



Department of Anesthesia Techniques {Biology}

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Connective tissue is the tissue that connects or separates, and supports all the other types of tissues in the body. Like all tissue types, it consists of cells surrounded by a compartment of fluid called the extracellular matrix (ECM). However connective tissue differs from other types in that its cells are loosely, rather than tightly, packed within the ECM.

Based on the cells present and the ECM structure, we differ two types of connective tissue:

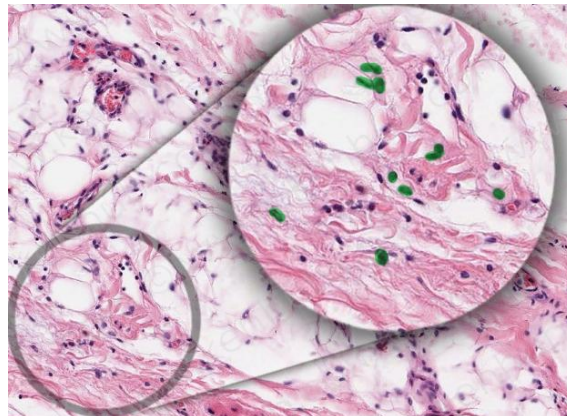
- 1-Connective tissue proper; further divided into loose and dense connective tissues
- 2-Specialised connective tissue; reticular, blood, bone, cartilage and adipose tissues

We know that there are way cooler histology topics than connective tissue, like muscle tissue or neural tissue. But as the connective tissue is the glue that holds all other tissues together, it has the important function of ensuring that our body systems work in harmony.

Cells and fibers of connective tissue

The three components of connective tissue are **cells**, **ground substance** and **fibers**. Ground substance and fibers make up the extracellular matrix (ECM).

The primary cell of connective tissue is the fibroblast. Its function is to produce and maintain the ECM of connective tissue.



Ground substance is a viscous gel made of water, , glycoproteins and other substances. These make the ground substance viscous and bind high amounts of water which allows hydration, diffusion of nutrients and nourishing of the tissue.



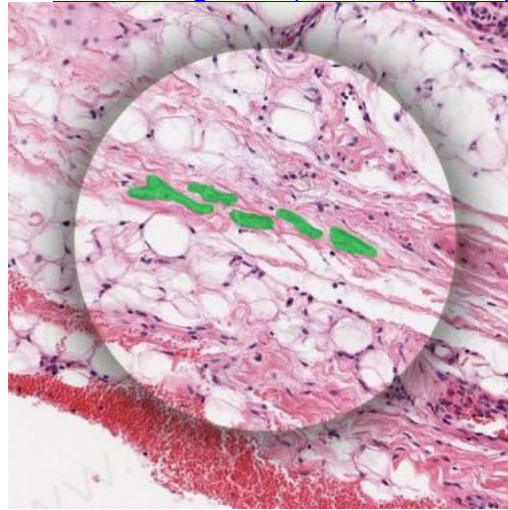
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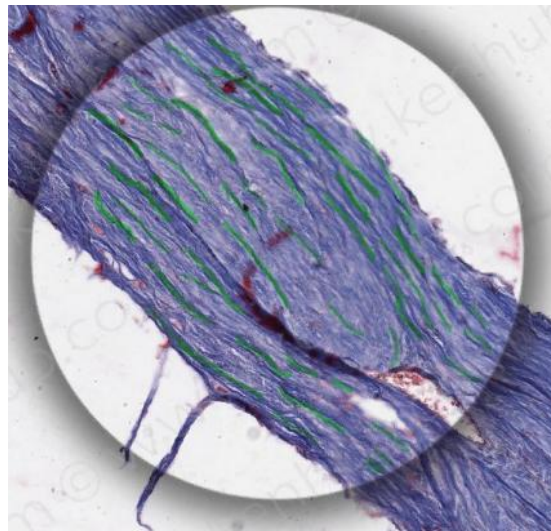
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Fibers There are three types of protein fibers; collagen, elastic and reticula

Collagen fibers

and reticular fibers both belong to the collagen family, of which there are over 20 different types. Collagen fibers are predominantly made of collagen type I.



