

Blood Disorders



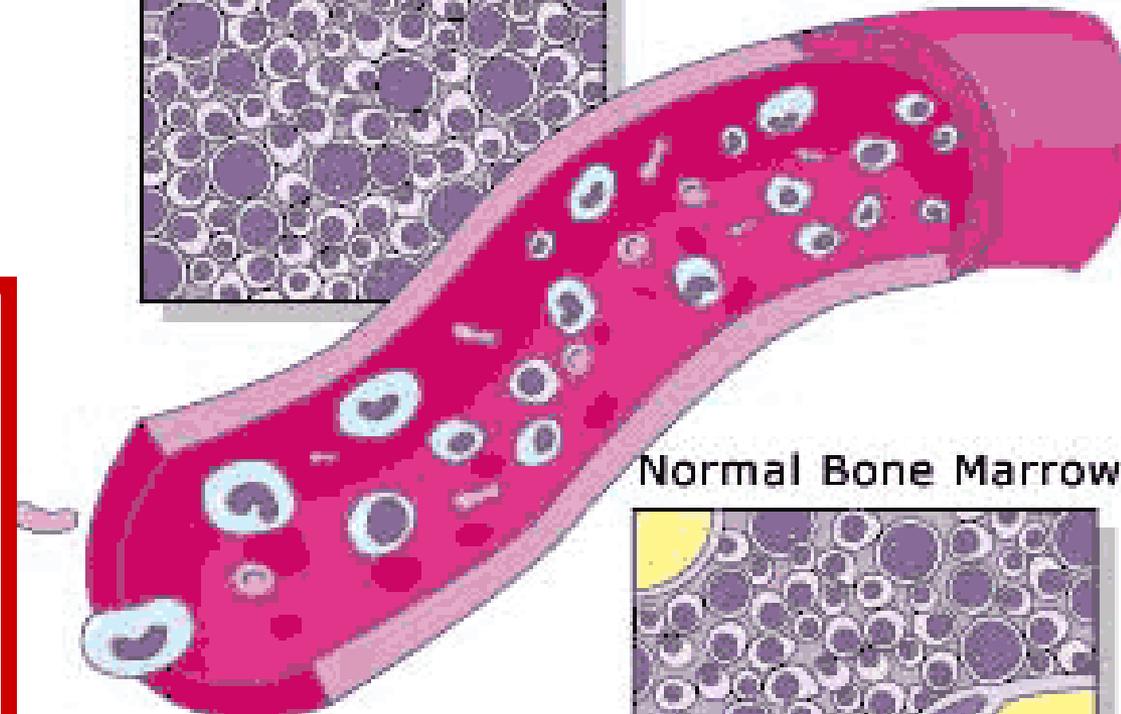
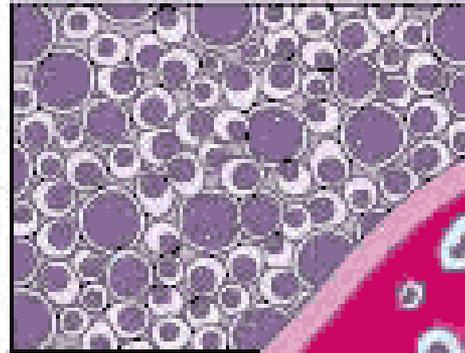
Leukemia

Leukemia is the **cancer** of blood cells, where blood cells produced in the bone marrow **grow out of control**.

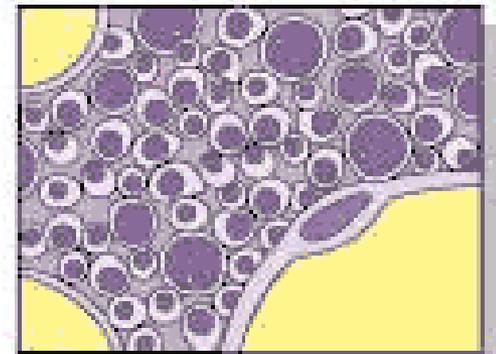
Video: [Leukemia](#)

