

Table 12. Other types of connective tissue proper.

Type of connective tissue proper	Structural peculiarity & position	Function
(a) White fibrous connective tissue (Tendon) (Fig. 20)	Matrix is with large number of bundles of thick white fibres. So is highly strong but less elastic.	Tendon joins muscles to bone.
(b) Yellow fibrous connective tissue (Ligament) (Fig. 21)	Matrix is with large number of thick yellow fibres so is highly elastic.	Joins bone to bone.
(c) Adipose connective tissue (Fig.22)	Matrix is with large number of oval or rounded fat cells (adipocytes) having fat globules or fat droplets. It lies beneath the skin and between internal organs.	Acts as insulator so helps in homeothermy . Acts as shock absorber and fat reservoir. It is also found in hump of camel as stored food.

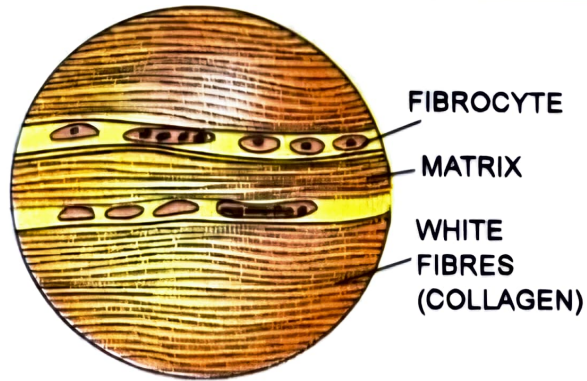


Fig. 20. White fibrous tissue (Tendon).

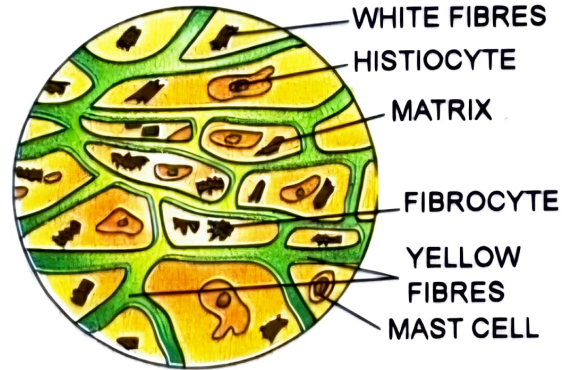


Fig. 21. Yellow fibrous tissue (Ligament).

Table 13. Differences between tendon and ligament.

Characters	Tendon	Ligament
1. Structure	Formed of white fibrous connective tissue.	Formed of yellow fibrous connective tissue.
2. Nature	Tough and non-flexible.	Elastic and flexible.
3. Function	Joins muscles to bones.	Joins bone to bone at the joints.
4. Fibroblasts	Arranged in rows.	Irregularly scattered in matrix.

