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# Blood

Your blood is made up of liquid and solids. The liquid part, called plasma, is made of water, salts, and protein. Over half of your blood is plasma. The solid part of your blood contains red blood cells, white blood cells, and platelets.

Red blood cells (RBC) deliver oxygen from your lungs to your tissues and organs. White blood cells (WBC) fight infection and are part of your immune system. Platelets help blood to clot when you have a cut or wound. Bone marrow, the spongy material inside your bones, makes new blood cells. Blood cells constantly die and your body makes new ones. Red blood cells live about 120 days, and platelets live about 6 days. Some white blood cells live less than a day, but others live much longer.

There are four blood types: A, B, AB, or O. Also, blood is either Rh-positive or Rh-negative. So if you have type A blood, it's either A positive or A negative. Which type you are is important if you need a **blood transfusion**


[<https://medlineplus.gov/bloodtransfusionanddonation.html>] . And your Rh factor could be important if you become pregnant - an incompatibility [<https://medlineplus.gov/rhincompatibility.html>] between your type and the baby's could create problems.

Blood tests such as **blood count tests** [<https://medlineplus.gov/bloodcounttests.html>] help doctors check for certain diseases and conditions. They also help check the function of your organs and show how well treatments are working. **Problems with your blood** [<https://medlineplus.gov/blooddisorders.html>] may include **bleeding disorders**


[<https://medlineplus.gov/bleedingdisorders.html>] , **excessive clotting** [<https://medlineplus.gov/bloodclots.html>] and **platelet disorders** [<https://medlineplus.gov/plateletdisorders.html>] . If you lose too much blood, you may need a transfusion.

*NIH: National Heart, Lung, and Blood Institute*


## Start Here

- **Blood (For Parents)** [<https://kidshealth.org/en/parents/blood.html>] (Nemours Foundation)  
Also in Spanish [<https://kidshealth.org/es/parents/blood.html>]
- **Blood Basics** [<https://www.hematology.org/education/patients/blood-basics>] (American Society of Hematology)
- **Blood Donation FAQs** [<https://americasblood.org/for-donors/blood-donation-faqs/>] (America's Blood Centers)
- **Blood Tests** [<https://www.nhlbi.nih.gov/health/blood-tests>]  (National Heart, Lung, and Blood Institute)  
Also in Spanish [<https://www.nhlbi.nih.gov/es/salud/analisis-de-sangre>]

## Diagnosis and Tests

- **What You Need to Know About Blood Testing** [<https://medlineplus.gov/lab-tests/what-you-need-to-know-about-blood-testing/>]  (National Library of Medicine)  
Also in Spanish [<https://medlineplus.gov/spanish/pruebas-de-laboratorio/lo-que-usted-debe-saber-sobre-los-analisis-de-sangre/>]

## Related Issues


- **Cord Blood Testing and Banking** [<https://medlineplus.gov/lab-tests/cord-blood-testing-and-banking/>]  (National Library of Medicine)  
Also in Spanish [<https://medlineplus.gov/spanish/pruebas-de-laboratorio/pruebas-y-bancos-de-sangre-del-cordon-umbilical/>]

- Diversity in Blood Types [<https://www.redcrossblood.org/donate-blood/blood-types/diversity.html>] (American Red Cross)

## Specifics

- Blood Types (For Parents) [<https://kidshealth.org/en/parents/blood-types.html>] (Nemours Foundation)
- Facts About Blood and Blood Types [<https://www.redcrossblood.org/donate-blood/blood-types.html?icid=rdrt-blood-types&imed=direct&isource=drupal>] (American Red Cross)


## Videos and Tutorials

- Red blood cell production [<https://medlineplus.gov/ency/anatomyvideos/000104.htm>]  (Medical Encyclopedia)  
Also in Spanish [<https://medlineplus.gov/spanish/ency/anatomyvideos/000104.htm>]

## Test Your Knowledge

- Play the Blood Typing Game [<https://educationalgames.nobelprize.org/educational/medicine/bloodtypinggame/index.php>] (Nobel Foundation)

## Clinical Trials

- ClinicalTrials.gov: Blood Cells [<https://clinicaltrials.gov/search?cond=%22Blood+Cells%22&aggFilters=status:not%20rec>]  (National Institutes of Health)

