

Blood donation (giving blood)

Introduction

Blood donation involves collecting blood from a donor so it can be used to treat someone else.

Blood donations are an essential part of our healthcare system. If we did not have volunteers giving blood, many medical procedures we take for granted could not take place.

Doctors and surgeons rely on blood donations to carry out life-saving and life-enhancing treatments every day.

How can I donate blood?

Thousands of blood donation sessions are held each year, so it is usually possible to attend one convenient for you.

You will need to answer some questions about your health and have a quick blood test before you can donate blood. This is done to ensure there is no danger to yourself or someone else.

During a blood donation, a needle is used to collect 470ml of your blood.

You will need to rest for a short while after a donation and refreshments will be offered to stop you feeling faint or dizzy.

It is usually recommended that men allow 12 weeks and women 16 weeks between donations.

How is donated blood used?

In most cases, your blood will be separated into its component parts so it can be used to treat a variety of conditions. These components are:

red blood cells – used to treat some types of anaemia and replace blood lost as the result of an accident

platelets – used to treat problems with bone marrow, such as leukaemia and people with blood clotting disorders

plasma – used to treat conditions where abnormal clotting causes bleeding, such as liver disease, and where large volumes of blood have been lost

Donated blood may also be used to improve the life of someone with a terminal illness.

Other types of blood donation

As well as normal blood donation, there are other types of donation that can be used to treat other conditions, such as cord blood or platelet donation.

Cord blood donation

Cord blood – from the placenta and umbilical cord – can be donated after a baby has been born. However, a decision must be made before the birth.

Cord blood, which is rich in stem cells, can be used to treat a number of conditions, such as leukaemia.

Platelet donation

If you have a high platelet count in your blood, you may be able to directly donate platelets. The process is similar to giving blood normally, but often takes a bit longer.

Who can donate blood?

Most people between the ages of 17 and 65 can donate blood, although you must be in good general health.

To reduce the risk to recipients of donated blood, there are rules about who can and cannot donate blood.

For example, people who have ever had HIV, syphilis or hepatitis C can never donate blood.

However, some more common things, such as having a recent piercing or taking certain medication, may also mean you cannot donate blood.

More blood donors are needed

Although most people are able to give blood, only about 4% of the population donate regularly.

As blood can only be safely stored for a relatively short time, hospital blood stocks need to be continuously refreshed. For example, red blood cells can only be stored for 35 days and platelets (the part of the blood that helps prevent excessive bleeding) can only be stored for seven days.

In particular, blood donations are needed from black and Asian people because the current levels of black and Asian donors are very low. Certain ethnic groups often require certain blood types, so having a range of donations from a wide range of ethnic groups is a more effective way of meeting the potential demand for blood.

What happens during blood donation

In most cases, blood donation is a relatively straightforward process.

It is recommended that men only donate blood every 12 weeks and women only donate every 16 weeks (four months). The minimum period between donations is 12 weeks, unless you have a condition called haemochromatosis, in which case a shorter interval may be allowed.

Before donating blood

Before donating blood, make sure you eat and drink at least a few hours before your appointment. This will help stop you feeling faint or dizzy after you have given blood.

Do not drink alcohol before you give blood.

Suitability checks

When you arrive at the donation centre to donate blood, you will be given some information to read. It is important you read this information because it will explain the procedure and help ensure you are suitable to give blood.

After reading the information, you will be asked to fill in a confidential donor health check form. You will be asked a number of questions about your health and lifestyle. It is very important you answer the questions honestly and accurately to ensure the blood you donate is safe to use.

If you are donating blood for the first time, you may also have a confidential discussion with a nurse.

Anaemia check

Once you have completed your donor health check form, a droplet of blood will be taken from your finger tip to check how much haemoglobin it contains.

Haemoglobin is a substance present in red blood cells. It helps carry oxygen around the body. Anaemia is a condition that occurs when you do not have enough red blood cells or when the blood cells do not contain enough haemoglobin. The most common type of anaemia is sometimes known as iron deficiency anaemia.

Symptoms of anaemia can include:

tiredness

lethargy

shortness of breath

palpitations (irregular heartbeat)

If your haemoglobin level is very low, giving blood could make you anaemic. If this is the case, you may need to visit your DOCTOR before you can give blood.

