

# Blood Test - General Points

This leaflet gives general information about blood tests. There are separate leaflets that describe various specific types of blood test.

## What is blood made up of?

- **Plasma**, the liquid part of blood, makes up about 60% of the blood's volume. Plasma is mainly made from water, but contains many different proteins and other chemicals such as hormones, antibodies, enzymes, glucose, fat particles, salts, etc.
- **Blood cells**, which can be seen under a microscope, make up about 40% of the blood's volume. Blood cells are made in the bone marrow by blood 'stem' cells. Blood cells are divided into three main types.
  - **Red cells** (erythrocytes). These make blood a red colour. One drop of blood contains about five million red cells. A constant new supply of red blood cells is needed to replace old cells that break down. Millions are released into the bloodstream from the bone marrow each day. Red cells contain a chemical called haemoglobin. This binds to oxygen, and takes oxygen from the lungs to all parts of the body.
  - **White cells** (leucocytes). There are different types of white cells such as neutrophils (polymorphs), lymphocytes, eosinophils, monocytes, basophils. They are a part of the immune system and are mainly involved in combating infection.
  - **Platelets**. These are tiny and help the blood to clot if we cut ourselves

To constantly make blood cells, haemoglobin, and the constituents of plasma, you need a healthy bone marrow and nutrients from food including iron and certain vitamins.

When blood spills from your body (or a blood sample is taken into a plain glass tube) the cells and certain plasma proteins clump together to form a clot. The remaining clear fluid is called serum.

## How is a blood test normally done?

- The vein used for blood sampling is usually on the inside of your elbow or back of your wrist.
- A tourniquet (tight band) is usually placed around your upper arm. This makes the vein fill with blood and makes it easier for the blood sample to be taken.
- The skin over the vein is usually cleaned with an antiseptic wipe.
- A needle is then inserted into the vein through the cleaned skin. The needle is connected either to a syringe, or directly to blood sample bottles.
- When the required amount of blood is taken, the needle is removed. The small wound is pressed on with cotton wool for a few minutes to stop the bleeding and prevent bruising. A sticky plaster may be put on. The blood is placed in bottles.

## Variations of blood taking

- Some blood tests require several samples taken over a period of time. For example, they may be done to check how you respond to something. If you require repeated samples fairly close to each other (over the next few hours or so) a doctor may insert a 'butterfly' needle into the vein which can be taped to the skin. Samples of blood can then be taken without using a needle each time.
- If only a small amount of blood is needed (for example, for checking blood sugar using a test strip of paper) then a few drops of blood can be squeezed out from a small prick in the tip of the finger or earlobe.
- Some blood tests are taken from an artery in the wrist. For example, to measure the level of oxygen in the artery. This is usually only done in hospital in certain circumstances.
- You may be told to not eat for a time before certain tests. For example, a test of blood glucose is commonly done first thing in the morning before you have anything to eat.

## Are there any complications from blood taking?

- Sometimes a bruise develops where the needle was inserted. This is much less likely to happen if you press over the site with cotton wool for several minutes with your arm left straight (not bent).
- As with any wound, an infection may develop where the needle was inserted. See your doctor if the wound site becomes red and inflamed.
- Rarely, some people feel faint during a blood test. Tell the person doing the test if you feel faint as you should immediately lie down to prevent fainting.

## Different blood samples

Blood can be tested for many different things. The person who requests the blood test will write on the form which tests they want the 'lab' to do. Different blood bottles are used for different tests. For example, for some tests the blood needs to clot and the test is looking for something in serum. For some tests, the blood is added to some chemicals to prevent it from clotting. If the blood glucose is being measured, then the blood is added to a special preservative, etc. This is why you may see your blood added to blood bottles of different sizes and colours.

Blood tests are taken for many different reasons, for example, to:

- Help diagnose certain conditions, or to rule them out if symptoms suggest possible conditions.
- Monitor the activity and severity of certain conditions. For example, a blood test may help to see if a condition is responding to treatment.
- Check the body's functions such as liver and kidney function when you are taking certain medicines which may cause side-effects.
- Check your blood group before receiving a blood transfusion.

The most common blood tests are:

- Full blood count - checks for anaemia, and other conditions which affect the blood cells.
- Blood chemistry.
- Kidney function.
- Liver function.
- Hormone levels.
- Blood glucose (sugar) level.
- Blood clotting tests.
- Tests for inflammation.
- Blood cholesterol level.
- To check the levels of certain medicines to ensure you are taking the correct dose.
- Immunology - such as checking for antibodies to certain viruses and bacteria.
- Blood grouping.

See separate leaflets which give details of each of the above tests.

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