STRESS URINARY INCONTINENCE (SUI)

BLADDER ANATOMY AND FUNCTION

The bladder is a hollow balloon-shaped muscle that acts as a storage organ, holding urine from your kidneys until a convenient time for you to empty your bladder. Two ring-shaped muscles around the bladder outlet (the internal and external urethral sphincters) automatically tighten to prevent urine leaking out, even under stressful conditions. As your bladder gets fuller, you become increasingly more aware of the desire to empty your bladder, but contracting your pelvic floor muscles help you to hold on until you eventually go to the toilet.

Good muscles therefore play a key role in bladder control, but connective tissue quality and integrity, nerve supply and overall tissue quality are also important elements in the continence mechanism. Ligaments around the bladder neck and outlet provide support to maintain the optimum bladder neck position for closure when your bladder is put under pressure, such as when you cough, lift something heavy or exercise. Hormonal changes, more specifically oestrogen deficiency, can cause thinning of the pelvic tissues (also known as urogenital atrophy) that may contribute to symptoms of incontinence.

DEFINITION OF STRESS URINARY INCONTINENCE (SUI)

If you leak urine when you cough, sneeze, laugh or exercise it is called stress urinary incontinence. Stress incontinence has nothing to do with “stress” in the sense of anxiety, but instead refers to the stress effect of an activity on the bladder that result in leakage of urine. SUI is more commonly referred to by women as ‘bladder weakness’.

If you experience urgency and have to get to the loo in a great hurry, often not making it in time and leaking urine before you get there, you have a different type of incontinence called ‘urge incontinence’, which is treated differently.

CAUSES OF SUI

Weakness of the structures that support the bladder neck and close the bladder outlet will result in leakage of urine if your bladder is put under pressure, such as when you cough, sneeze of lift something heavy. These structures include the pelvic floor muscles, ligaments and nerve supply, as well as the overall tissue quality in and around the bladder. Disruption or weakness of any one, or more, of these structures could result in SUI.
Possible causes of pelvic floor weakness include:

- **Genetic factors**

Pelvic connective tissue consists of collagen and elastin fibres which forms tendons, fascia and ligaments that connects and supports the pelvic structures. It is the collagen fibres that provide tensile strength and resistance to external mechanical forces on the pelvic floor. Women with a genetic collagen deficiency (Marfan Syndrome or Ehlers-Danlos syndrome) have an increased risk of pelvic floor dysfunction even if they don’t have any other risk factors. Well recognised indicators of connective tissue weakness include hypermobility (double-jointedness), red hair, including pubic hair, fair skin, freckles and stretch marks.

- **Pregnancy and childbirth**

Pregnancy is thought to be a major factor in pelvic floor dysfunction. The growing weight of the baby together with the softening effect of relaxin, a pregnancy hormone, both contribute to the increased vulnerability of the pelvic floor. Increased intra-abdominal pressure and the progestogenic (hormonal) effect of pregnancy, followed by the damage from labour and delivery, and the adverse effect of breastfeeding, all contribute towards possible pelvic floor damage, not only in the muscles and ligaments, but also of the nerves in the pelvic floor. Exacerbating factors include a large baby, long labour, rapid delivery, the use of forceps or extraction devices (ventouse delivery) and difficult presentation (breech). Although it is believed that most of the damage is done with the first delivery, women who have more than one child, whether the delivery is vaginal or by caesarean section, have a higher risk of prolapse than women who have one child or no children at all. Caesarean section is therefore not necessarily protective of the pelvic floor. Women who have children in close succession are at greater risk of prolapse because the muscles and ligaments are under constant strain and do not have enough time to recover in between the pregnancies. Women who have their babies at a later age are also more at risk of pelvic floor damage.

