

Clinical Focus Topic

URGENCY

As many of you know, the LUT complaint of "Urinary Urgency" is probably one of my favourite areas to treat in the clinic and also one of my favourite areas to teach about in the training room. I find the challenge of determining the true anatomical cause behind the symptom makes it an intellectually stimulating field to work, and I also believe that physiotherapists have an enormous range of skills that are useful in treating this distressing LUT symptom.

What do we know about Urinary Urgency??

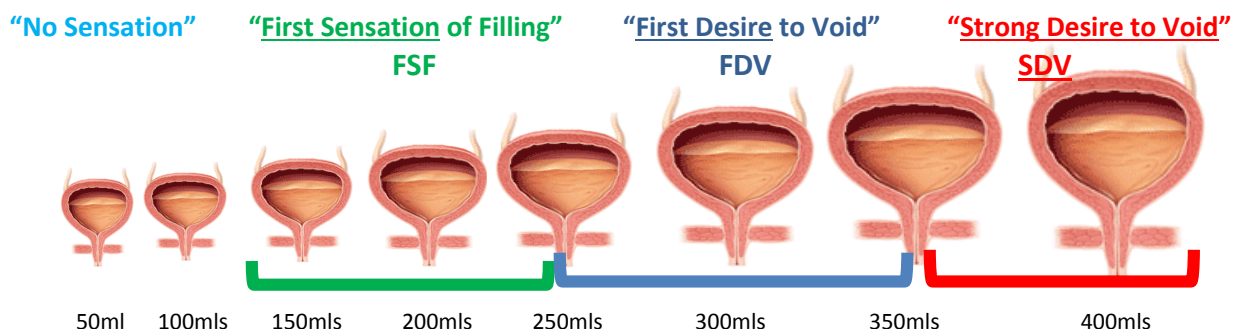
1. Urinary Urgency is a SENSATION!!! (as opposed to a motor dysfunction)

Comment: Urgency is something a person feels. By definition we are therefore talking about an alteration to the normal sensory experience of the bladder filling. In different people it has a different cause, and may or may not be linked to altered motor function of the lower urinary tract.

2. Experiencing a sensation of urinary urgency is different to experiencing a 'Strong Desire/Urge to Void'.

Comment: A 'strong desire/urge to void' is a normal sensation that we expect a person to feel when the bladder is very full. In fact, it is one of the three official bladder sensations (as per IUGA / ICS) that a person is meant to experience during the filling phase of bladder function. It is generally perceived as a strong pressure in the lower abdomen that may be a little uncomfortable, but does not cause a fear about leakage. People don't necessarily like the feeling associated with an extremely full bladder, but it is not an abnormal sensation to have. Most importantly, whilst a strong urge to void gives a strong instinctive desire to go to the bathroom, people experiencing this sensation should feel they can defer for a little while if they have to (eg waiting for a test).

NORMAL BLADDER SENSATION DURING THE STORAGE PHASE (ICS / IUGA)



it is NORMAL to feel a strong desire to void at some point!

A strong urge to void is only regarded as abnormal if the person experiences it at volumes less than about 350mls. Even in this scenario it is still different to a sensation of urgency. A strong urge to void at 200mls is simply increased bladder sensation, not necessarily urgency.

3. The sensation of urgency is defined by the International Continence Society & International Urogynecology Association Terminology Report (Haylen et al 2010) as a “compelling, difficult to defer desire to pass urine”

Comment: The difference with a sensation of urgency is that the person no longer feels they can defer voiding. They feel they have no choice but to go to the bathroom. Even if deferring is deemed necessary (eg waiting with a full bladder to have an ultrasound), they will decide to pass urine anyway (even if this means missing their appointment) rather than try to defer.

4. People who suffer from bouts of urinary urgency do not necessarily experience it every time they void.

Comment: A person may void 12 times per day, but on only 1-2 occasions each day experience a sensation that they MUST stop in the middle of doing something and rush to the toilet (urgency). There is therefore a difference between assessing someone's urinary frequency each day, and assessing the number of episodes of urgency they experience each day.

5. People who don't have urinary frequency can still suffer from Urinary Urgency

Comment: Just because a person only voids 4-5 times per day doesn't mean they don't suffer the distressing symptom of urinary urgency. They may void 4-5 times each day, but once every two days get a sudden, intense 'urgency' that comes out of nowhere and makes them scared they aren't going to make it to the toilet in time.