Reticular fibers

consist of collagen type III, they are thin delicate fibers that form meshlike networks in organs such as the spleen, kidneys and lymph nodes.



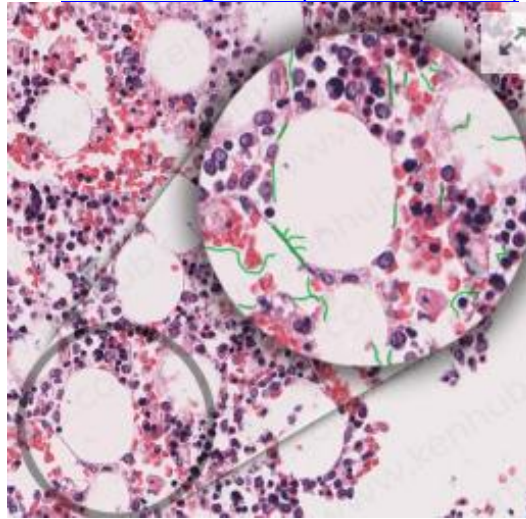
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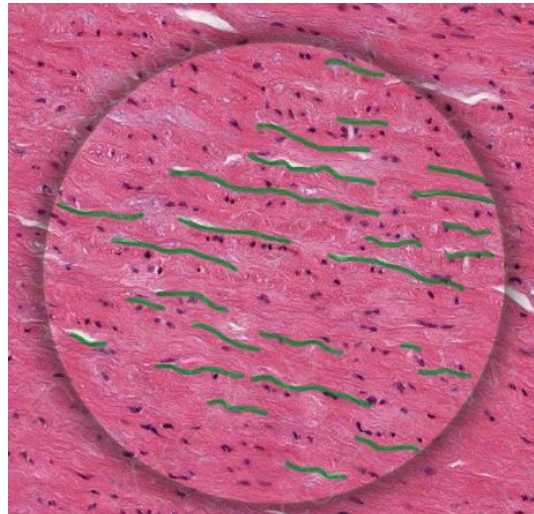
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Elastic fibers

are made from the protein elastin, giving stretching and bending properties to tissues. They are mostly found within the walls of large blood vessels, elastic cartilages, yellow ligaments, lungs and skin.



Connective tissue proper

Connective tissue proper is found throughout the entire body. There are two subtypes of connective tissue proper; loose and regular. They differ in the structural layout of their extracellular matrix.



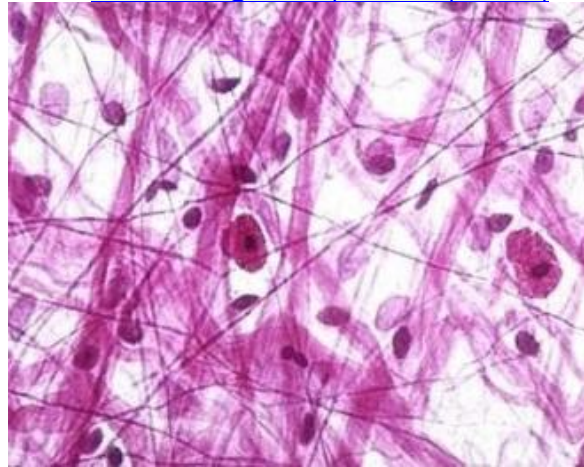
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Loose connective tissue

Loose connective tissue is also called the areolar connective tissue. It has almost equal amounts of cells, fibers and ground substance. Chief cells are the fibroblasts. However, immune system cells are also present. Collagen fibers are the principal fibers of the ECM. They are sparsely distributed within the ECM, which is why this tissue type is called 'loose'. Besides the collagen fibers, moderate amounts of reticular and elastic fibers are present as well.