## Journal Articles


### References and abstracts from MEDLINE/PubMed (National Library of Medicine)

- Article: Immune Modulatory Effects of PD-1/PD-L1 in Myasthenia Gravis: Insights From Peripheral... [<https://www.ncbi.nlm.nih.gov/pubmed/40748491>]
- Article: Platelet-Rich Fibrin Promotes Wound Healing by Regulating miR-155 Levels in Diabetic... [<https://www.ncbi.nlm.nih.gov/pubmed/40748036>]
- Article: NK Alloreactivity Evaluation According to KIR-HLA Interaction Models Influences the Outcome... [<https://www.ncbi.nlm.nih.gov/pubmed/40747880>]
- Blood -- see more articles [<https://pubmed.ncbi.nlm.nih.gov/?term=%22Blood%22%5Bmajr%5D+AND+humans%5Bmh%5D+AND+english%5Bla%5D+AND+%22last+2+Years%22+%5Bdat%5D+NOT+%28letter%5Bpt%5D+OR+case+reports%5Bpt%5D+OR+editorial%5Bpt%5D+OR+comment%5Bpt%5D%29>]


## Reference Desk

- Biology of Blood [<https://www.merckmanuals.com/home/blood-disorders/biology-of-blood/overview-of-blood>] (Merck & Co., Inc.)  
Also in Spanish [<https://www.merckmanuals.com/es-us/hogar/trastornos-de-la-sangre/biolog%C3%ADa-de-la-sangre/introducci%C3%B3n-a-la-sangre>]
- Hematology Glossary [<https://www.hematology.org/education/patients/blood-basics/hematology-glossary>] (American Society of Hematology)


## Find an Expert

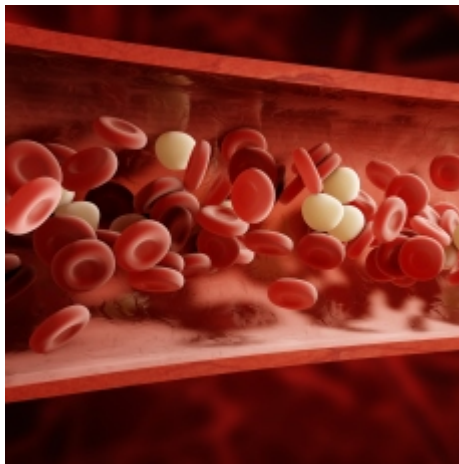
- Find a Hematologist [<https://www.hematology.org/education/patients/find-a-hematologist>] (American Society of Hematology)
- National Heart, Lung, and Blood Institute [<https://www.nhlbi.nih.gov/>] 

## Children

- What's Blood? [<https://kidshealth.org/en/kids/blood.html>]  (Nemours Foundation)  
Also in Spanish [<https://kidshealth.org/es/kids/blood.html>]

# Teenagers

- Blood [<https://kidshealth.org/en/teens/blood.html>]  (Nemours Foundation)  
Also in Spanish [<https://kidshealth.org/es/teens/blood.html>]
- Blood Types [<https://kidshealth.org/en/teens/blood-types.html>] (Nemours Foundation)  
Also in Spanish [<https://kidshealth.org/es/teens/blood-types.html>]



## MEDICAL ENCYCLOPEDIA

Arterial stick [<https://medlineplus.gov/ency/article/003422.htm>]

Blood typing [<https://medlineplus.gov/ency/article/003345.htm>]

Capillary sample [<https://medlineplus.gov/ency/article/003427.htm>]

Cord blood testing [<https://medlineplus.gov/ency/article/003403.htm>]

Red blood cell production [<https://medlineplus.gov/ency/anatomyvideos/000104.htm>]

Venipuncture [<https://medlineplus.gov/ency/article/003423.htm>]

## Related Health Topics

Bleeding [<https://medlineplus.gov/bleeding.html>]

Bleeding Disorders [<https://medlineplus.gov/bleedingdisorders.html>]

Blood Clots [<https://medlineplus.gov/bloodclots.html>]

Blood Count Tests [<https://medlineplus.gov/bloodcounttests.html>]

Blood Disorders [<https://medlineplus.gov/blooddisorders.html>]

Blood Transfusion and Donation [<https://medlineplus.gov/bloodtransfusionanddonation.html>]

Platelet Disorders [<https://medlineplus.gov/plateletdisorders.html>]

Rh Incompatibility [<https://medlineplus.gov/rhincompatibility.html>]

## National Institutes of Health

The primary NIH organization for research on *Blood* is the National Heart, Lung, and Blood Institute [<http://www.nhlbi.nih.gov/>]

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