Leukaemia

Abnormal Proliferation of Cells in Bone Marrow



Normal Bone Marrow



Common symptoms of Leukemia

- Systemic**
- Weight loss
 - Fever
 - Frequent infections

- Psychological**
- Fatigue
 - Loss of appetite

- Lungs**
- Easy shortness of breath

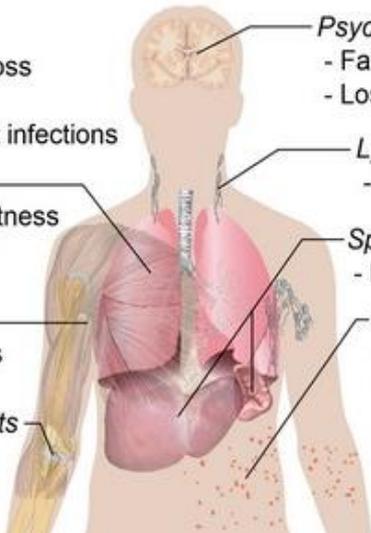
- Lymph nodes**
- Swelling

- Spleen and/or liver**
- Enlargement

- Muscular**
- Weakness

- Skin**
- Night sweats
 - Easy bleeding and bruising
 - Purplish patches or spots

- Bones or joints**
- Pain or tenderness



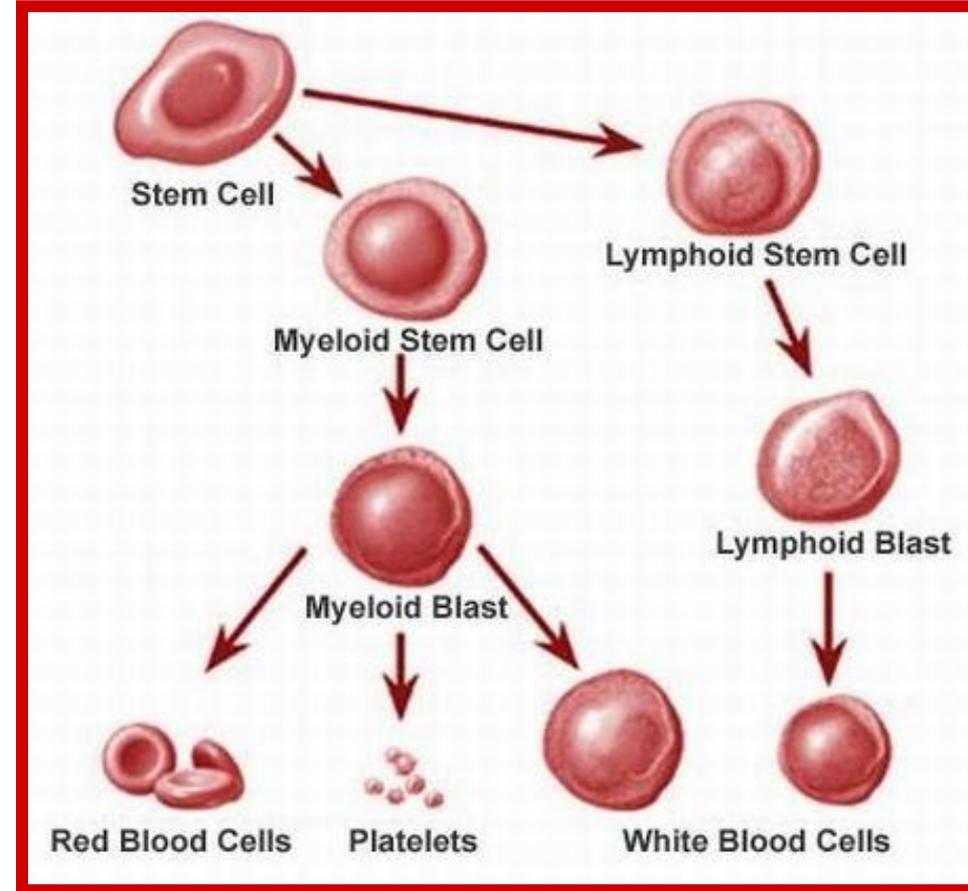
Leukemia

The four most common types of leukemia are:

- acute myeloid leukemia (AML)
- acute lymphoblastic leukemia (ALL)
- chronic myeloid leukemia (CML)
- chronic lymphocytic leukemia (CLL)

Each type of leukemia is named according to the **type** of cell that's affected, and if the disease begins in **mature** or **immature** cells.

