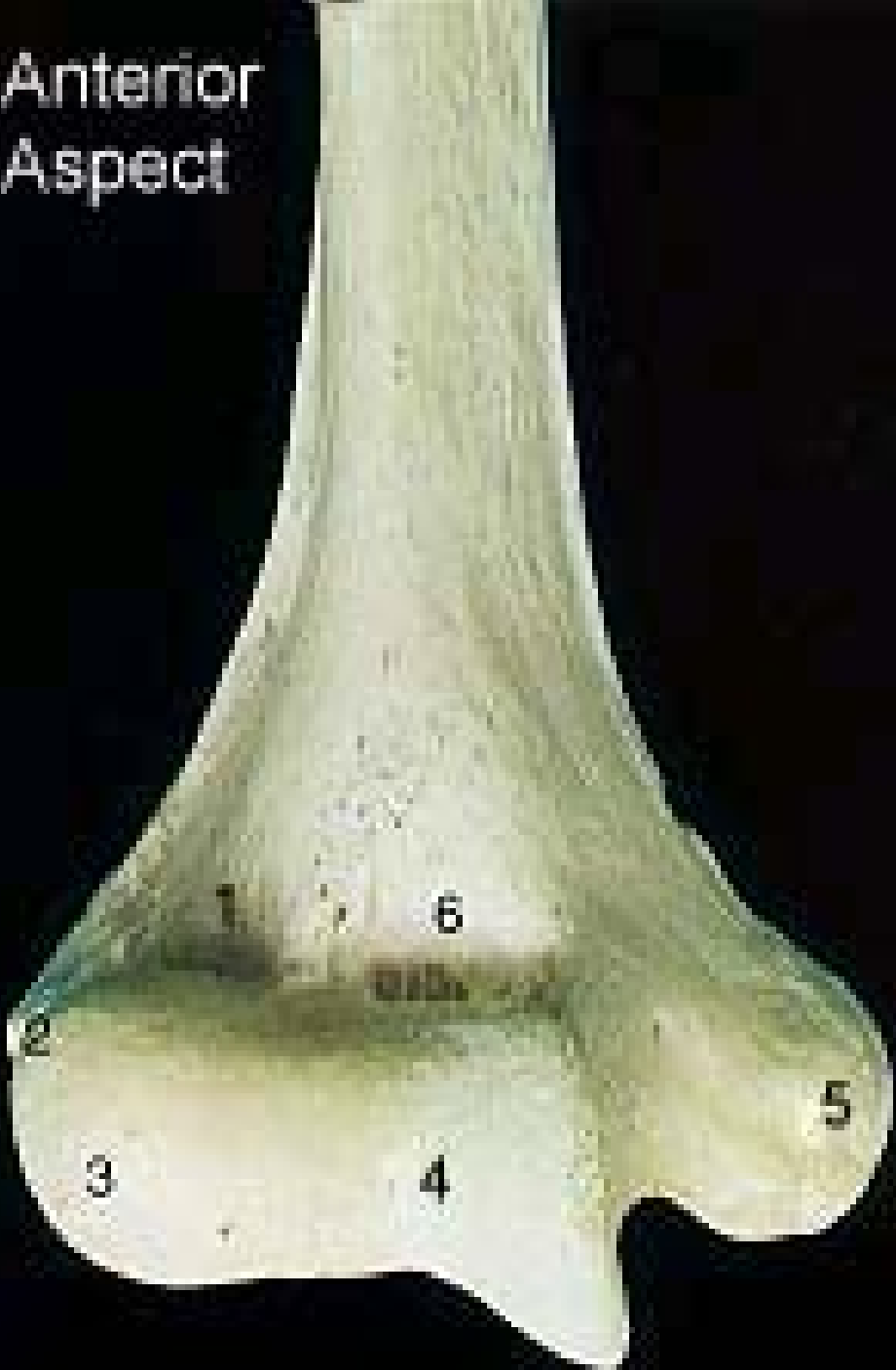
**1. Spongy Bone**

**2. Osteon Canal & Blood Vessels**

**3. Periosteum**

**4. Osteon**

Anterior Aspect



Posterior Aspect

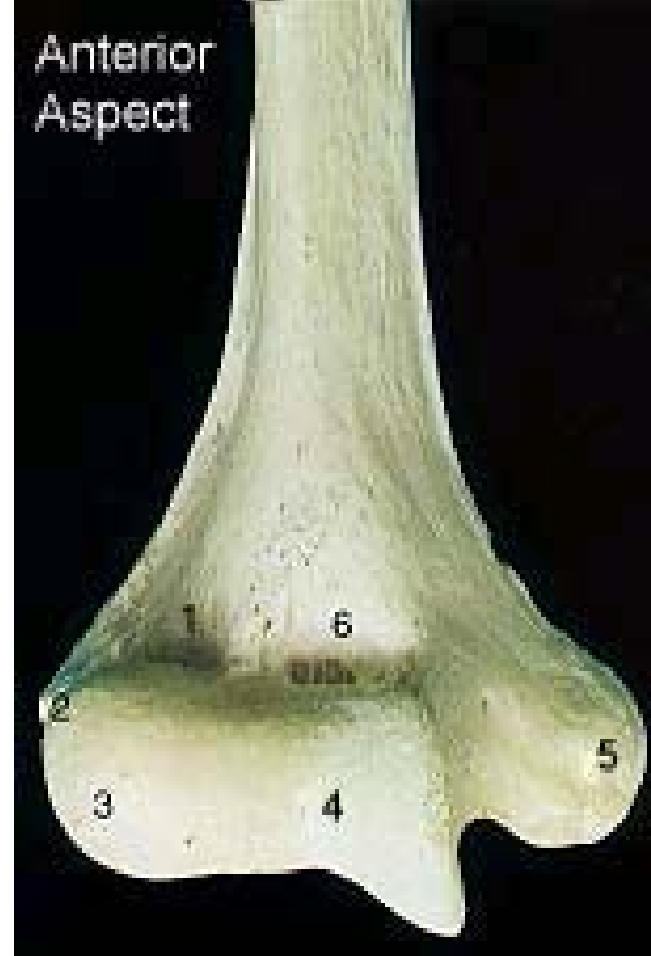


Posterior Aspect



1. Radial Fossa
2. Lateral Epicondyle
3. Capitulum
4. Trochlea
5. Medial Epicondyle
6. Coronoid Fossa
7. Olecranon Fossa

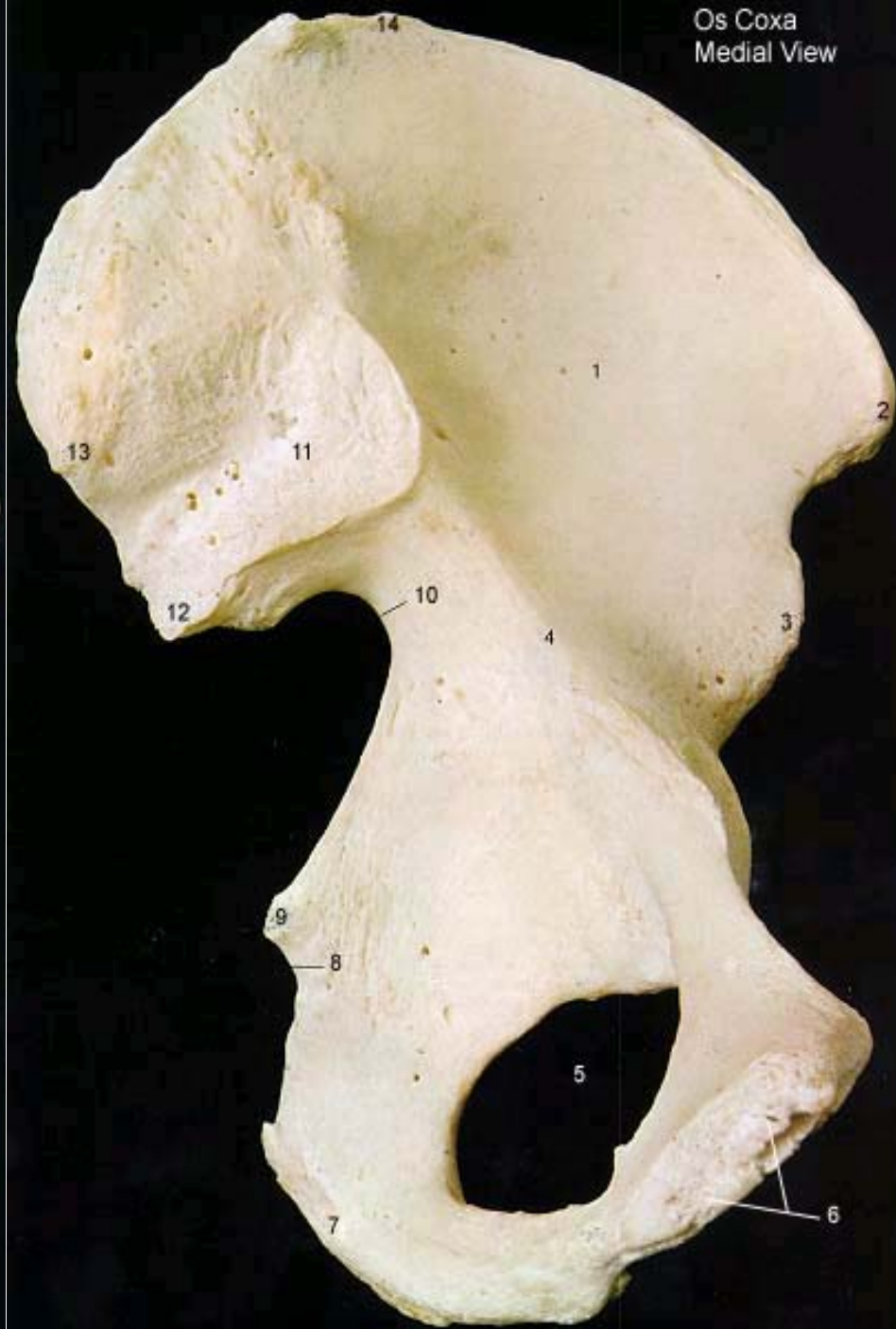
Anterior Aspect



Os Coxa  
Lateral View



Os Coxa  
Medial View





Os Coxa  
Lateral View

Ilium + Ischium + Pubis = Os Coxa

1. Anterior Superior Spine
2. Iliac Crest
3. Posterior Superior Spine
4. Posterior Inferior Spine
5. Greater Sciatic Notch
6. Body of Ilium
7. Ischial Spine
8. Lesser Sciatic Notch
9. Body of Ischium
10. Ischial Tuberosity
11. Obturator Foramen
12. Inferior Ramus of Ischium
13. Inferior Ramus of Pubis
14. Body of Pubis
15. Acetabulum
16. Anterior Inferior Spine



Os Coxa  
Medial View



1. Iliac Fossa
2. Anterior Superior Spine
3. Anterior Inferior Spine
4. Arcuate Line
5. Obturator Foramen
6. Symphysis Pubis Articulating Surface
7. Ischial Tuberosity
8. Lesser Sciatic Notch
9. Ischial Spine
10. Greater Sciatic Notch
11. Sacrum Articulating Surface
12. Posterior Inferior Spine
13. Posterior Superior Spine
14. Iliac Crest

