Children, Youth and Women's Health Service

Blood - we can't live without it!

Kids' Health Topic

What is blood?

Blood is the fluid that keeps our bodies going.

- It is a transport system that carries oxygen and the essential chemicals to where they are needed in the body. At the same time it picks up the waste that the different parts of the body no longer need and delivers that waste to whichever part of the body is responsible for getting rid of it.
- It helps us fight infections and keep our body healthy.
- It carries heat around our bodies, to keep our fingers warm and stop our brains from overheating.

What is in blood?

- More than half of blood is plasma. This is a clear, pale yellow liquid, which carries all the blood cells and platelets and chemicals such as hormones and glucose.
- Red blood cells are responsible for carrying oxygen round the body, and collecting carbon dioxide (say di-ox-ide) and taking it back to the lungs where it can be breathed out.
  - There are millions of red blood cells in one small drop of blood.
  - These cells are red because they hold a red coloured chemical called haemoglobin (say he-ma-glow-bin). This chemical, which contains iron, carries oxygen from the lungs all round the body, and gets rid of the carbon dioxide that the body doesn’t need by taking it back to the lungs.
  - Red blood cells are being made all of the time in the bone marrow inside many bones of the body, such as the bones of the pelvis and thighs. They live for about 4 months, then are broken up and much of the contents are used to make new blood cells.
- White blood cells act as the defenders of the body against germs or foreign bodies (such as splinters).
  - There are normally around 5,000 to 7,000 white cells in a millilitre of blood, but the number of white cells goes up a lot when you are sick (maybe up to 25,000).
  - The white blood cells work with special proteins called antibodies, which also travel in the blood, to protect against diseases that you have some immunity to. You can get this immunity through having had an infection or by having been immunised against a disease like polio or chicken pox.
- The platelets are sticky little cells that move around in the blood until a blood vessel is injured in some way (when bleeding starts). The platelets join together with a protein called fibrinogen (say fy-brin-o-jen) to make a sort of web to form a clot, which stops the flow of blood out of a blood vessel.
- All the energy-giving substances coming from food are carried along by the blood to where they are needed.
Hormones such as insulin (from the pancreas) and growth hormone (from the brain) are carried around the body by blood.

Waste products are carried to where they can be sent out of the body (for example to the kidneys, lungs and liver).

One final thing that we might not think of is carried by blood. Heat! The outer parts of our body (such as our fingers and toes) stay warm because heat which is made in the centre of the body (in the liver and in muscles for example) is carried to them by our blood. Our liver, heart, muscles and brain don’t overheat, because heat is carried away from them by our blood!

Blood types

Our immune system does not damage cells in our own bodies because it recognises that they are ours. If cells from someone else's body are placed in our body, our immune system recognises that they are not ours, and destroys them.

For most body cells there are lots of different markers (antigens - say ant-i-jens) that tell our immune system that something does not belong in our body, but for red blood cells there are only a few main antigens (A, B and Rh) on their surface.

There are only four main types of blood,
- A (with A antigen on the surface of the red blood cells, but not B)
- B (with B antigen, but not A)
- AB (with both A and B)
- O (no A or B)

Some years ago, after studying Rhesus monkeys (because their blood is very similar to ours) scientists discovered some people had another antibody on their red blood cells while others did not. They called this the Rhesus factor and so now we know that people may have the same blood group, eg A, but some of them will be A Rh+, because they have the Rhesus factor, while others will be A Rh-, meaning they do not have the Rhesus factor.

Blood transfusions

Sometimes people need extra blood because they have lost more than the body can make in a short time or they are not making enough red blood cells (this is called anaemia (say an-ee-me-a)).

Doctors can give blood from one person to another in what is called a transfusion (say trans-few-shun).

The blood that someone is given is ‘matched’ so that it won’t be destroyed by their immune system.

Type A blood can go to anyone who has type A or AB.

Type B blood can go to anyone with B or AB.

AB blood can only go to a person with AB blood.

can be given to anyone, so someone with that blood is called a 'Universal donor.'
But

- A person with type A can only take blood from someone with type A or O.
- Type B can only take blood from someone who is B or O.
- AB can receive blood from anyone. This is known as being a 'universal receiver.'
- Type O can only receive blood from someone who is type O.

Nowadays a lot of people give blood regularly to give to other people who need it because they have been injured, have an operation or are sick. Sometimes people who are going to have a big operation will have blood taken several weeks before the operation, so that they can get their own blood back if they need a transfusion. All blood donated is carefully examined to see that there are no diseases such as hepatitis B, hepatitis C or HIV in it which could infect the person who will get it.

Blood

Blood is red
It runs through your head
Blood is important, if you don't have it
You're sure to die in one hit.
If you donate it would be great.
Better to help one another than hate.

Brittany

Dr Kim says

Many people donate blood every few months. This is a good way of helping others who need help. Giving blood doesn’t hurt and your body soon makes more to replace it. In South Australia you need to be between 16 and 70 years old, and healthy, to donate blood.

Blood is amazing. Help your blood by eating healthily so that you get all the vitamins and minerals your body needs. Some girls have very heavy periods when they start having periods, and if they do not get enough iron in their diet (maybe they are vegetarian or don’t eat red meat), they can become anaemic and feel tired much of the time. If you think you might have this problem, go to see your doctor.
Blood

Isn't it amazing
What our blood can do?
Carrying everything around
My body and yours too.
Vitamins and minerals
Water, waste (that's poo!)
A really super highway
To every bit of you.

BH

Interesting stuff about blood

➢ Every second about 2 million blood cells die - that's ok though because new ones are being made all the time to replace them.

➢ Average sized women have about 4.5 litres of blood while average sized men have about 5.6 litres.

➢ In the 'olden days' some people used blood as a paint to decorate themselves or their belongings.

➢ Blood stains are hard to get out of clothes unless you wash them as soon as possible with cold water.

➢ Lobsters have blue blood.

➢ Kings and Queens and other 'royals' have the same colour blood as us even though they are sometimes called 'blue bloods'.

➢ When you put a shell to your ear the noise that you hear is not the sound of the ocean. It is the sound of blood moving through the arteries in your ear.

➢ It takes less than a minute for a blood cell to do a complete lap of your body. That's really moving!