Immature cells can overcrowd the circulatory system and inhibit the function of normal cells.

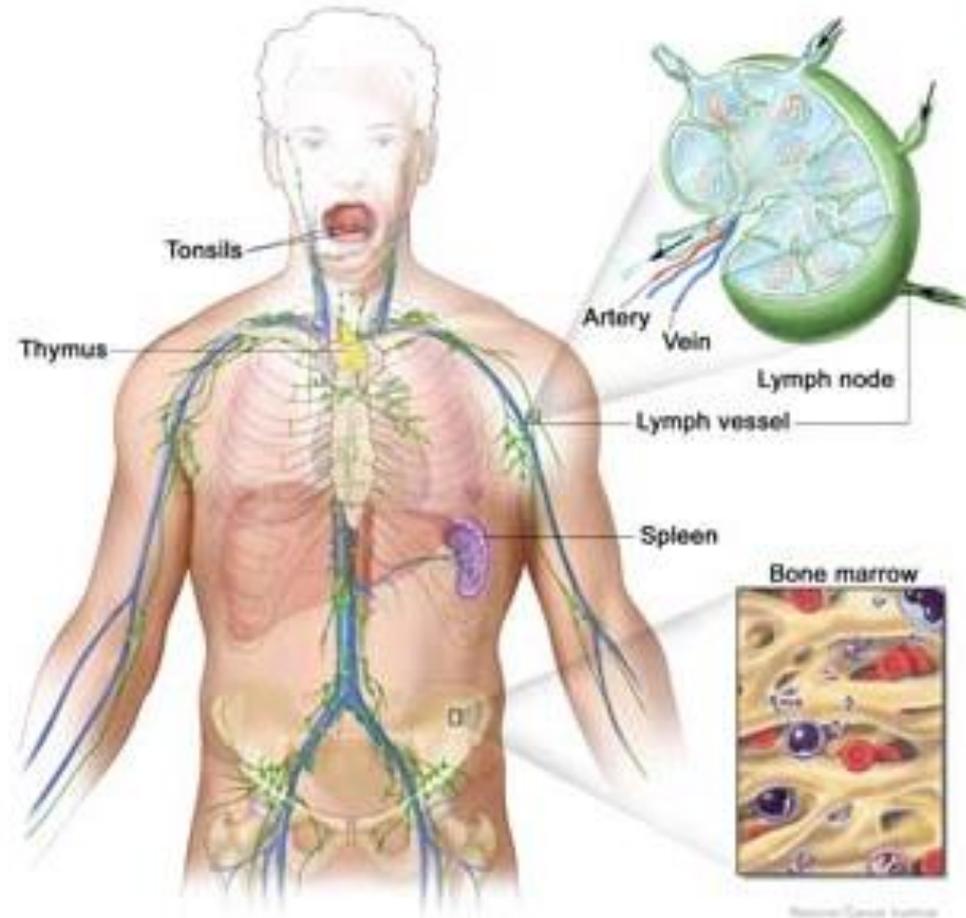


Lymphoma

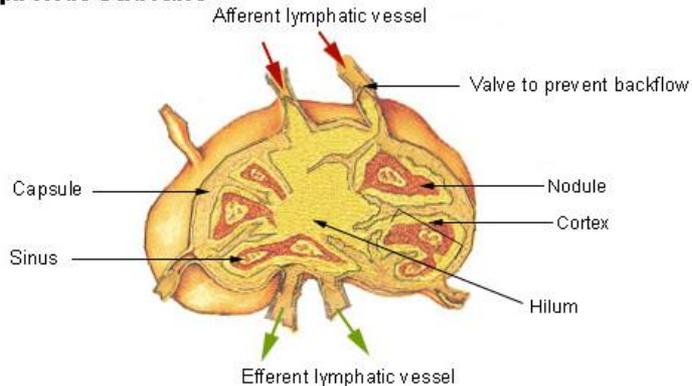
Lymphoma is a blood cancer that develops in the **lymphatic system**.