Posterior View  
of Left Femur



Anterior View  
of Left Femur

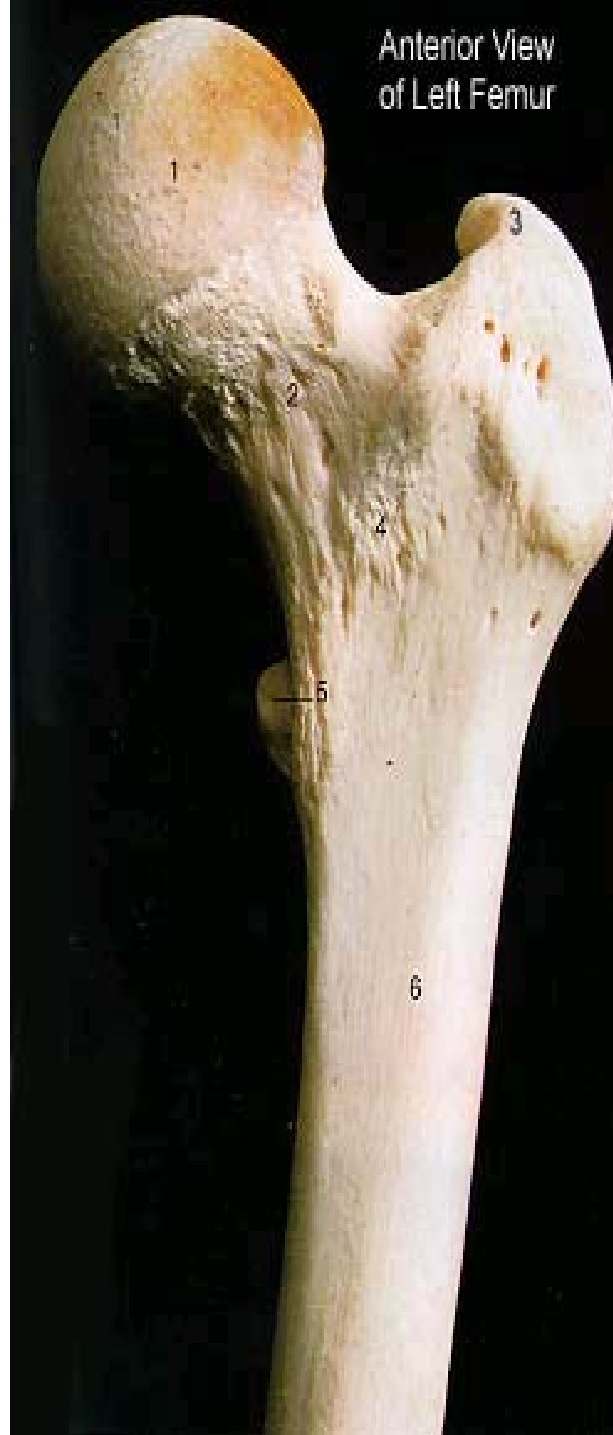


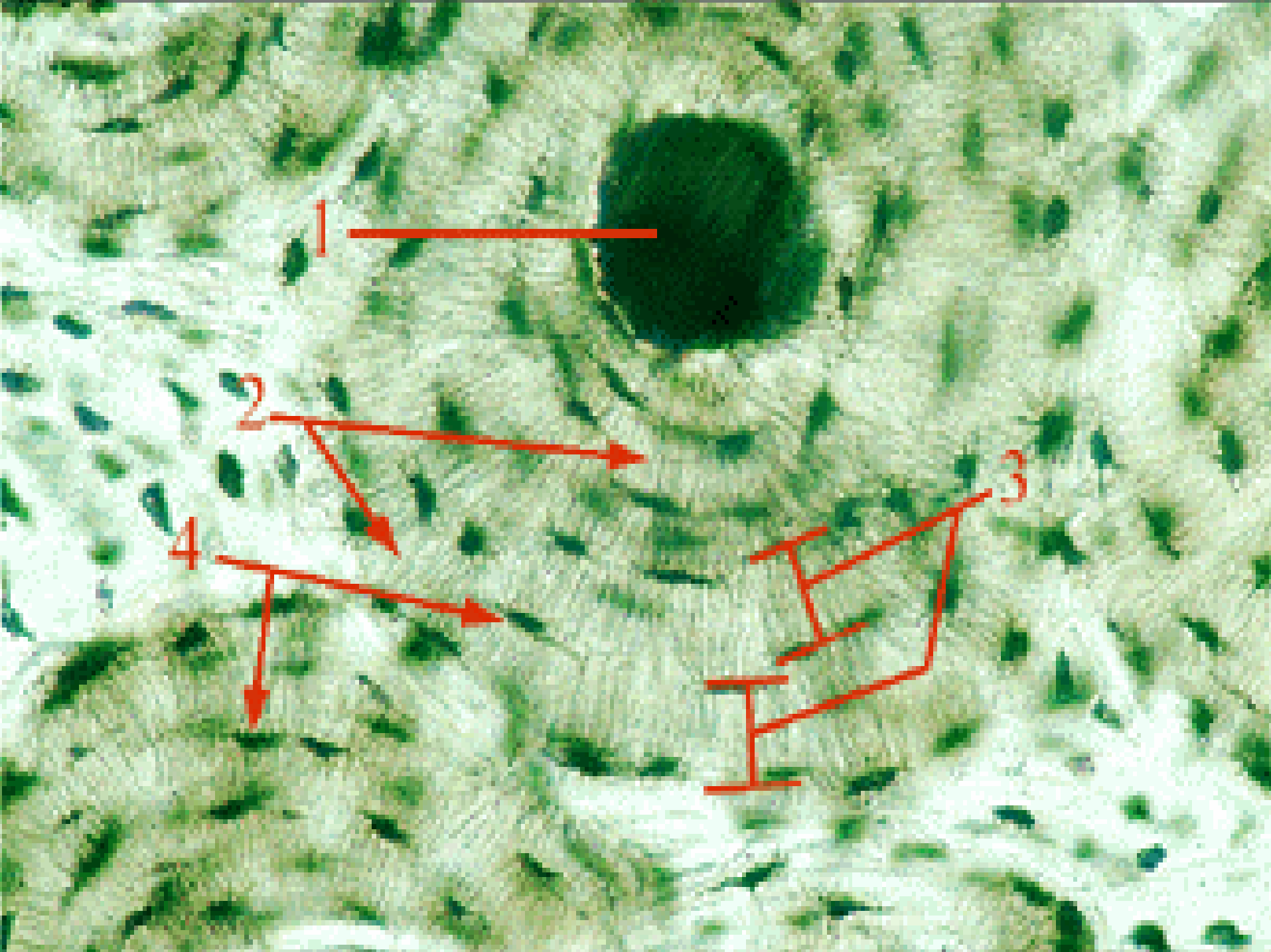
Posterior View  
of Left Femur



1. Head
2. Neck
3. Greater Trochanter
4. Intertrochanteric Line
5. Lesser Trochanter
6. Shaft of Femur
7. Gluteal Tuberosity
8. Intertrochanteric Crest
9. Linea Aspera

