



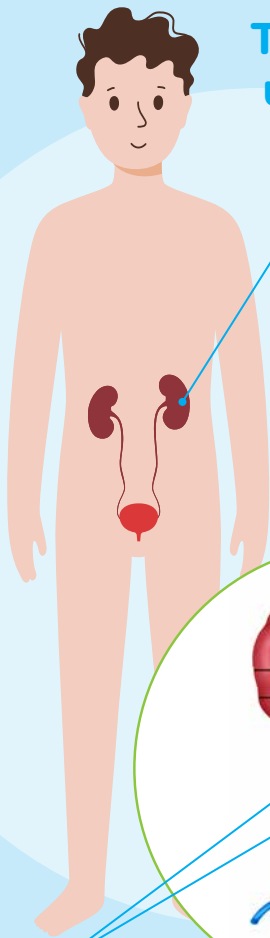
# Variations of normal kidneys

*Facts for whānau*



Advice in this pamphlet is only intended as a guideline.  
Please check with your GP or specialist if you have any  
questions relating to your child's condition.

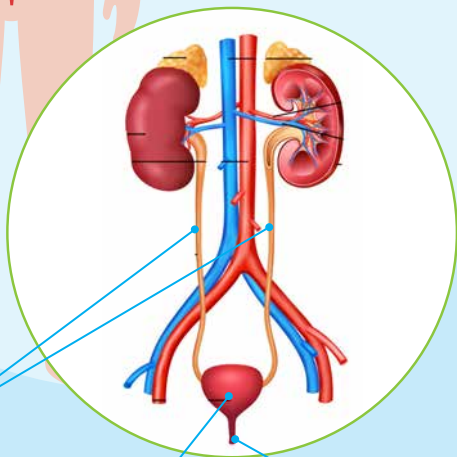
# The kidneys and urinary system



## Kidneys

Filters that remove waste from your blood and make urine (wee).

When a person's kidneys are first formed, they are low in the pelvis, travelling up to their final position, behind and under the spleen and liver in the back, during the first trimester of pregnancy. However, sometimes this doesn't happen as it should.



## Ureters

Tubes that carry urine from each kidney to the bladder.

Blockages can cause urine to hold up in the kidneys. In most cases, narrowing gets better over time as the body grows. This is monitored by ultrasound.

## Bladder

A sac that collects the urine. Sometimes urine goes back from the bladder to the kidneys. This is known as urinary reflux.

## Urethra

The tube that carries your urine from your bladder out of your body. A blockage here can affect both kidneys, which can negatively affect other parts of the body.

*Kidney Kids has plenty of information about conditions that can affect children's kidneys. If you can't find the information you are looking for, please contact us.*

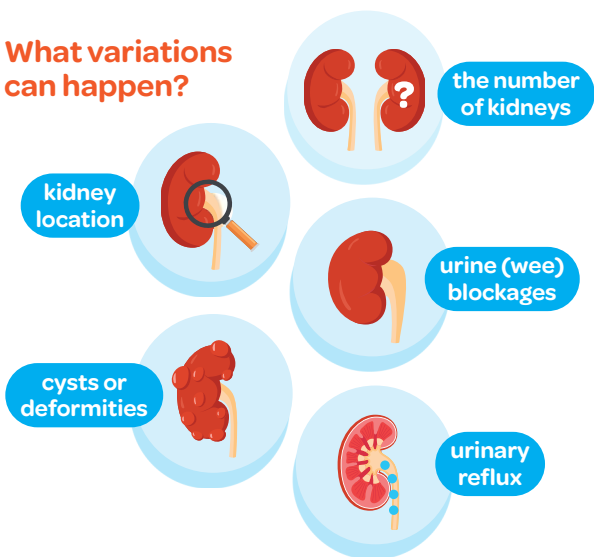


# Sometimes kidneys can develop differently

Doctors call these congenital anomalies of the kidneys (CAKUT). Some CAKUT do not affect how the kidneys work, but some do.

You may find out about congenital anomalies during ante- or postnatal scans. However, it's easier to scan kidneys after birth, so you may be told different things about your child's kidneys after postnatal scans.