The lymphatic system is a network of fluid-filled tubes that carry away foreign particles, toxins, products of metabolism, and excess liquid to filters called **lymph nodes** (populated with white blood cells).

Lymphoma usually develops in the **lymph nodes**.



Lymph Node Structure



Mononucleosis

Mononucleosis is caused by the **Epstein Barr Virus** (a type of Herpes virus), which infects lymphocytes.

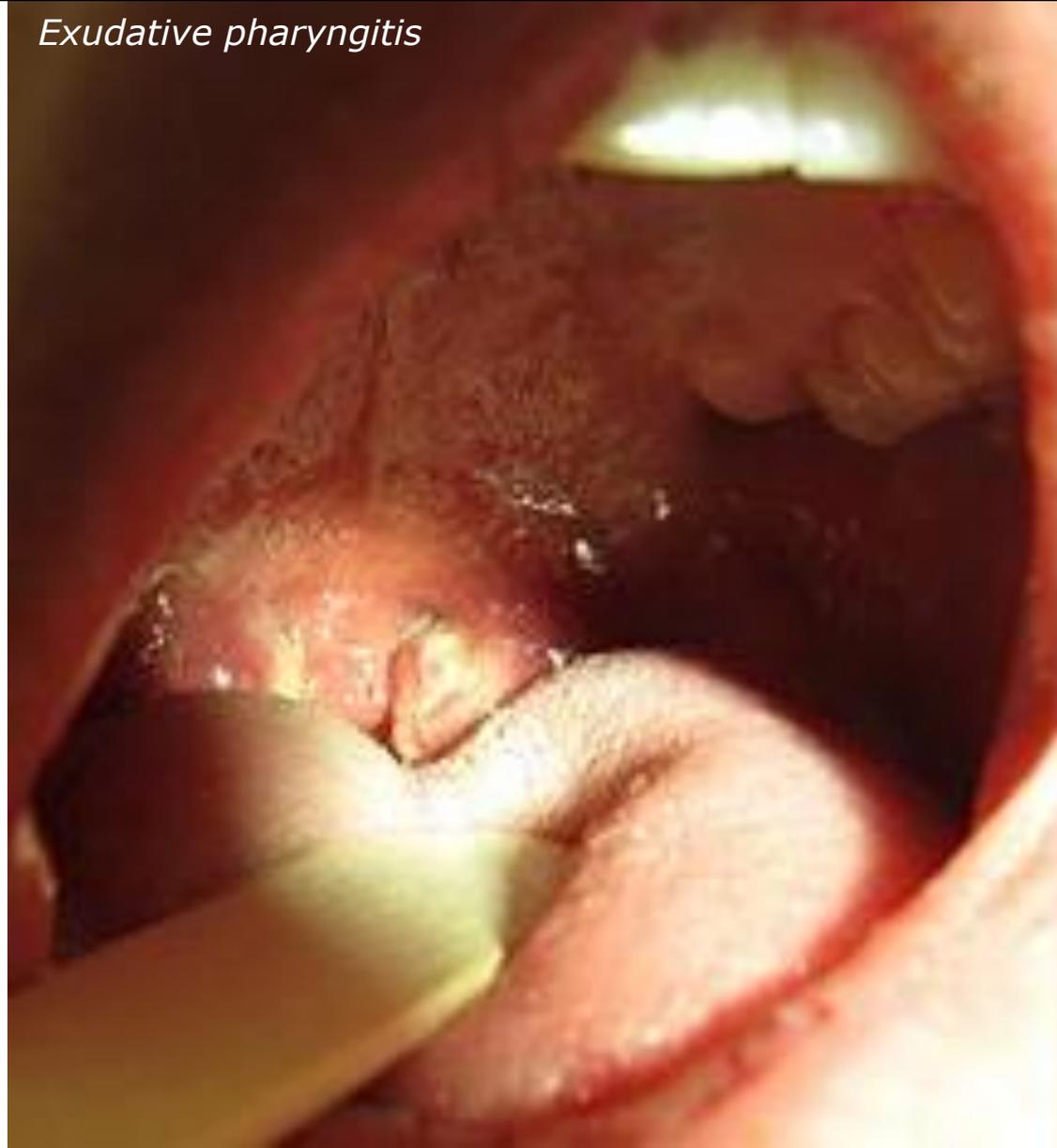
Causes **monocytes** to have **enlarged irregular nuclei**, hence the name "mononucleosis".

