
What is urine?

Urine is the waste liquid produced in the body by the kidneys. Urine is made by filtering blood and removing excess water and waste. Urine is mostly water, but also contains urea, a substance produced in the body as it uses protein, and different salts. The kidneys will adjust how much water and salts are in the urine to ensure that the correct balance in the body is maintained.

What happens to urine once it is made?

The kidneys are unable to store urine. Therefore, once urine is made, it passes down a tube (one for each kidney) called the ureters. The ureters drain into the bladder. Urine is stored in the bladder until it is passed.

The bladder wall contains a muscle that stays soft and stretchy while the bladder is filling. This allows the bladder to gradually get bigger as the amount of urine in it increases. When the bladder is about half full it should start to send messages to the brain to alert the individual that they will need the toilet soon.

How often should urine be passed?

How often urine is passed depends on different factors:

The brain controls how often the bladder is emptied. Sensations from the bladder as it fills are sent via nerves to the brain. The sensations get stronger as the bladder becomes fuller. Some people with sensory differences or nerve damage may not receive the sensations that they need to empty.

How much you drink: Adults should be emptying their bladder about five to seven times a day and up to once at night. Emptying more or less than this can indicate a bladder problem, particularly if associated with any leakage or urgency (the sensation of having to get to the toilet quickly). It may also be associated with drinking too much or not drinking enough.

The kidneys make urine to help balance the amount of water in the body. The volume of fluids drunk will influence how much urine is made, and therefore how often the bladder needs to empty. The amount of fluid needed varies with age, size, how hot the environment is and activity levels, but most people need about 30mls per kg of their weight. The average amount needed at different life stages is indicated in the table below:

Age	Sex	Total drinks per day
Adults	Female Male	1400 – 2500mls 2100 – 3200mls
Older people		Same as adults
During pregnancy		1700 – 2800mls
When breastfeeding		2000 – 3200mls

Size, activity and environments: People who are larger, more active and in hot environments may need more fluids than indicated in the table above.

Type of drinks: The healthiest drink is water, but also caffeine free herbal teas, squash (cordial) and diluted fruit juice may be acceptable alternatives. Fizzy drinks can also irritate the bladder lining, so should be avoided or limited. Acidic fruit juices, some sweeteners and alcohol can also irritate the bladder.

Adults should limit their intake of caffeine, which is found in tea (including green tea), coffee, hot chocolate, colas and many energy drinks. There may also be some caffeine in decaffeinated drinks. Caffeine can act as a diuretic (increase urine production) and can also irritate the lining of the bladder. The maximum recommended amount of caffeine for adults is 200mg per day and the maximum safe limit is 400mg per day.

The table below may help you estimate how much caffeine you are having.

Caffeine source (ml)	Caffeine (mg)	Caffeine source (ml)	Caffeine (mg)
Coffee		Fizzy drinks	
200ml weak instant coffee	45	375 ml Pepsi ®	38
200ml strong instant coffee	90	375ml Pepsi Max ®	45
200ml filter coffee	140	375ml Coca Cola ®/ diet cola	50
200ml cappuccino	80	375 ml caffeine free cola	0
100ml espresso	80	375ml Red Bull ®	106
200ml macchiato	120	375ml Black Stallion®	106
200ml decaffeinated coffee	2	375ml Red Eye Gold/Platinum®	35
Tea		Chocolate	
20ml weak tea	20	5ml teaspoon cocoa	6
200ml strong tea	70	50g dark chocolate	33
200ml green tea	59	50g milk chocolate	12
200ml herbal tea	0	50g cooking chocolate	40

Thirst is not a useful indicator of the need to drink in older adults and some people with learning disabilities. These groups need to be encouraged to drink regularly.

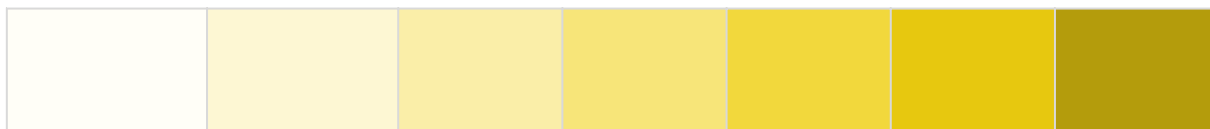
Not drinking enough (dehydration) can cause constipation, which can irritate the bladder, so you pass urine more frequently. Constipation can reduce the capacity of the bladder so you cannot hold as much urine. It can also prevent the bladder from emptying properly.

