



HYDRATION AND URINARY TRACT HEALTH

The urinary tract plays an important role in our day to day health, removing toxins whilst helping to ensure that our body absorbs the amount of water that it needs. However, at times the urinary system may not function as it should, affecting our general health and wellbeing.

Urinary tract infections (UTIs), kidney stones, frequent urination at night (nocturia) and bedwetting are just some examples of conditions that affect the urinary system. These conditions can be troublesome, uncomfortable or painful. This fact sheet sets out to discuss some of these key issues, looking at the role that hydration has to play in the health of the urinary tract and its related organs.

The urinary tract is closely linked to the reproductive tract, so problems with one system may have an effect on the other.



ABOUT THE URINARY SYSTEM

The urinary system includes two kidneys, two ureters (tubes running out of the kidneys and into the bladder) and the urethra. The urethra is the tube that carries fluid out of the body when urinating (Figure 1).

Urology is the 'study of genito-urinary tract' and urologists are medical professionals who are trained to diagnose and treat patients with urological problems.

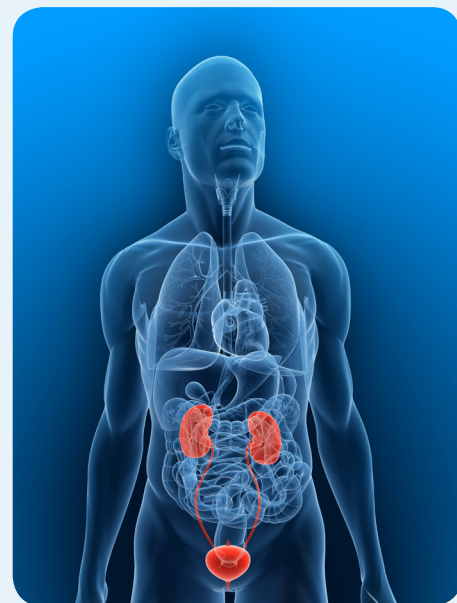


Figure 1. The urinary system

FOCUS POINTS

URINARY TRACT INFECTIONS

In the western world UTIs are the second most common reason to prescribe antibiotics (Schollun & Walker, 2012)¹. UTIs happen when bacteria colonise in the urinary tract. This may occur in the upper or lower part of the urinary tract, also sometimes respectively referred to as kidney or bladder infections (Schollun & Walker, 2012)¹.

UTIs are generally more common in women of working age than men, with cystitis being the most common manifestation (Kladenský, 2012)². Cystitis is when the lower part of the urinary tract (typically the bladder) becomes inflamed, often leading to symptoms which include going to the toilet more often and stinging during urination (NHS Choices, 2012a)³.

Keeping adequately hydrated by drinking plenty of water is thought to help 'flush out' and eradicate bacteria from the urinary tract (Beetz, 2003)⁴. One study monitored the beverage and toilet habits of 148 girls (aged 5 to 17 yrs). The research found that girls under 6.5 years old who had low fluid intakes were more likely to have recurrent UTIs (Rudaitis et al., 2009)⁵. Another study of 90 Swiss girls showed where there was a family history of UTIs, or when girls had lower fluid intakes; their risk of developing UTIs was higher (Stauffer et al., 2004)⁶.

It is also not uncommon for UTIs to affect the elderly, as many are put off drinking water to avoid frequent toilet visits (Lin, 2012)⁷. A six-week study conducted in care homes on a sample of older patients with incontinence found that patients who increased their fluid intakes had lower rates of urinary bacterial infections (Lin, 2012)⁷. Authors concluded that scheduled toilet breaks could be one way to overcome problems of water restriction in this population group.



Figure 2. Kidney stones

FACT:

It has been estimated that around half of women in the UK will develop a UTI at least once in their life. For men, around 1 in every 2,000 may develop a UTI each year (NHS Choices, 2012b)⁸.

KIDNEY STONES

Kidney stones (also known as nephrolithiasis) are formed when waste products from the blood, which are filtered out by the kidneys, form crystals because their concentration in water is too low. These crystals then build up in the kidneys to cause stones. Once a kidney stone has formed, it will try to pass through the urinary system. Small stones may pass through without causing any problems, but large stones can block the ureters or urethra, causing severe pain and sometimes UTIs (NHS Choices, 2012c)⁹.

Worldwide, rates of kidney stones seem to be rising and it is thought that lifestyle factors such as rising obesity rates and poor hydration habits may be contributing to the problem (Frassetto & Kohlstadt, 2012)¹⁰. A recent survey in the USA found one in 11 adults had experienced kidney stones (Scales et al. 2012)¹¹ with the prevalence being higher in the Hispanic and black population than among Caucasians. There is also some evidence to indicate that more people are being treated for kidney stones in the UK over the past ten years (Turney et al. 2012)¹².