More than 90% of adults have been exposed to this virus.

Environmental stressors may "**reactivate**" the virus, allowing the virus to spread to others.

Video: [Mononucleosis](#)

Exudative pharyngitis



Mononucleosis

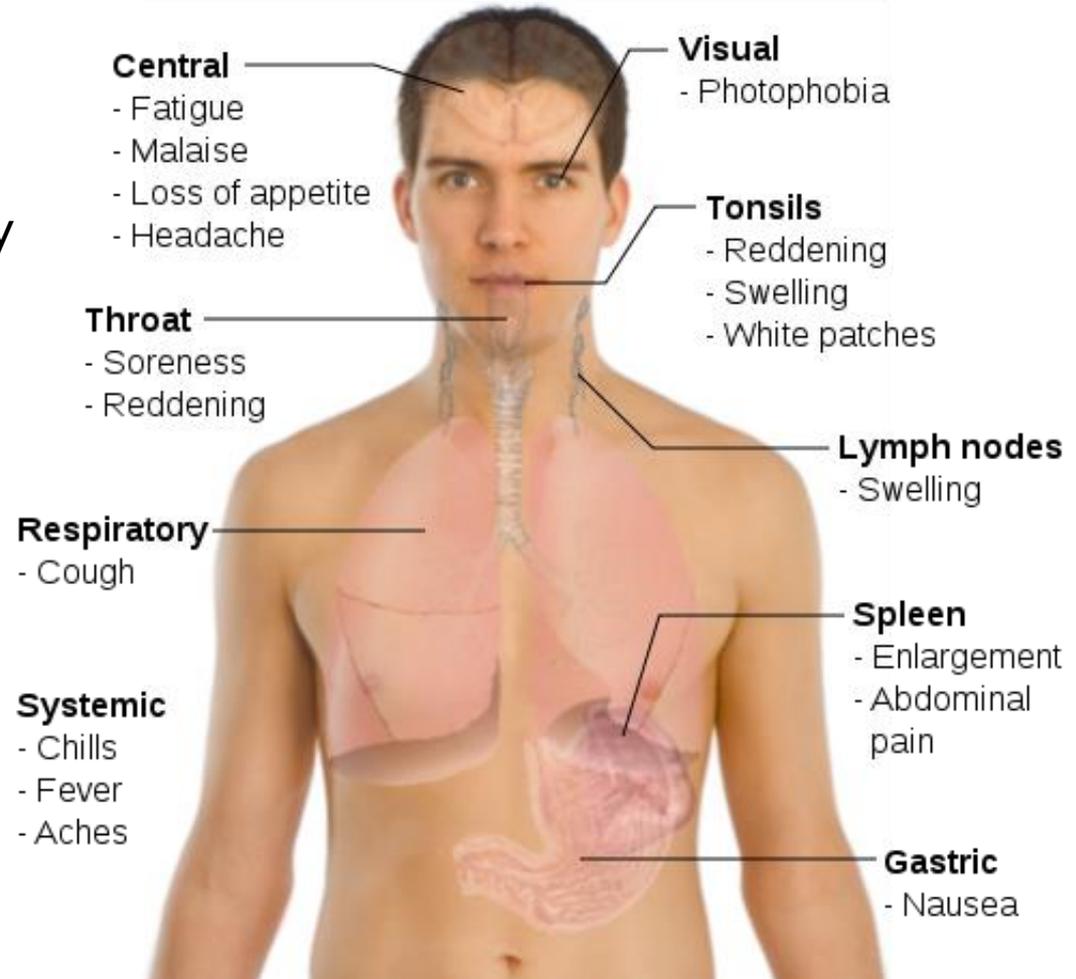
Viral reactivation in the body may be **subclinical** (which means that no symptoms are produced).