Anterior View  
of Left Femur





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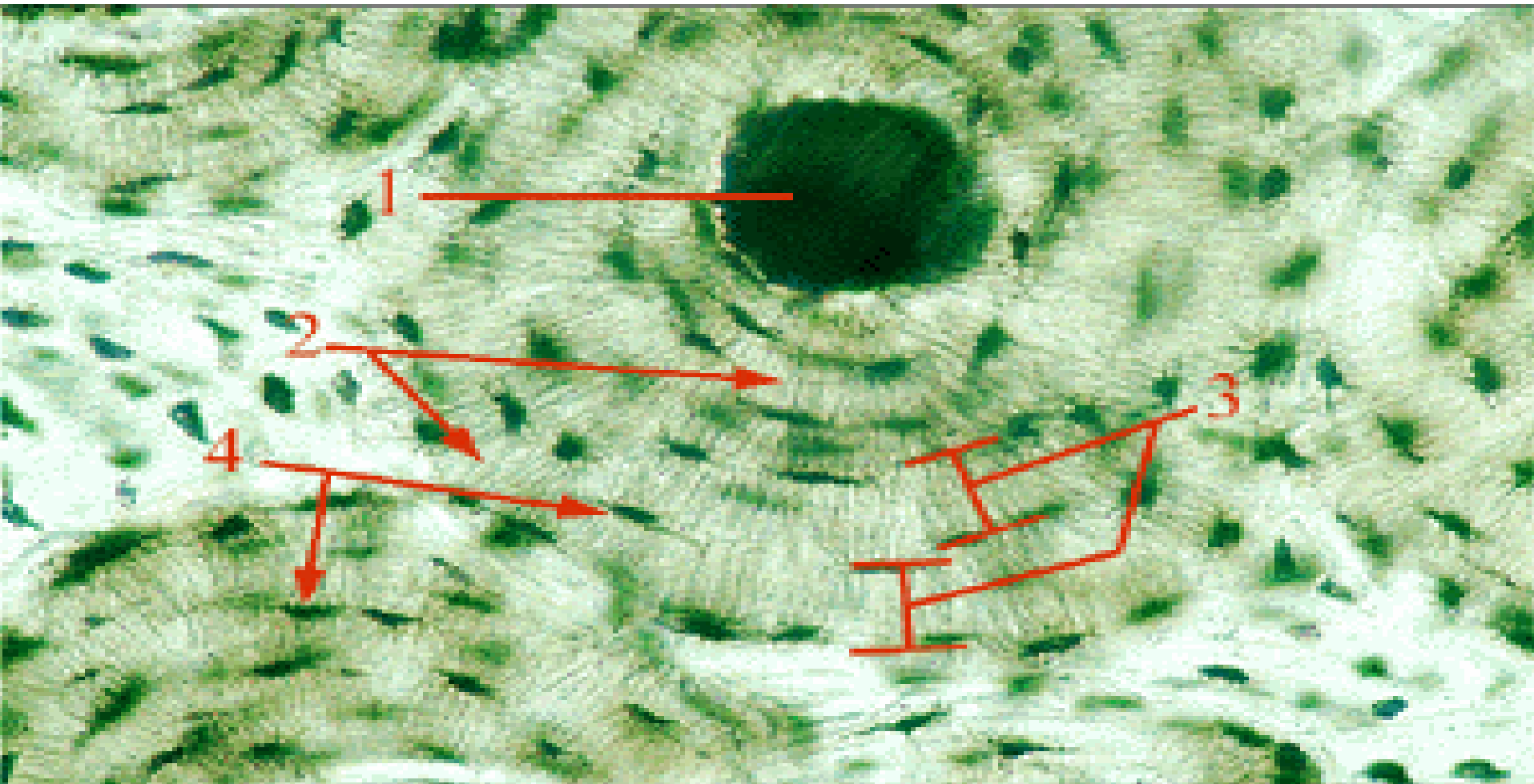
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1. Haversian Canal
2. Canaliculi gap junction are found at the end of the extension
3. Lamellae
4. Lacunae



Woven bone?

Lamellar bone?