Foods with a high water content can also help with hydration. These include melons, pineapple, soup, jellies and ice lollies.

What should urine look like?

The colour of urine will vary with how much you are drinking likely to have the most effect. If you are drinking well your urine will be pale straw coloured. If you are drinking more than you need too, your urine may look clear.

If you are drinking less well or become dehydrated for any reason, including not drinking well, but also if you are unwell your urine will become darker yellow or even a brown colour.



- Pale urine: drinking well.
- Light coloured urine: drinking well.
- Slightly darker urine. Consider having a drink.
- Darker urine: slightly dehydrated. Have a drink.
- Dark urine: dehydrated. Have a drink.
- Dark urine: dehydrated. Have a drink. If unwell consult a doctor.
- Very dark urine: severely dehydrated. If unwell consult a doctor.

What else may urine look like?

Pink or red urine: may be caused by blood in the urine. It can also be caused by eating large quantities of dark red foods such as blackberries or beetroot. See your healthcare professional if you think there may be blood in the urine.

Orange urine: is often caused by not drinking enough (dehydration). If stools (bowel motions) are pale orange, urine may indicate a problem with the bile duct or liver. Some medicines can also cause orange stools. If this is possible, it should be indicated on the information that comes with the medicine.

Blue or green urine: This is usually caused by blue or green food additives or colourings or certain medicines. Rarely, the bacteria *pseudomonas* can make urine look green.

Brown urine: Can be the result of eating large quantities of rhubarb or broad beans or taking an antibiotic called metronidazole. It can also be caused by severe dehydration or liver or kidney disease. If the person with brown urine is unwell speak to their healthcare professional.

Purple Urine: Rarely urine from a catheter can look purple. This may occur in someone who has had a catheter for a long time. It may be caused by a UTI or by the presence of harmless bacteria. It is treated by changing the catheter and the urine drainage bag, alongside giving the affected person antibiotics for the UTI.

Cloudy urine: Urine is usually clear, although this can be difficult to see if the urine is also dark due to dehydration. Cloudy urine can indicate an infection. A urinary tract infection (UTI) may also result in pain when passing urine, frequent need to empty the bladder, urgent need to empty the bladder, blood in the urine, a raised temperature and abdominal pain or pain in the back near the kidneys (just below the waist). If you think there may be a UTI speak to your healthcare professional.

Foamy urine: It is normal for urine to form some bubbles when it meets the toilet water. Protein in the urine can cause lots of bubbles that do not disappear quickly. Speak to your healthcare professional if you notice this.

Should urine smell?

Urine is mainly water so usually has no or a mild smell. However, some foods and drinks such as garlic, asparagus or coffee, and some medicines and vitamin supplements can make the urine smell differently.

Urea is also in urine. When it mixes with air it breaks down to form ammonia, which can have a strong smell. That is why urine that has been around for a while can smell quite strong and why concentrated urine (passed when someone is dehydrated) smells more than weak urine.

Urine can smell more when someone has a UTI, but smell on its own is not a good indicator of UTI. There are some other illnesses that can make urine smell

More advice

The best way to maintain healthy urine and therefore bladder health is to drink regularly throughout the day from waking until about an hour before bed. Drinking enough to make sure that the urine stays dilute (see urine chart above for more information) and avoiding excess caffeinated drinks and fizzy drinks.

Regular bladder emptying, in those who are able to use the toilet is also helpful.

If you have concerns about your urine, or that of someone you care for speak to a healthcare professional.

Further information

Find more information about bladder and bowel health in our information library at www.bbuk.org.uk. You can also contact the [Bladder & Bowel UK confidential helpline \(0161 214 4591\)](tel:01612144591).

For further advice on bladder and bowel problems speak to your GP or other healthcare professional.