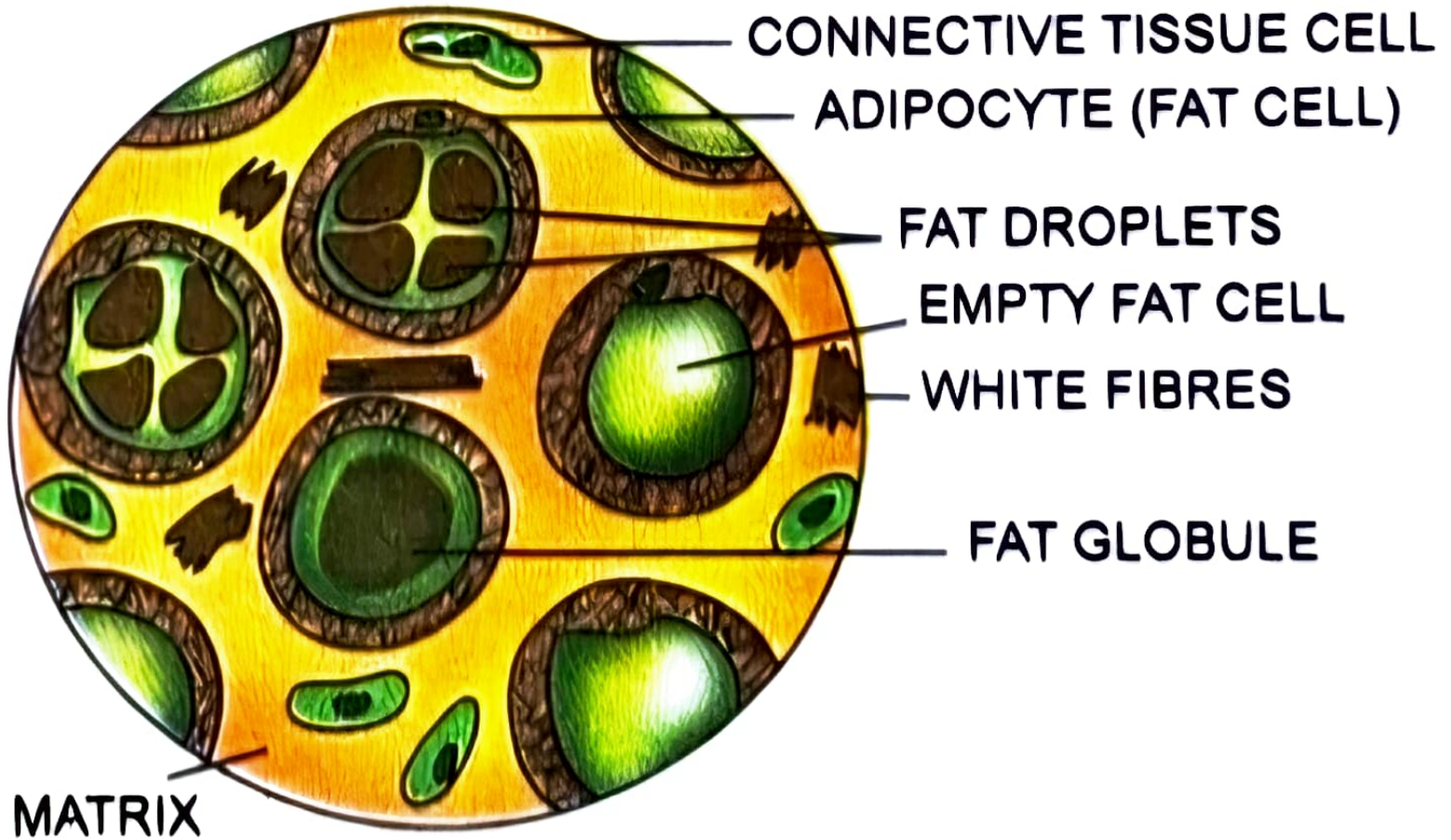
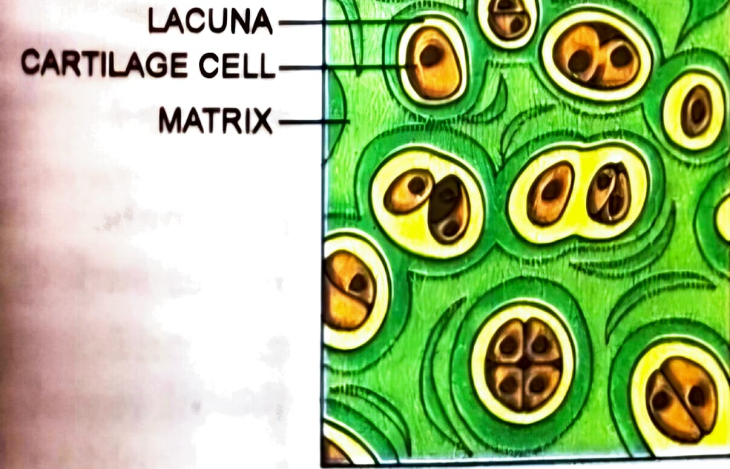
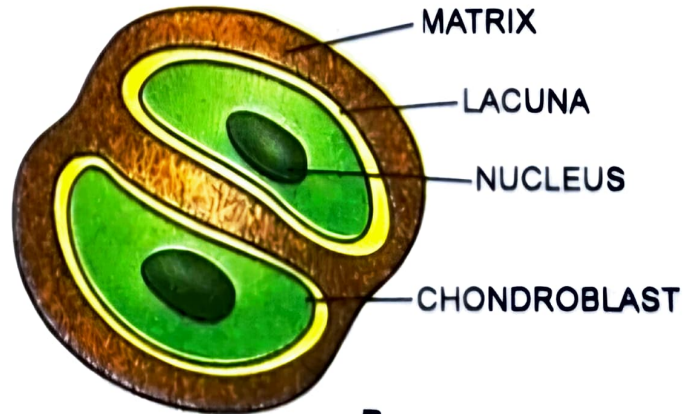


Fig. 22. Adipose tissue.

framework of the body.