## What variations can happen?



## What if there is only one kidney?

Approximately one in 1,000 children will have one (working) kidney at birth, with the other being absent or not working.

- As long as the one kidney grows well (to about 150% the size of a normal kidney), there should be no concerns about how the kidneys work.
- Having one kidney that works well will not affect the lifespan of your tamariki.
- There is a risk of developing high blood pressure or protein in the urine when the child is older (usually adult age).
- As the kidney is still well protected by the ribcage on either side, there are no concerns about playing sports, although contact sports or high-risk sports may not be advised.

## What about deformed kidneys or cysts in the kidney?

Deformed kidneys or kidney cysts can happen together. They can be present from birth or detected in childhood, normally after finding your child has high blood pressure or a urine infection.

- Small cysts can look like bright kidneys early on.
- If one kidney looks normal, and is growing well, then it would be the same as having one working kidney.
- If both kidneys look unusual or have cysts, closer monitoring may be needed to make sure the kidneys are working. Some children have a genetic condition that causes cysts and large kidneys. There is usually a whānau history of this.
- Sometimes the kidney on one side forms two kidneys with 1–2 ureters. The kidney that does this tends to be bigger and may have a blockage or reflux.
- There is a risk of developing high blood pressure or protein in the urine when the child is older.

## What if the kidneys aren't where they are supposed to be?

When kidneys are first formed, they are low in the pelvis. While the baby is being formed, the kidneys travel in the first trimester to the final position behind and under the spleen and liver in the back.

If the kidneys don't get to the right place, they are known as **pelvic** or **abdominal kidneys**. They can be difficult to find on antenatal scans.

One of the reasons pelvic or abdominal kidneys stay in the pelvis is a fibrous band that connects the kidneys so they form a horseshoe or U shape.

- Sometimes the horseshoe shape will be **asymmetrical** (both kidneys on one side), and sometimes the horseshoe shape will be symmetrical.
- **Symmetrical horseshoe kidneys** usually stay in the pelvis and can be smaller than normal due to having less space to grow.

If the kidneys are not in the right place there is an increased risk of kidney stones and urinary infections.

## What if there is a urine blockage?

Blockages can happen when urine leaves the kidney, goes into the bladder or leaves the bladder.

Blockages will cause urine to hold up in the kidneys, the ureter or the bladder. They normally occur because of narrowing in the tubes where they join different parts of the urinary tract. They can be seen and monitored with ultrasound scans.

In most cases the narrowing gets better over time, as the kidneys and ureters get bigger.

- Ultrasound monitoring of the blockage is often done to make sure this happens.
- If the narrowing doesn't get better, then an operation may be needed.

There is a particular blockage of the urethra which blocks urine coming out of the bladder. Known as **posterior urethral valves**, this can affect both kidneys and mostly occurs in boys.

- This condition can affect the development of lungs, intestines and hip joints.
- An operation is needed, usually as early after birth as possible.

## What about urinary reflux?

Urine usually goes one way, from the kidneys to the bladder then out of the body. However, sometimes urine goes back from the bladder to the kidneys, which is known as **urinary reflux**.

- Most children have urinary reflux but are otherwise normal. Children with neurological issues like cerebral palsy or spina bifida are more likely to have urinary reflux.
- If your child has reflux *and* a bladder infection (also known as a **urinary tract infection** or **UTI**), the bacteria can travel to the kidneys and cause a kidney infection (**pyelonephritis**).
- Kidney infections are serious, as they can cause a blood infection (**sepsis**), requiring intravenous antibiotics.
- Urinary reflux alone without UTIs or other kidney abnormalities is generally harmless and does not affect kidney function.



***Our vision is for all Kidney Kids and their whānau to lead their best lives and to feel supported, understood and connected in a caring community.***

### **Get in touch**

If you would like more information about our organisation, or if you, your whānau or friends have a child with a kidney condition and you would like to register with us, please get in touch.

### **Find us**

**0800 215 437** – Monday to Friday 8.30am to 5pm  
or email [support@kidneykids.org.nz](mailto:support@kidneykids.org.nz)

[kidneykids.org.nz](http://kidneykids.org.nz)

