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Red Blood Cells

Red blood cells are the most common blood cell and their main role is to carry oxygen to tissues in the body. They have a biconcave shape that gives them greater surface area and flexibility to be able to squeeze through tiny microvasculature. They lack a nucleus and mitochondria. As a result of not containing mitochondria, RBCs do not use the oxygen they transport. Instead, they produce ATP through glycolysis and lactic acid fermentation. Red blood cells have a lifespan of about 120 days after which they are destroyed in the spleen.

If you magnify a section of the spleen, you will see the splenic cords, also called the cords of Billroth, where small strands called reticular fibers are found. As the blood flows through the spleen quickly from the incoming splenic arteries to the outgoing splenic veins, some of the blood gets shunted through the reticular fibers. The passageways through the reticular fibers are so small that red blood cells must bend and fold to successfully make it through. Senile (older) red blood cells lose their flexibility and end up rupturing in the cords of Billroth. In the reticular fibers, splenic macrophages lie in wait to phagocytose and destroy these damaged red blood cells.

Hemoglobin and the Breakdown of Hemoglobin

Important Red Blood Cell Lab Tests

Disorders of the Red Blood Cell Membrane

Types of Thalassemia

Role of Iron and Iron Deficiency Anemia

Megaloblastic Anemias

Aplastic and Chronic Disease Anemia

Polycythemia



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