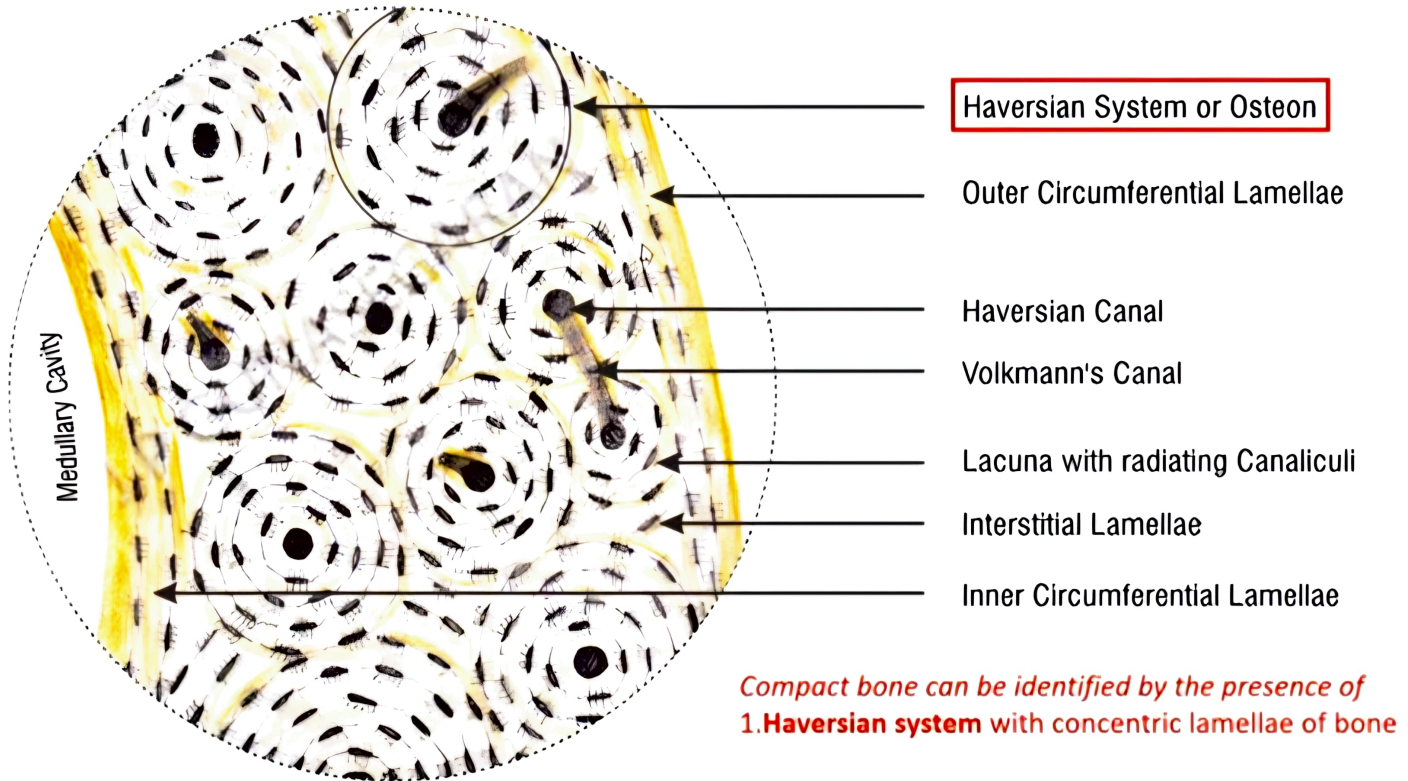


A

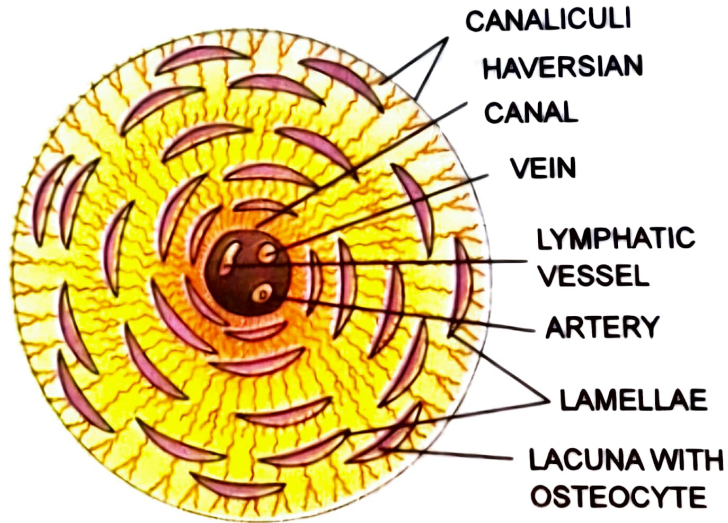


B

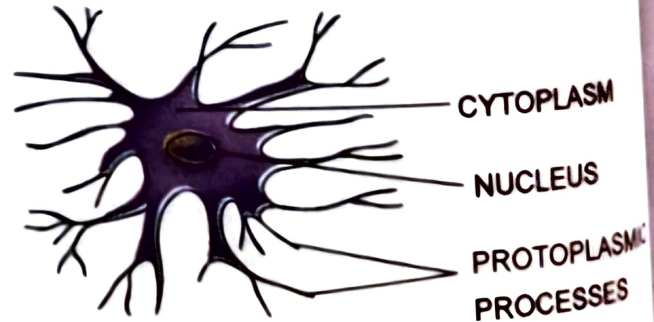
Fig. 23. Hyaline cartilage. A. Transverse section B. Chondroblasts



Compact Bone C.S.
(Ground Section)



A



B

Fig. 24. A. Haversian system; B. An osteocyte.

Functions

Table 14. Differences between cartilage and bone.

Characters	Cartilage	Bone
1. Nature of matrix	Matrix is softer, flexible and non-vascular.	Matrix is harder, inflexible and vascular.
2. Chemistry of matrix	Formed of organic matter, called chondrin protein.	Formed of both organic matter (osseine protein) and inorganic matter (calcium phosphate).

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3. Nature of cells	Chondroblasts present in groups of 2 or 4.	Irregular cells osteocytes .
4. Nature of lacunae	With no canaliculi.	With canaliculi.
5. Canals	With no canals.	With Haversian canals and Volkmann's canals.
6. Arrangement of matrix	Not arranged in rings.	In rings called lamellae .
7. Cavity	Solid internally.	With marrow cavity.
8. Growth	Unidirectional.	Bidirectional.

Table 15. Differences between Blood and Lymph.

Characters	Blood	Lymph