Chronic subclinical viral activity has been associated with the following effects in the long run:

-**Autoimmune diseases**

-**Cancer** (i.e. nasopharyngeal carcinomas, Burkitt's lymphoma, and Hodgkin's lymphoma)

Main symptoms of Infectious mononucleosis



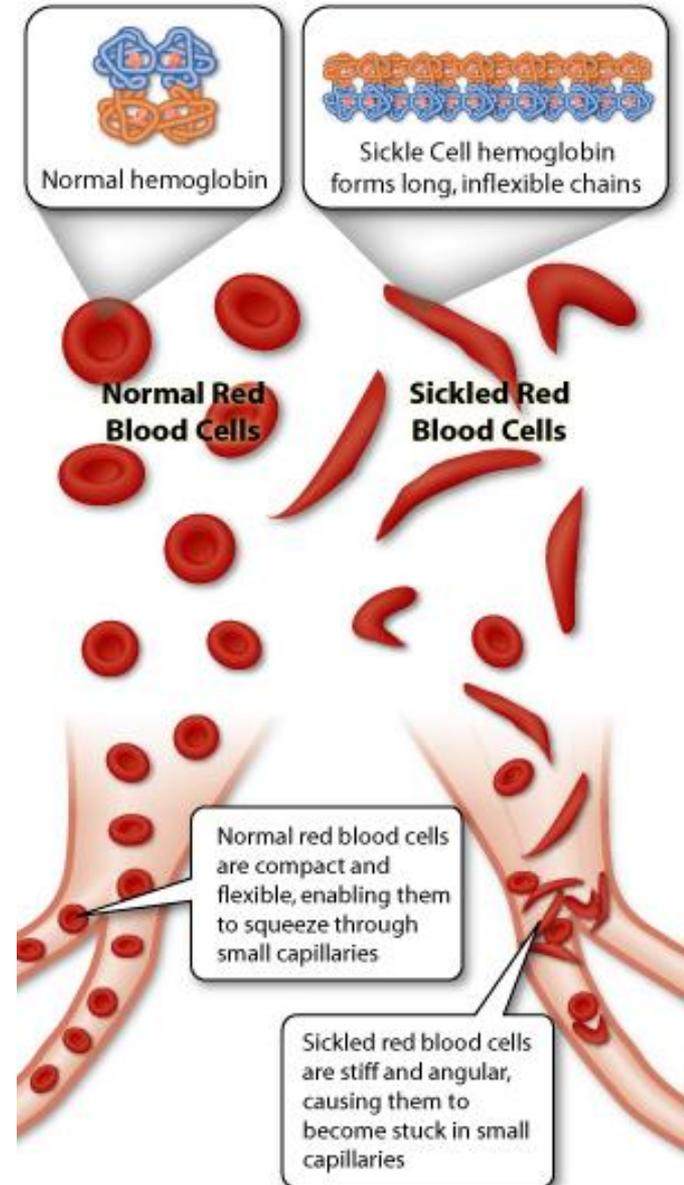
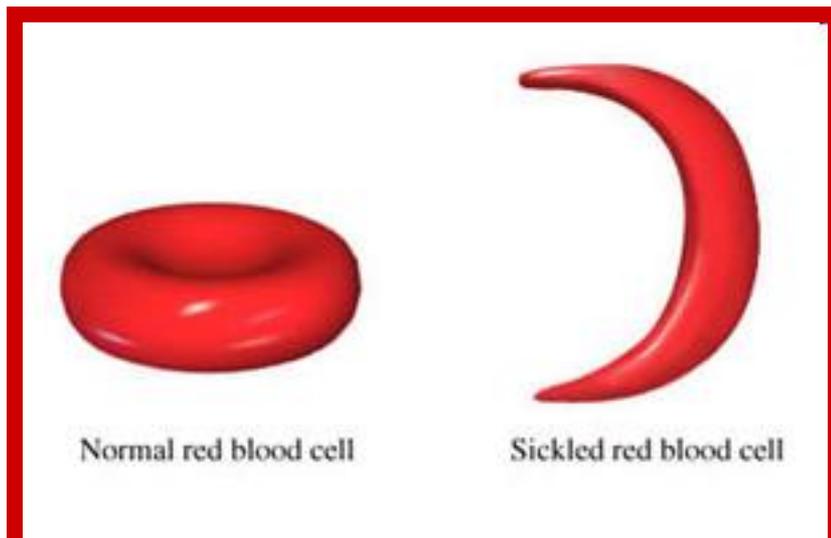
Sickle Cell Anemia

