

Blood pressure

Overview

This infoKID topic is for parents and carers about children's kidney conditions.

This leaflet has the overview only.

Go to www.infoKID.org.uk to find out more about this topic or other topics

Blood pressure is the force, or pressure that makes the blood flow round the body. Blood pressure is often shortened to BP.

- When the heart beats, or contracts, it pushes blood through blood vessels called arteries.
- When the heart relaxes between beats, blood returns to the heart through blood vessels called veins.

It is very important that your child's blood pressure is in a healthy range. If his or her blood pressure is too high or too low, your doctor will try to find out what is causing this.



High and low blood pressure

High blood pressure

Hypertension is blood pressure that is too high. In some children, hypertension can be a serious condition. It can increase the risk of getting cardiovascular disease, especially if it continues into adulthood. Some children with hypertension have no symptoms, but it may cause headaches that do not go away, vomiting (being sick) or blurred (fuzzy) vision.

Hypertension in children is rare. If your child has high blood pressure, your doctor will try to find out what is causing it and whether it is affecting other parts of his or her body, such as the kidneys. Your child may need to make changes to his or her diet and/or take medicines.

» [Read more about hypertension on www.infoKID.org.uk](http://www.infoKID.org.uk)

Low blood pressure

Hypotension is blood pressure that is too low. This can happen in **acute** disease (where the illness comes on suddenly) or as a side-effect of some medicines. Some children with hypotension may have no symptoms, but some may experience:

- dizziness or light-headedness
- fainting

- blurred vision
- rapid or irregular heartbeats
- nausea (feeling sick)
- general weakness.

Your doctor will try to find out what is causing the low blood pressure.

Why does my child need his or her blood pressure measured?

Children may have their blood pressure measured for many reasons, including:

- during a doctor's appointment – this is routine
- when they are admitted to hospital
- before an operation.

Regular measurements

Some children need regular measurements of their blood pressure, especially if:

- they already have **hypertension**, or high blood pressure
- they are at risk of high blood pressure – for example, because they have problems with their kidneys.

Blood pressure measurements

Blood pressure is measured using a special instrument. This can be either electronic or manual (worked by hand).

A blood pressure measurement has two numbers.

- The top number is called the **systolic pressure** – the pressure when the heart beats. This is easier to measure and is used more often in children.
- The bottom number is called the **diastolic pressure** – the pressure when the heart relaxes.

Changes in blood pressure

Blood pressure changes from day to day and at different times of the day. It can also change when we feel stress and during exercise.

How is blood pressure measured?

Although measuring blood pressure will not hurt your child, it can be challenging, especially in younger children. Your child's doctor or nurse will take a few measurements when your child is relaxed.

You do not usually need to make special preparations before your child's blood pressure measurements. A cuff will be placed around his or her arm and pumped up, so your child will feel the arm being squeezed.

You may need to measure your child's blood pressure at home, sometimes over a day. Your doctor or nurse will give you equipment to do this, and show you how to use it.



Equipment to measure blood pressure

Blood pressure and your child's health

Blood pressure in children

Babies, children and young people usually have lower blood pressure than adults. They have different ranges that are considered healthy. These depend on:

- how old they are
- whether they are a boy or a girl
- how tall they are.

Your child's doctor or nurse will know the normal ranges of blood pressure for children who are the same age, sex and height as your child. They will let you know what your child's blood pressure readings mean.

Keeping healthy

Your family can follow some tips to help keep your child's blood pressure healthy. These include:

- eating less salt
- eating a healthy diet
- staying active.

If your child has a kidney condition, your doctor or nurse will give you more information about how this affects blood pressure. Rarely, children need to take medicines to control their blood pressure.

Blood pressure and kidneys

Kidneys normally control blood pressure to help make sure it is at a healthy level. They do this by regulating how much salt and water is in the blood. If the kidneys are not working properly, they may not be able to control blood pressure well.

Overview: Read more about blood pressure and kidneys

The kidneys and other parts of the body are involved in the renin–angiotensin system, which helps control blood pressure. There are two types of chemicals.

- **Enzymes** speed up chemical reactions in the body.
- **Hormones** are carried in the blood to send messages to other parts of the body.

The renin–angiotensin system is very complicated, but it is important and works like this.

- The kidneys release an enzyme called **renin**. The liver releases a hormone called **angiotensin**.
- Renin changes angiotensin into **angiotensin I**. When angiotensin I gets to the lungs, some of it is changed into **angiotensin II** by an enzyme called **ACE (angiotensin-converting enzyme)**.
- Angiotensin II causes the **adrenal gland**, which sits on top of the kidney, to release another hormone called **aldosterone**. Angiotensin II also causes the small blood vessels (arterioles) to constrict (squeeze), which raises blood pressure.
- When blood flows into the kidney, the filters (**glomeruli**) remove most of the water and salts from the blood into long tubes (**renal tubules**). Some of the water and salts leave the kidney as **urine**, and some are taken back into the blood. The hormone called aldosterone causes more water and salt to be taken back into the blood, which raises blood pressure.

Your notes and contact information

www.infoKID.org.uk



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For details on any sources of information used in this topic, please contact us through our website www.infoKID.org.uk.

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