1. Type of tissue	Red vascular tissue.	White vascular tissue.
2. Occurrence	In blood vessels.	In lymph vessels and around the body tissues.
3. Composition	Formed of plasma, erythrocytes, leucocytes and platelets.	Formed of plasma and only leucocytes. Erythrocytes and blood platelets are absent.
4. Haemoglobin	Present in RBCs.	Absent.
5. Nature of plasma	With more proteins, calcium and phosphorus.	Less.
6. Functions	Transportation of materials, defence, blood clotting, etc.	Acts as middle man between blood and body cells.

Table 16. Differences between Striated, Smooth and Cardiac muscle fibres.

Characters	Striated muscle fibres	Smooth muscle fibres	Cardiac muscle fibres
1. Position	Limbs, body wall, tongue etc.	Wall of gut, blood vessels ureters, genital ducts, etc.	Myocardium of heart.
2. Shape	Long and cylindrical with blunt ends.	Small and spindle-shaped with tapering ends.	Small and branched with flat ends.
3. Banding	With dark and light striations.	With no striations.	With striations.
4. Nuclei	Multinucleate.	Uninucleate.	Uninucleate.
5. Functions	Undergo rapid and voluntary contractions.	Undergo slow and involuntary contractions.	Undergo rapid and rhythmic contractions.