6. People with urinary frequency don't necessarily have urgency

Comment: Whilst people with urinary urgency will often void frequently in an attempt to avoid it happening, there are numerous causes of urinary frequency other than urgency. Small bladder capacity (low compliance bladder) and high post void residuals are both examples of LUT dysfunction that will cause urinary frequency without ever necessarily giving a patient a sensation of urgency (they are likely to just get a strong urge to void and then pass a small volume of urine).

7. Experiencing a bout of urinary urgency does not necessarily relate to a certain bladder volume

Comment: There is now thought to be two different types of urinary urgency (Blaivas et al 2009). A sensation of urgency that occurs because a person has reached their maximum bladder capacity (Type 1 Urgency), and a sensation of Urgency that seems to be unrelated to bladder volume (Type 2 Urgency). Type 2 urgency tends to be an all-or-nothing sensation similar to switching on a light switch. People can go from “No sensation of their bladder filling” to “A sensation of urgently having to race to the toilet” with no sensation in between. Whilst other people (those with Type 1 urgency) will say that they only get to that point of urgency after having had to delay a mild urge to void (ie they had smaller urge earlier but their bladder then

reached capacity and it felt quite urgent). In addition, Type 1 urgency is usually associated with a feeling that their bladder is actually full. In Type 2 Urgency people will often acknowledge that their bladder doesn't necessarily feel full, yet they still feel a desperate urge to rush to the toilet / fear that they will leak if they don't rush to the toilet. It is now suggested that these two types of urgency could be from completely different pathophysiological mechanisms.

8. The symptom of urinary urgency is different to urinary incontinence

Comment: As physiotherapists who treat various forms of urinary incontinence we tend to be very good at focusing on 'incontinence episodes' and not focusing on urgency episodes. However, some people experience urgency 3-4 times per day but never leak. Other people get urgency only 1 per day but leak every-time it happens. Whilst historically OAB-Dry has been thought of as a more mild form of Urgency, it is now questioned whether they are completely different mechanisms. A person with OAB-Dry may experience a stronger sensation of urgency, but have no motor issue causing leakage, whilst a person with OAB-Wet may have a milder urgency (milder sensory dysfunction) but an additional motor dysfunction causing the leakage.

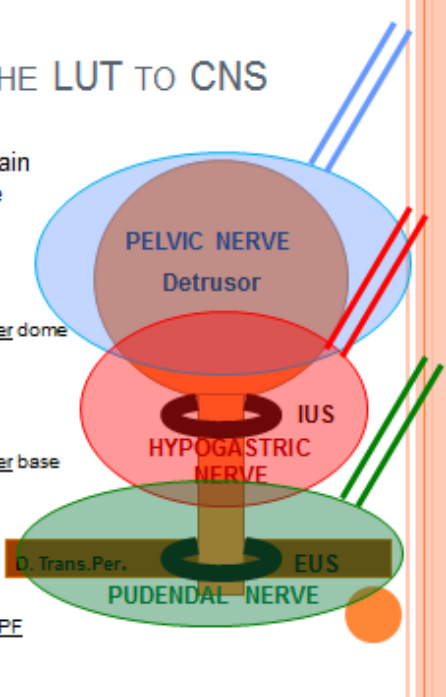
What causes a sensation of Urinary Urgency??

More and more research seems to be indicating that the sensation of 'urinary urgency' can probably be caused by multiple different dysfunctions. If we accept that urgency is an abnormal sensation, then we assume that there is abnormal sensory processing somewhere within the nervous system. This could be anywhere from the starting point of the lower urinary tract structures all the way up to and including sensory processing in the brain.

Even at the level of the lower urinary tract there are numerous sensory innervations that could be dysfunctional.

SENSORY NERVES FROM THE LUT TO CNS

- There are three main nerves that contain sensory afferent fibres that can provide information from the LUT to the CNS
 - **Pelvic Splanchnic Nerve → S2**
 - Sensory receptors predominantly in bladder dome
 - **Hypogastric Nerve → L2**
 - Sensory receptors predominantly in bladder base and upper urethra
 - **Pudendal Nerve → S2**
 - receptors predominantly in lower urethra / PF



As all three of these nerves have sensory fibres that innervate the LUT, potentially any of them could send an abnormal signal to the cortex that is interpreted as urgency.