# Bone

## Woven bone

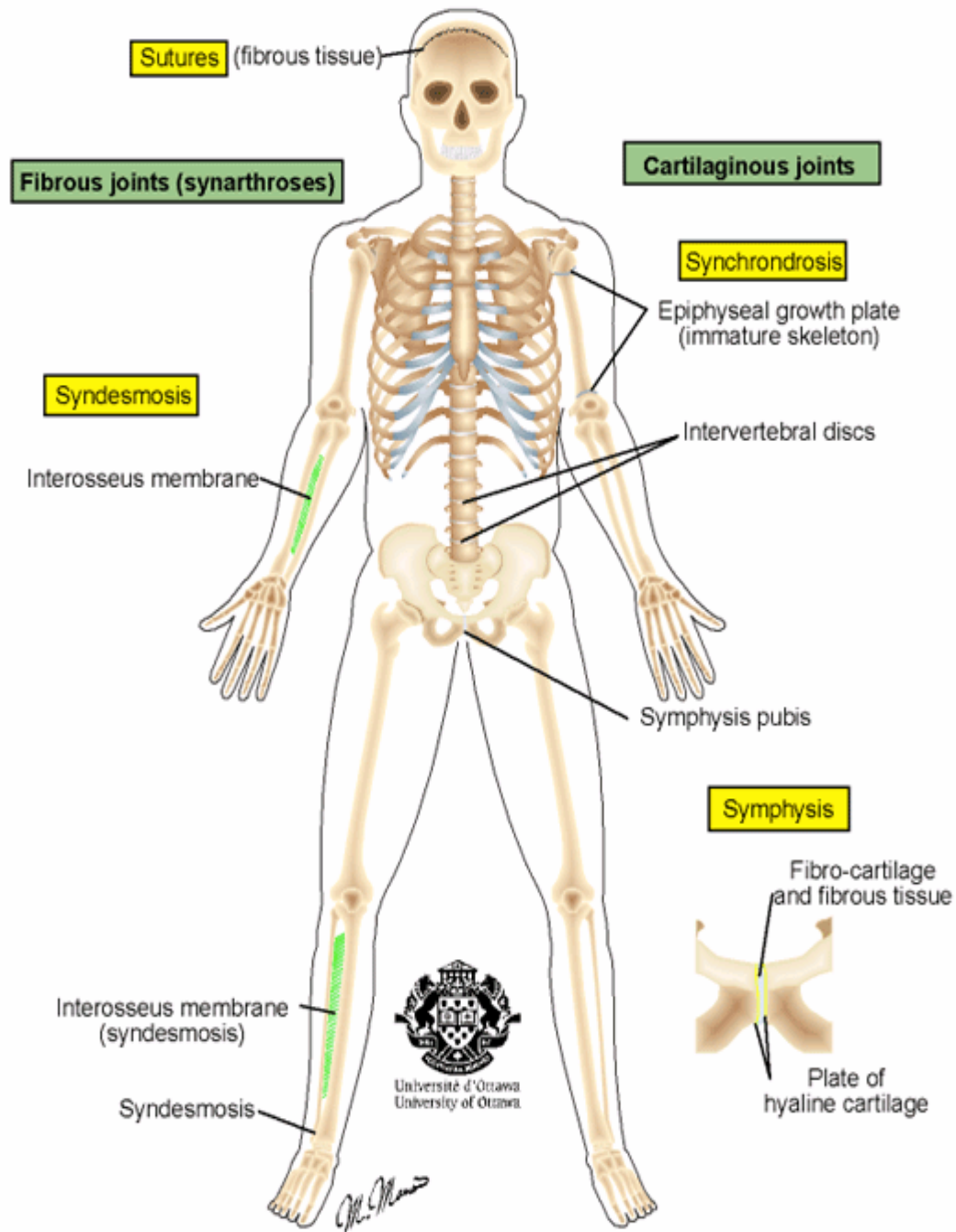
1. Immature bone formed rapidly as in the fetus or repair of an injury.
2. Collagen is irregularly arranged.

## Lamellar bone

1. Mature bone that is physically stronger.
2. Collagen is regularly arranged



# Cartilaginous and fibrous joints



Fibrous joints (synarthroses): the bones are connected by fibrous tissue. The extent of movement depends on the proximity of the bones to one another.

2 types are present:

**Sutures** in the skull.

**Syndesmoses.** A layer of fibrous tissue is present between the bones.

Interosseous membranes that are present in the middle radioulnar and middle tibiofibular joints

An interosseous ligament in the distal tibiofibular joint.

### **Cartilaginous Joints**

Movement is limited or absent.