The adverse effect of breastfeeding on the pelvic floor is an important factor to consider in new mothers, but is very much ignored under the current pressure for mothers to breastfeed for extended periods of time. Breastfeeding lowers oestrogen levels, which affects pelvic floor elasticity and support, leaving the pelvic floor vulnerable to cope with the extra workload associated with caring for a new baby. Although most women want to shed the excess weight of pregnancy as soon as possible after delivery, it is important to consider the vulnerable support from the pelvic floor during the time of breastfeeding.

- **Ageing and the menopause**

Our muscles weaken as we grow older and the pelvic muscles are no exception. Although tissue damage is likely to have been caused much earlier, the ageing process further weakens the pelvic floor muscles. The natural reduction in oestrogen after the menopause also causes muscles to become less elastic.

- **Lifestyle and exercise**
Heavy lifting and manual labour appear to be related to pelvic floor dysfunction. Poor technique in performing heavy lifting may also play a role. Sports such as weight lifting, long distance running and high impact activities (e.g. basketball, gymnastics, parachute jumping and trampolining) increase the incidence of pelvic floor dysfunction especially in women who are susceptible.

- **Constipation**

Repeated straining to open your bowels will stretch and weaken the pelvic floor muscles and ligaments, and can even cause abnormal function of the nerves in the pelvic floor. Occasional constipation is unlikely to have a serious effect on your pelvic floor, but long-term constipation, even as a young adult, is associated with an increased risk of pelvic floor dysfunction.

- **Chronic disease**

Chronic illnesses that result in constant stress and strain on the pelvic floor are often quoted as a predisposing condition for pelvic floor dysfunction. These include chronic obstructive pulmonary disease (COPD), cystic fibrosis, chronic cough and obesity.

- **Previous pelvic surgery**

Past surgery to correct incontinence or hysterectomy may lead to defects in other pelvic compartments and increase the risk of pelvic floor weakness. However, everything should not be blamed on surgery. Other factors such as the natural ageing process and oestrogen withdrawal following the menopause may also have an important role.

- **Spinal cord conditions and injury**

Spinal cord injury and conditions such as muscular dystrophy and multiple sclerosis, can paralyse the pelvic muscles or restrict movement. As a result the muscles waste away and cannot support the pelvic organs, including the bladder neck. This significantly increases a woman’s risk of bladder problems.

**TREATMENT OPTIONS FOR SUI**

Do not suffer in silence, seek medical help. Discuss your symptoms with your doctor, nurse or physiotherapist, who will be able to discuss treatment options with you. Conservative options should always be tried first, which include pelvic floor muscle retraining, lifestyle modifications and containment products. If these are ineffective to relief or cure your symptoms, you may wish to consider medication or discuss surgical procedures for SUI.
1. PELVIC FLOOR MUSCLE RETRAINING

Research trials looking at pelvic floor muscle training show it to be of great benefit for SUI, but the success of the exercises relies heavily on your motivation and dedication. Pelvic floor muscle exercises also need proper training and follow-up to be effective, ideally taught by a Women’s Health Physiotherapist and checked by means of an internal examination. You will need to do the exercises regularly for at least 3-6 months to see an improvement, and then you need to continue doing the exercises long-term to maintain the benefit thereof. Some women, however, cannot be completely cured with exercises alone and may need to consider other alternatives, such as medications or surgery. These options will be considered as follow-on treatments to pelvic floor muscle exercises and NOT ‘instead of’ the exercises. You should still continue doing your pelvic floor muscle exercises.

2. LIFESTYLE MODIFICATIONS

- If you have a longstanding cough or suffer from constipation, you should go to your doctor for treatment.
- If you smoke, try to give up. A persistent smoker’s cough can make SUI worse.
- If you are overweight, try to lose a few pounds. Being overweight can put extra pressure on your bladder.
- Avoid exercises that may strain the pelvic floor, e.g. weightlifting, trampoline exercises, jumping, high impact aerobics and running. Suitable alternatives with less impact on your pelvic floor include cycling, swimming, walking, pilates and yoga.