Sickle cell anemia is caused by genetically **abnormal hemoglobin** structure.

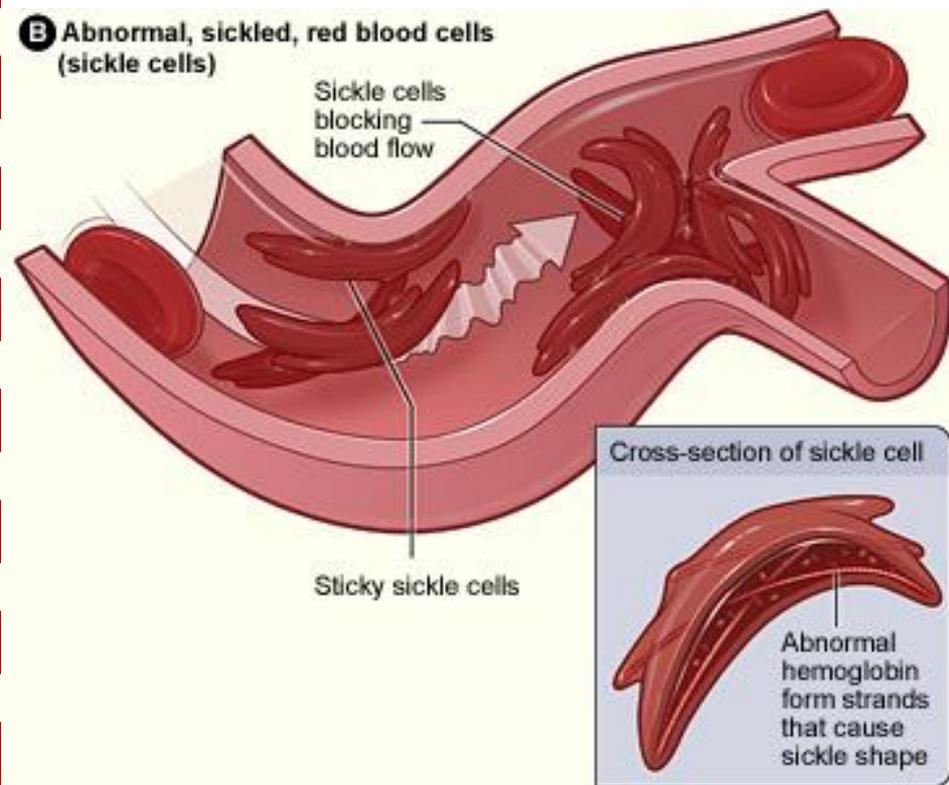
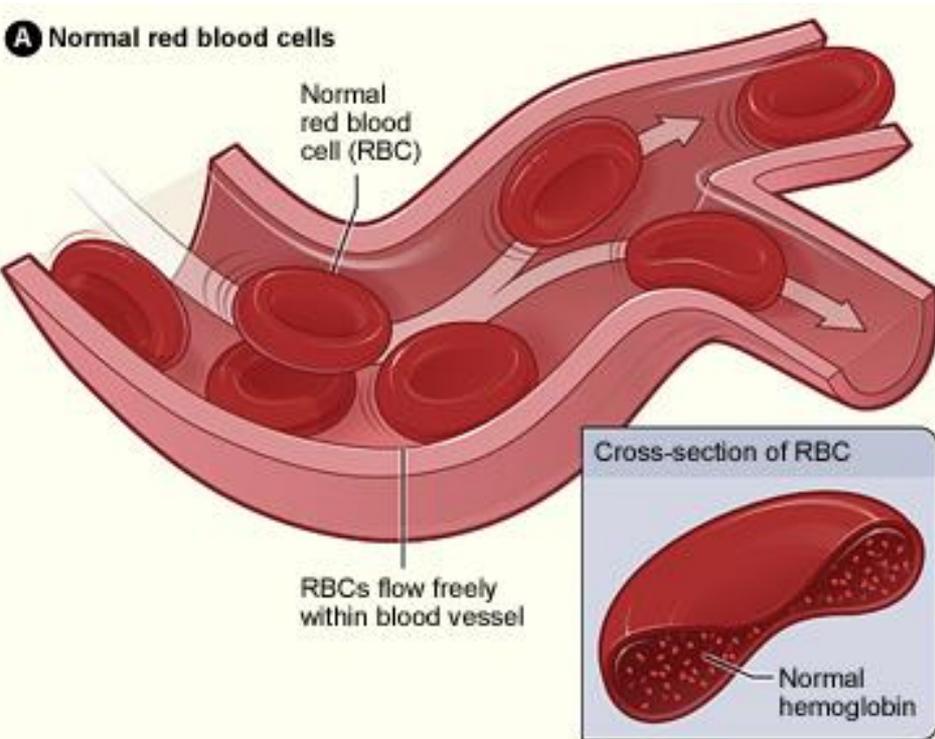
Resulting red blood cells are **sickle-shaped**.