2 types are present :

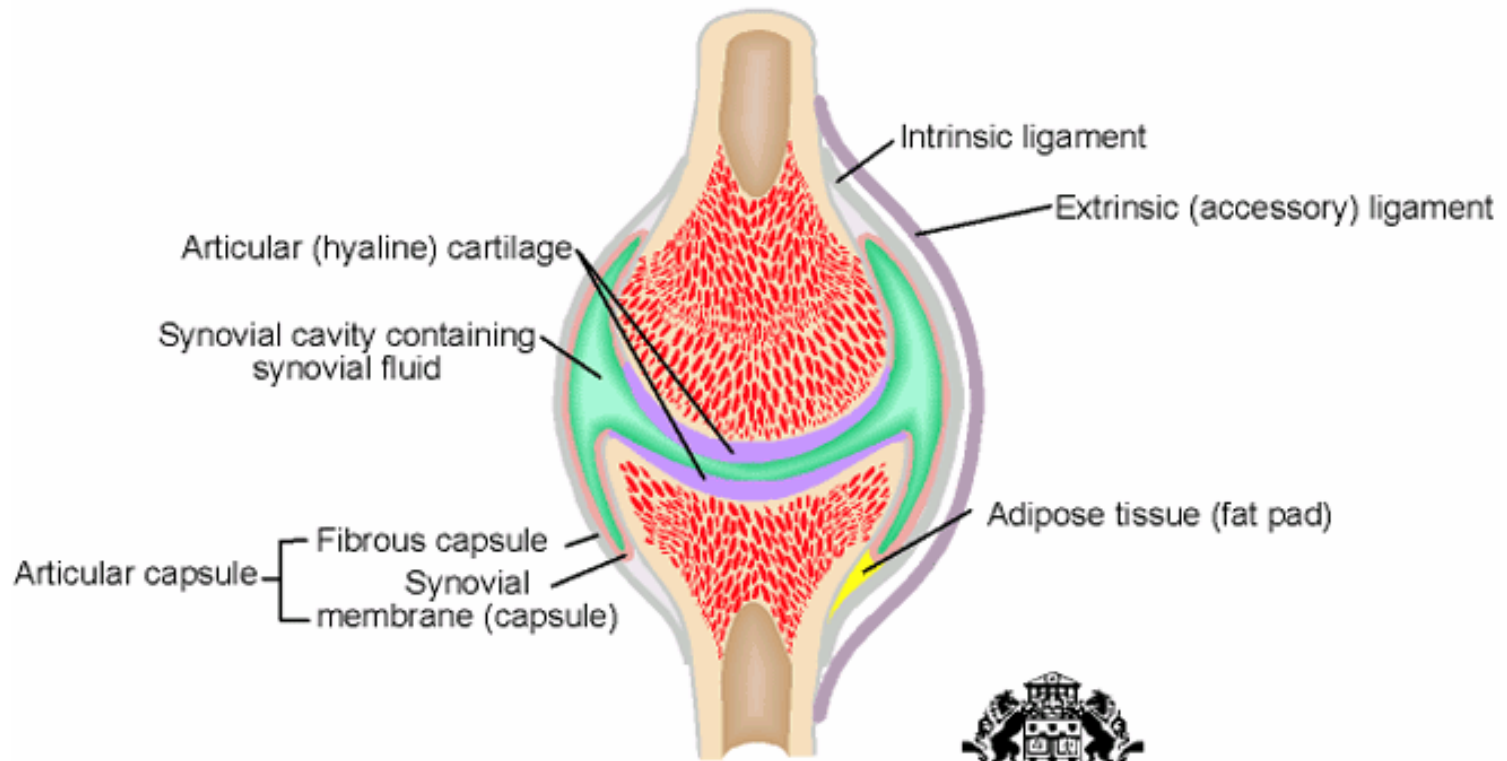
**Synchondroses** formed of hyaline cartilage, as in connecting cartilage (epiphyseal cartilage), between the epiphyses and diaphyses of long bones.

**Symphyses:** The articular surfaces of bones are covered by a plate of hyaline cartilage. Fibrous cartilage and fibrous tissue are present between these plates. E.g.: intervertebral disks and the pubic symphysis.

### **Synovial Joints**

Allow freedom of movement between the bones of the joint.

# Synovial joint



Université d'Ottawa  
University of Ottawa

*Alain M. M...*

Articular disc



Incomplete articular disc



Meniscus



Labrum



Intra-articular cartilage