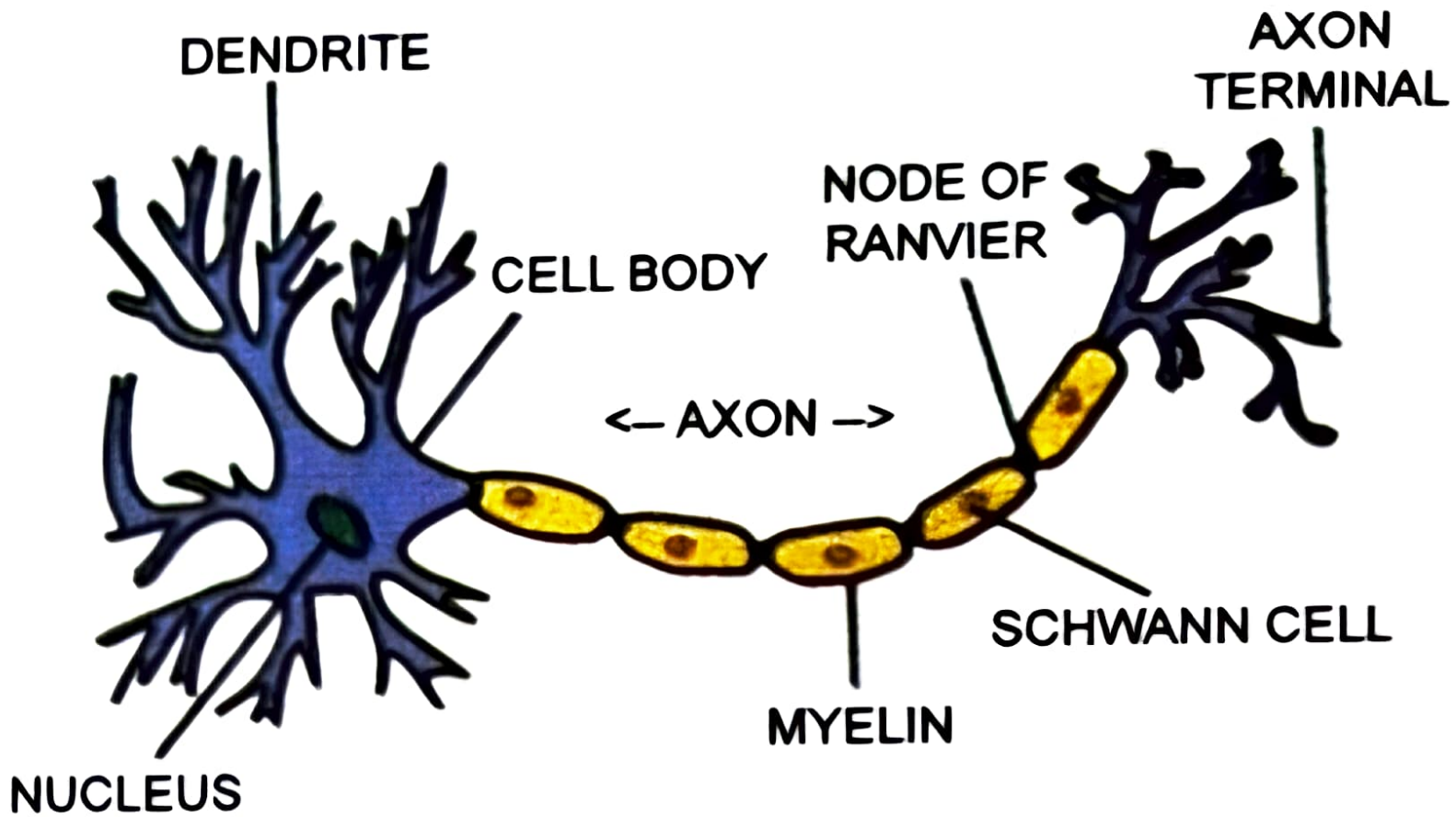


Fig. 31. Neuron and nerve fibres.

Table 17. Differences between Axon and Dendron.

Characters	Axon	Dendron
1. Number	Always single.	May be one or more.
2. Size	Long sized, cylindrical and may or may not be branched.	Small sized, tapering and always branched.
3. Function	These conduct nerve impulses away from cyton.	Conduct the nerve impulses towards the cyton.