Donating blood

Once you have passed all necessary health checks, you will be able to donate blood. It usually takes 10 to 15 minutes for your blood donation to be collected.

The donation procedure will usually involve a cuff being placed around your arm. The cuff will be inflated to help make it easier for the healthcare professional to access the veins in your arm.

Your arm will be cleaned and a sterile needle inserted into a vein in your arm that is held in place with tape.

You will barely feel the needle. The needle will be used only once and will be discarded after your donation.

During most blood donations, approximately 470ml (just under one pint) of blood will be taken. This amount is only around 10% of an adult's blood supply and your body will be able to replace it very quickly.

As long as you are well hydrated after your blood donation, your body will make up the fluid part of the blood within a few hours. It will take just a few weeks for your body to fully replace all of the blood cells.

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After donating

After donating blood, you will need to rest for a short while. You will be offered refreshments to stop you feeling faint or dizzy. The whole process of donating blood should not take longer than an hour.

If you smoke, it is recommended you avoid smoking for two hours after giving blood because smoking could make you feel faint and dizzy.

Donating blood is very safe, although you may experience some mild after effects, such as:

bruising at the site where the blood was taken (which affects around one in four people)

a sore arm (which affects around one in 10 people)

dizziness and fainting (which affects around one in 15 people)

More serious after effects that require medical treatment are rare, occurring in less than one in every 3,500 cases.

If you become unwell within two weeks of your donation, call the NHS Blood and Transplant on 0300 123 23 23. This is very important as it may mean you had an infection, such as gastroenteritis, when you donated blood and your donation could put the person who receives your blood at risk. Also call this number if you feel persistently faint following your donation.

Blood types

Someone who has a blood transfusion must receive blood from a donor with the same blood type, otherwise their immune system (the body's natural defence against infection) may attack the donated blood. This could lead to potentially life-threatening conditions.

There are two main systems for classifying blood groups. These are:

the ABO blood group system

the Rh system

Your blood group is determined by your ABO group and your RhD group.

There are also many other groups that are less important for most people, but may be very important for some. If you have one of these rare groups, you may be contacted about making special donations.

Who can donate blood?

Most people between the ages of 17 and 65 who weigh over 50kg (7st 12lb) and have a good level of general health will be able to donate blood.

It is usually recommended that women leave 16 weeks and men 12 weeks between donations.

People who cannot donate blood

Before donating blood, you will be asked to fill out a confidential donor health check form. You need to fill out this form to make sure your blood is suitable for donation.

Not everyone can donate blood. This is to ensure those people receiving the blood are not exposed to any harmful viruses or infections.

You may not be able to donate blood if:

you have had a serious illness or major surgery in the past

you have had complicated dental work (it is safe to donate blood 24 hours after having a filling or seven days after a simple extraction)

you have recently come into contact with an infectious disease

you have had certain immunisations within the last four weeks

you are currently on a hospital waiting list, or waiting to have tests

You should not give blood if:

you have a chesty cough, sore throat or an active cold sore

you are taking antibiotics or have finished a course of antibiotics in the last seven days

you are pregnant or have given birth in the last six months

you have had hepatitis A or jaundice in the last 12 months

you have had an ear piercing or body piercing in the last four months

you have had a tattoo in the last four months

a member of your immediate family has had Creutzfeldt-Jakob disease (CJD), a rare condition that affects the nervous system and causes brain damage

you have visited a part of the world where malaria is common in the last six months

you have received human pituitary extract (a substance used in some growth hormone and fertility treatments before 1985)

you have received blood during the course of a medical treatment or procedure since 1980

You should not donate blood for 12 months after having sex with:

a prostitute

someone who has injected drugs

someone who has haemophilia (a condition that stops your blood from clotting normally)

someone who has been sexually active in parts of the world where AIDS and HIV are common, such as sub-Saharan Africa

a man who has had oral or anal sex with another man (if you are female)

a man (if you are male)

You should never donate blood if:

you have ever had HIV

you have ever had hepatitis C

you have ever had syphilis

you have ever had human t-lymphotropic virus (HTLV)

you have ever injected yourself with drugs

you have ever worked as a prostitute

How is blood donation used

Blood donations save lives every day. They are used in a wide variety of different situations and to treat a large number of different illnesses and conditions.