3. ABSORBENT PRODUCTS

Many women with incontinence wear absorbent products to manage their symptoms, but these should not be seen as a ‘treatment’ for urinary incontinence. Absorbent products may be used by some women as a temporary measure while under investigation and awaiting treatment, but for many it is a main management strategy where their incontinence cannot be cured. It is very important to recognise the increased effectiveness and absorbance of ‘incontinence pads’ (e.g. Tena Lady or Poise are well known names) over ‘sanitary towels’.

Incontinence pads are specifically designed to absorb urine and come in different makes, shapes, sizes and thickness. Most incontinence pads are made up of three layers:

- The top layer is made up of curly cellulose fibres that guide urine quickly into the pad.
- The middle layer contains ‘super absorbent crystals or granules’ that have the capacity to absorb liquids which are fifty times their own volume. This super absorbent layer locks in
wetness and will not release the liquid, even in the case of intense mechanical pressure. Furthermore, this specifically designed layer controls for lower pH values, which helps to keep bacteria in check that may otherwise cause unpleasant odours.

- The **bottom layer** is a cellulose layer that helps the pad to maintain its shape for improved comfort.

Buying pads can be a great financial burden. If you suffer with incontinence you can be assessed by either the local continence advisor or district nurses for pad provision free of charge from your local health authority. Your GP should be able to arrange this for you.

4. **CONTINENCE GUARDS OR CONTAINMENT DEVICES**

Intra-vaginal anti-incontinence devices are placed in the vagina and work by slightly lifting the bladder neck, thereby improving bladder outlet closure. This may help to prevent or reduce urine leakage during potential strenuous activities or exercise.

You can insert and remove these devices yourself and they can stay in place for up to 12-16 hours (depending on the device you use) without having to be removed or replaced. These devices do not compress the urethra (the tube from your bladder through which you pass urine) and therefore do not need to be removed when you pass urine. By providing bladder neck support intra-vaginal anti-incontinence devices aim to reduce or prevent urine leakage, unlike pads that absorb and contain urine that has leaked, thereby allowing you to take part in sport or physical activities while staying dry. There are various different intra-vaginal anti-incontinence devices available and most of these come in three sizes (small, medium and large). It is a matter of trial and error to find the right device and size for you.

It is important to mention that these devices do not **treat** SUI, but instead contain leakage by physically limiting leakage. It is a management strategy, not a cure. It does however give women freedom from leakage to participate in activities that they would otherwise avoid, and may be a temporary solution for those who do not want to consider surgery for incontinence.

The three intra-vaginal devices I feel most comfortable recommending are:

- Contrelle Activgard
- The Rocket Sponge
- IncoFree Contiform Device
5. MEDICATION

There is only one medication available (on prescription only) for the treatment of SUI called Duloxetine (Yentreve). The drug increases the activity of the urethral sphincter, improving its closing function when under pressure. The most common side effect of this medication is nausea which is worst when you first start the medication, but usually subsides over time. Other side-effects may also occur and you should refer to the enclosed leaflet. If effective, you will have to continue the medication to maintain the benefit thereof as your symptoms will return once you stop the medication. Women who are on antidepressants, pregnant or breastfeeding are not allowed to take Duloxetine. For more information you can also visit http://www.netdoctor.co.uk.

6. SURGERY

An operation is never the first choice of treatment for stress incontinence but if you have already tried everything else it may be worth discussing surgical options with your doctor. Remember every person is different, and a number of factors are taken into account when deciding which procedure is best for a particular woman. Also, all surgeries carry risks and you should discuss risks and success rates with your doctor. To find out about the different procedures for SUI, visit the Bladder and Bowel Foundation’s website which describes each of these clearly.

Should you decide to undergo surgery, you need to understand that it does not replace your lifetime commitment to keeping your pelvic floor fit and healthy. You should continue to do regular pelvic floor muscle exercises to maintain strong muscles and prevent recurrence of symptoms in the future. Remember, the pelvic floor muscles are also important for good bowel control and pelvic organ support in addition to bladder control.