Anemia = Blood unable to deliver enough oxygen to tissues.

Video: [Sickle Cell Anemia](#)



Sickle Cell Anemia

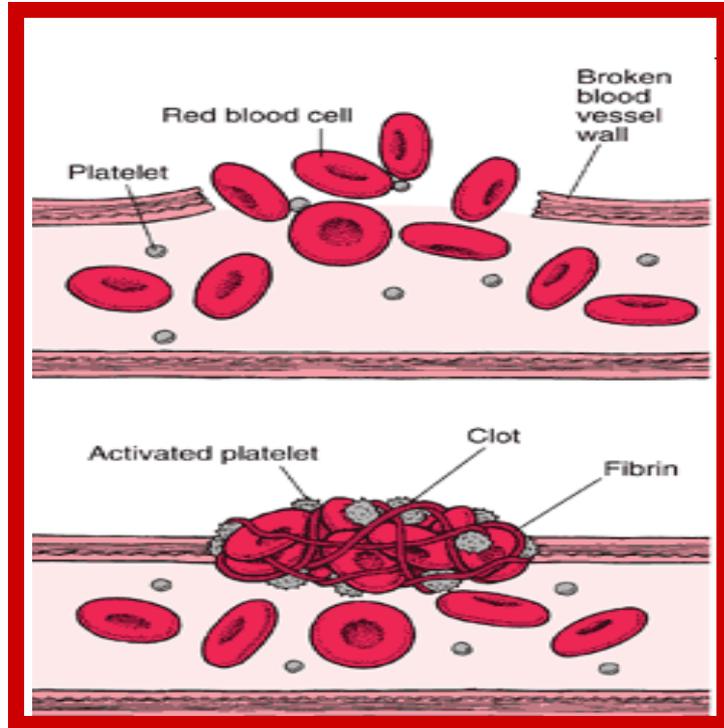


Hemophilia

Hemophilia is a genetic condition where the blood cannot clot.

Blood clotting involves proteins called **coagulation factors**.

Hemophilia is caused by a **lack of factor VIII or IX**.



Hemophilia

Hemophilia predominantly affects **males**.

Video: [Hemophilia](#)