Screening

After your blood has been collected for donation, it is sent for testing in a laboratory. Here, it is screened for viruses and infections such as HIV and hepatitis.

If the blood passes this screening, it will usually be separated into different components. This means your blood donation can be used to help several different patients.

Once the blood has been separated, it is distributed to hospitals all over the country. It is usually then stored in a blood bank until needed.

When the blood is needed, a process known as blood transfusion is used to give it to a recipient.

Different components

The different components that blood donations are split into are outlined below.

Red blood cells

Red blood cells are the cells that carry oxygen around the body in a substance known as haemoglobin.

Red blood cells are often used to treat types of anaemia that do not always respond to other forms of treatment, such as medication. For example, sickle cell anaemia (a genetic condition that stops the red cells from carrying enough oxygen) is sometimes treated using red cells.

Red blood cells are also often used to replace blood lost as a result of an accident, surgery or during childbirth. In some cases, these cells are also used before operations and surgical procedures. For example, you may need preoperative red blood cells if you are severely anaemic or have severe burns.

Platelets

Platelets are the cells in your blood that help it to clot. They are often used to treat bleeding caused by bone marrow failure. Bone marrow is the spongy tissue inside your bones that helps produce new blood cells. When the bone marrow is not able to produce enough cells, it is known as bone marrow failure.

Platelets are also used to treat bleeding caused by leukaemia (a form of cancer that affects the blood cells).

Read more about platelet donation.

Plasma

Plasma is a yellow-coloured fluid that helps carry all the different types of blood cells. It is usually frozen.

Frozen plasma is used to help replace blood lost during childbirth or heart surgery.

Read more about plasma products.

Terminal illness

As well as saving lives, blood donations can also help improve the quality of life of people with a terminal illness. A blood transfusion may give them the energy to spend time with friends and relatives.

Cord blood donation

Cord blood is the blood that remains in the placenta and umbilical cord after a baby is born. It can be used to treat many life-threatening conditions.

For example, conditions such as leukaemia (cancer of the bone marrow cells) and problems with the immune system (the body's defence system) can be treated with a cord blood transplant.

After a baby is born, the placenta and umbilical cord are usually thrown away. However, as this is a rich source of stem cells, the NHS Cord Blood Bank was set up in 1996 to collect, process, store and supply cord blood for transplants.

Once the cord blood has been processed and frozen, it can be stored until a patient with a matching tissue type needs a stem cell transplant. Research has shown that units can be stored for up to 20 years.

Mothers must give their consent for the cord blood and any part of the placenta or cord itself to be collected. Without consent, the placenta and cord blood will be thrown away. When giving consent for the donation, the mother gives up all future rights to the donation.

Platelet donation

A platelet donation is a relatively new way of donating blood. It involves using special equipment to separate platelet cells from donated blood.

Platelet cells are very useful for treating a range of conditions and situations, including:

leukaemia (bone marrow cancer)

excessive blood loss

people who have just received a bone marrow transplant

The advantage of platelet donations is that a small amount can be used to treat several people. One donation is often enough to treat up to three adults or twelve children.

The disadvantage is that donated platelets can only be stored safely for seven days. This means there is a constant demand for new donors.

Not everyone who can donate blood is able to donate platelets, because you need a higher than average platelet rate in your blood for the donation to be successful. Your platelet rate will be tested before the donation goes ahead.

Do not be alarmed if testing shows you have an average platelet rate and are unable to donate platelets. This is perfectly normal and nothing to worry about.

The donation procedure is similar to regular blood donation except it takes slightly longer (about 90 minutes).

The rules for who cannot donate are similar to those for donating blood. However, you also cannot donate platelets if:

you have taken aspirin, aspirin-containing medicines or piroxicam in the last five days

you have taken a non-steroidal anti-inflammatory (NSAID) drug such as ibuprofen in the last 48 hours

Read more about who can make a blood donation.

Due to the specialised equipment needed to separate platelets from the blood, a donation can only be made at specialised platelet donation centres.