**Apheresis (Hemapheresis, Pheresis)**

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**What is apheresis?**

Apheresis is a medical procedure that involves removing whole blood from a donor or patient and separating the blood into individual components so that one particular component can be removed. The remaining blood components then are re-introduced back into the bloodstream of the patient or donor.

Apheresis is used for the collection of donor blood components (such a platelets or plasma) as well as for the treatment for certain medical conditions in which a part of the blood that contains disease-provoking elements is removed.

Apheresis is also called pheresis or hemapheresis. The terminology used may also reflect the component of blood that is being removed, such as:

* Plasma (plasmapheresis)
* Platelets (plateletpheresis)
* Leukocytes (leukapheresis or leukopheresis)
* Lymphocytes (lymphopheresis or lymphapheresis)
* [**Red blood cells**](https://www.medicinenet.com/complete_blood_count/article.htm) (erythropheresis)

Total plasma exchange (removal of plasma and replacement with fresh frozen plasma) can also be performed using the apheresis procedure. It is also used for the collection of [**stem cells**](https://www.medicinenet.com/stem_cells/article.htm) from the peripheral blood.

**How is apheresis performed?**

* **[Readers Comments 1](https://comments.medicinenet.com/hemapheresis/patient-comments-5527.htm%22%20%5Co%20%22What%20was%20it%20like%20when%20your%20apheresis%20was%20performed?" \t "_blank)**
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All apheresis procedures involve directing the blood in the patient/donor's veins through tubing to a machine that separates the blood components. The separation is done by either a centrifuge process or a filtration process on the blood in the machine. After the separation, the desired component of the blood is removed, while the remainder of the blood components are reinfused back into the patient. The entire procedure is painless and typically takes about two hours, or only slightly longer than a conventional blood donation.

**What are some possible complications of apheresis?**

Serious complications of donor apheresis are rare. Minor complications of donor apheresis can include bleeding at the donation site and feelings of [**lightheadedness**](https://www.medicinenet.com/dizziness_dizzy/article.htm) that usually resolve quickly.

More serious complications can occur when apheresis is used to treat serious conditions and include:

* bleeding and a tendency to bleed (because clotting factors are removed),
* infection and a tendency toward infection (because the immune system is somewhat suppressed when antibodies are removed),
* [**low blood pressure**](https://www.medicinenet.com/low_blood_pressure/article.htm) (as fluids are removed),
* muscle cramping (as low blood calcium can occur and other [**electrolytes**](https://www.medicinenet.com/electrolytes/article.htm) can be imbalanced).

**What diseases can be treated with apheresis?**

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When used in a therapeutic manner, the apheresis procedure is individualized regarding the frequency of treatments, the volume of blood or components to be removed, and the type of solution used for volume replacement.

The following list of conditions for which apheresis may be of benefit is not all-inclusive. Apheresis can be used in the treatment of:

* [**myasthenia gravis**](https://www.medicinenet.com/myasthenia_gravis/article.htm),
* Waldenstrom's macroglobulinemia,
* Goodpasture's syndrome,
* familial hypercholesterolemia,
* hyperviscosity syndrome (such as mixed **[cryoglobulinemia](https://www.medicinenet.com/essential_mixed_cryoglobulinemia/article.htm)**, thrombotic thrombocytopenic purpura),
* the HELLP syndrome of [**pregnancy**](https://www.medicinenet.com/pregnancy_planning_preparing_for_pregnancy/article.htm),
* clogging of blood vessels (leukostasis) cause by severely elevated white blood count in [**leukemia**](https://www.medicinenet.com/leukemia/article.htm), and
* severely elevated platelet counts in [**leukemia**](https://www.medicinenet.com/leukemia_quiz/quiz.htm) or myeloproliferative disorders.

Apheresis can also be effective in certain cases of:

* systemic [**lupus**](https://www.medicinenet.com/systemic_lupus/article.htm) with life-threatening complications,
* severe [**vasculitis**](https://www.medicinenet.com/vasculitis/article.htm),
* [**polymyositis**](https://www.medicinenet.com/polymyositis/article.htm) or **[dermatomyositis](https://www.medicinenet.com/polymyositis/article.htm)**,
* severe [**rheumatoid arthritis**](https://www.medicinenet.com/rheumatoid_arthritis/article.htm),
* rapidly progressive glomerulonephritis,
* chronic autoimmune polyneuropathy, and
* in cases of solid organ transplantation with a high risk of antibody-mediated rejection of the transplant.