Therefore, possible causes of urinary urgency include (theories in the literature)

Bladder Causes

(via Pelvic Splanchnic & Hypogastric Nerve facilitated urgency Sensation)

- Segmental Detrusor Overactivity → stretch of adjacent bladder wall sections
- Abnormal autonomic sensory nerve receptor density / activation
- Urothelial damage → abnormal sensory receptor / nerve ending exposure
- Urothelial dysfunction → abnormal release of neurotransmitters into bladder wall

Urethral Cause Theories

(Hypogastric and Pudendal Nerve facilitated urgency Sensation)

- Poor bladder neck support → urethral opening → urethral sensation
- Urethral Sphincter instability → spontaneous relaxation of the urethral sphincters during storage

Pelvic Floor Muscle Cause Theories

(Pudendal Nerve facilitated urgency Sensation)

- Pelvic Floor Overactivity / Trigger points
- Pelvic Floor Underactivity → poor detrusor inhibition

Cortical Cause Theories

- Altered cortical processing of LUT sensation when it arrives at the cerebral cortex.

*Note: most of these theories are in the process of research testing to prove their validity.

Assessing Urgency in the Subjective History - Do we do it thoroughly enough???

Whilst understanding the varying anatomical dysfunctions behind urgency is obviously extremely important to determine the best treatment, before we even get to treatment planning the first step must be to accurately **identify whether urgency** is really one of the patient's problems.

When supervising students in the area of pelvic floor dysfunction I often find they perform a lot of questioning in the history around fluid intake each day, number of voids per day and number of voids per night. They will also ask a lot of questions about incontinence episodes, volume leaked on each episode etc. However, specific questioning on bladder **sensation** and **urgency** seems to often be a bit limited. The problem is that for some people, the sensation of urgency 3-4 times a day sometimes bothers them more than their stress incontinence even though they may not leak.

Obviously there are lots of different approaches to taking a pelvic floor subjective history. Every person needs to work out what style of questioning works for them. Every time I take a history my questioning changes slightly depending on the person and information they have given. Outlined below is purely one example of what I may ask a person when doing the section of the subjective history on Bladder Function:

TARYN'S VERSION OF BLADDER FUNCTION QUESTIONING

Ok, to work out exactly what is going on, I just need to start by asking you a few questions about your day to day bladder function.....

1 Fluid Intake Questions

First of all, could you tell me roughly how much fluid you usually drink in a day?

→ Water: _____ → Tea: _____ → Coffee
→ Alcohol: _____ → Other: _____

2 Urinary Frequency / Nocturia Questions

And how often would you usually pass urine through the day? _____

Every hour? Every 3hours? _____

Does this bother you? YES / NO

Do you need to get up to pass urine through the night? Y / N

How many times: _____

Between what hours of the night is this – what time do you go to sleep? _____ Get up? _____

3 Urge to Void / Bladder Sensation / Urinary Urgency Questions

When you first get an urge to pass urine, how long can you normally hold on before going to the toilet? _____

Do you ever get an urge to void that is so strong you have to suddenly stop what you are doing and race to the toilet, or can you hold on if you need to?? eg would you ever have to leave your shopping at the cash register and race to the toilet?
Yes / No

IF YES to Urgency:

How often would you get that feeling of really strong urgency where you feel you have to race to the toilet??

_____ per day / week / month

In most people, the first urge to go to the toilet is mild, then the urge gradually builds as their bladder fills. In some people though, the urge to void can change from nothing to desperate in an instant? Does that sudden, desperate urge without warning every happen to you?
Type 1 / Type 2 Urgency / Both

How often? Frequency Type 1 Urgency? _____ Frequency of Type 2 Urgency? _____

When that sudden urgency occurs, does it feel like your bladder is full, or is it a different feeling? _____

Is there anything that you have realised commonly triggers that feeling of urgency coming on? eg hearing running water, approaching home etc _____

When this strong urgency feeling occurs, do you ever not make it and leak before getting there?

Yes / No How often? _____ per day / week / month _____ (amount) eg 20c, 50c, outer clothes, down leg

At other times, when it's not such a strong urgency feeling, and it's just a mild feeling that you bladder is starting to fill, if I asked you to wait, how long can you usually hold on from when you have first felt the urge to void? _____ min