Kidney stones are particularly prevalent in China. One Chinese study which made lifestyle comparisons between patients with kidney stones and healthy controls found that drinking fluids helped to protect against the development of kidney stones in men (Dai et al., 2012)¹³. Although it seems apparent that drinking more fluids can help to protect against urinary problems, many people are reluctant to change their drinking habits.

A US study carried out on patients with kidney stones found a number of issues could impact on people drinking enough fluid. These issues included a lack of awareness of health benefits of hydration, not remembering to drink, a dislike of the taste of water, or embarrassment about going to the toilet which could lead work disruptions. The study did find, however, that the majority of individuals found the natural prevention of kidney stones by drinking water was preferable to pharmaceutical methods (McCauley et al., 2012)¹⁴.

Drinking fluids in line with European guidelines could also help to reduce healthcare expenses. A cost-benefit analysis model applied to the French Health Care System found that drinking 2 litres or more of fluid daily (versus intakes less than this) could help to prevent as many as 11,572 cases of kidney stones, leading to savings of around 49 million euros (Lotan et al., 2012)¹⁵.

FACT:

Kidney stones can affect anyone but adults aged 30-60 yrs and more men (around 10-20%) than women (about 2-5%) are usually affected (NHS Choices, 2012c)⁹.

FOCUS POINTS

NOCTURIA

Nocturia (a high urine output at night) is a common condition as people get older (Reynard, 1999)¹⁶. Individuals with a higher body mass index are more likely to have increased symptoms of nocturia, due to the increased weight pressing down on the bladder. One study found obese men were twice as likely to have moderate or severe nocturia compared with men who had a healthy body weight (Shiri et al., 2008)¹⁷, although this relationship is yet to be as firmly established in women.

BEDWETTING

Nocturnal enuresis (also referred to as bedwetting) can be common in young children and have considerable effects on confidence and self-esteem (Caldwell et al., 2005)¹⁹. Although more research is needed, one UK study has found the problem could be exacerbated by children not having enough water during the school day, and then overloading with fluids at teatime (Derbyshire, 2012)²⁰.

FACT:

Nocturia is a common urological disorder affecting adults which is poorly understood. This condition has far reaching effects on people's health and wellbeing (Marinkovic & Gillen, 2004)¹⁸.

Children should be encouraged to follow the European Food Safety Authority fluid guidelines (around 1.1ml – 1.3ml/day via drink for a child aged 4-8 years) (EFSA, 2010)²¹. There is no need to stop a child drinking before going to bed. Simply drink normally until an hour and a half before going to bed and then drink only mouthfuls instead of full glasses to relieve thirst. There is no evidence to suggest that avoiding drinking a long time before bedtime stops bedwetting (ERIC)²². Children should always be reassured that bedwetting happens a lot and that it is not their fault.



FACT:

Bedwetting occurs in around 20% of 5 year olds and 10% of 10 year olds which can be worrying and upsetting for the child (Caldwell et al, 2005)¹⁹.

TOP TIPS

- 1 Sipping water at regular intervals during the day may help to stave off urinary tract problems i.e. infections and stones. Higher intakes of water are needed in hot weather and it is better to sip water frequently through the day in response to thirst than to drink large amounts at a time.
- 2 Women should aim to have an intake of 2 litres per day of water via food and drink consumption, as recommended by EFSA²¹*, in particular to help stave off UTIs.
- 3 Men should aim to have an intake of 2.5 litres per day of water via food and drink consumption, as recommended by EFSA²¹*, in particular to help prevent kidney stones.
- 4 Water-containing foods can also contribute to daily fluid intakes, for example yoghurt, soups, stews, fruit and vegetables. Aim to choose soups with a low salt content because high salt content can exacerbate dehydration.
- 5 Reducing fluid intakes to avoid going to the toilet could be counterproductive. As bladder capacity is reduced urine gets more concentrated which can aggravate the lining of the bladder.
- 6 In cases of nocturia, retraining the bladder may help. This can be done by gradually increasing fluid intake and not going to the toilet as often i.e. waiting an extra 10 minutes before going to the toilet.
- 7 Keeping body weight within healthy ranges may help to make toilet habits more comfortable.
- 8 Children should be encouraged to drink fluids in the morning with breakfast and at regular intervals during the day.
- 9 Children should also be encouraged to develop a sense of wanting to go to the toilet.

SO IN CONCLUSION

Maintaining a healthy body weight, eating a healthy balanced diet, containing water-based foods and regularly sipping water during the day may all go some way towards supporting a healthy urinary system.



USEFUL WEBSITES:

Bladder Problems - www.bladderproblem.co.uk
Bedwetting - ERIC (Education and Resources for Improving Childhood continence) www.eric.org.uk
Incontinence - www.incontinence.co.uk
Kidney Stones - kidney-stones.org.uk

PLEASE NOTE:

This information sheet has been based on scientific evidence available. The information contained in this fact sheet is not a substitute for medical advice or treatment, and we recommend consultation with your doctor or health care professional if you have any health concerns.

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- * It is estimated that 70-80% of the recommended water intake comes from drinks and 20-30% from food

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Further information

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