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OPINION

Paediatric incontinence and pelvic floor dysfunction

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Abstract
Pelvic health physiotherapists rarely treat children with bladder and bowel dysfunction, and pelvic pain. However, although over 90% of children have achieved daytime bladder control by 5 years of age, the remainder still experience urinary leakage during their waking hours. Furthermore, up to 30% of 4-year-olds suffer from urinary incontinence at night. Forms of bowel dysfunction, such as constipation, can also contribute to urinary leakage or urgency. Paediatric pelvic floor dysfunction is also common, and this condition can have a significant impact on the quality of life of children and their families. There can also be negative health consequences for the lower urinary tract if the condition is left untreated. Functional pelvic floor muscle exercises combined with urotherapy represent a safe, inexpensive and effective treatment option for children with paediatric voiding dysfunction. The issue of whether bladder and bowel problems cause psychological problems, or *vice versa*, is addressed.

Keywords: bowel dysfunction, constipation, paediatric patients, pelvic floor dysfunction, urinary incontinence.

Introduction

Most physiotherapists who specialize in pelvic health only treat adults with bladder and bowel dysfunction, and pelvic pain. Over 30 years ago, I was in the same position when I was approached by a urologist who wanted me to take care of his paediatric patients. "What's wrong with children?" I asked him. I will never forget the steep learning curve that I then had to undergo.

According to the US National Institute of Diabetes and Digestive and Kidney Diseases, over 90% of children have achieved daytime bladder control by 5 years of age (NIDDK 2017a), but what is life like for the remainder who experience urinary leakage during their waking hours?

Bed-wetting is another paediatric issue that has a significant negative impact on the quality of life of children and their caregivers, with up to 30% of 4-year-olds experiencing urinary leakage at night (Neveus 2010). Children who experience anxiety as a result of traumatic events may be at greater risk of developing urinary incontinence, and in turn, they may suffer from significant stress and anxiety because of this condition (Neveus 2010; Austin *et al.* 2014).

Bowel dysfunction can also contribute to urinary leakage or urgency, and with approximately 5% of visits to paediatric clinics occurring because of constipation (Thibodeau *et al.* 2013; NIDDK 2017b), there is a pressing need to address these issues. Since paediatric bladder and bowel dysfunction can persist into adulthood, pelvic rehabilitation providers must focus their attention on children in order to improve the health of the general population.

Children can suffer from many conditions that affect the pelvic floor (Austin *et al.* 2014):

- voiding dysfunction;
- constipation;
- enuresis (i.e. bed-wetting);
- encopresis;
- daytime urinary incontinence;
- urinary urgency and frequency;
- vesicoureteral reflux (i.e. backflow of urine into the kidneys); and
- pelvic pain (yes, pelvic pain!).

The most common diagnoses that I treat are voiding dysfunction and constipation. Paediatric

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voiding dysfunction is defined as involuntary and intermittent contraction, or failure to relax the urethral striated sphincter during voluntary voiding (Austin *et al.* 2014). Dysfunctional voiding can present with a variety of symptoms, including urinary urgency, urinary frequency, incontinence, urinary tract infections and vesicoureteral reflux. Constipation is often the cause (Hodges & Anthony 2012; Austin *et al.* 2014). Managing this condition can have a very positive effect on voiding dysfunction, as readers will probably have seen in their adult patient populations.

Working with the paediatric population

Many physiotherapists tell me that they are not comfortable working with children. However, I would like to challenge POGP members to allow themselves to embrace the joys of the world paediatric pelvic health.

Questions that I am often asked include:

- Can I use biofeedback with children?
- Do we conduct internal assessments on paediatric patients?
- How do I talk to a child?
- How do we teach children so that they can understand us?
- Do kids have the ability to learn strengthening versus relaxation?
- How do you teach a child to become aware of his or her pelvic floor, and coordinate it?

I see patients as young as 4 years of age who have been able to master biofeedback, and can explain to me how their pelvic floor controls bowel and bladder function. Children are very eager to please, and they love animated biofeedback sessions. The research supports the potential benefit of biofeedback training for children with pelvic floor dysfunction (De Paepe *et al.* 2002; Kaye & Palmer 2008; Kajbafzadeh *et al.* 2011; Fazeli *et al.* 2014). The children I work with are engaged, and learn how to isolate their pelvic floor muscles (PFMs) from accessory muscles by using positioning and breathing. The exercises are fun and easy to do. Physiotherapists are ideally placed to educate younger members of the population about these vital muscles, a proper diet, and good bowel and bladder habits. Many adult patients will have suffered from childhood bladder problems.

It is unusual to perform an internal PFM assessment on a child because this would rarely be appropriate. Teenagers may be exceptions to this rule if the physiotherapist has a reasonable clinical goal in mind that requires internal assessment or treatment, and has received medical and parental approval.

Talking to young patients is just like talking to a grandchild, niece or nephew. If they keep looking at you oddly, you learn to rephrase what you are saying so that things make sense to them. I always keep up to date with animated films so that I can connect with children. My favourite was *Frozen*, which helped me to teach them to "Let It Go"!

Paediatric pelvic floor dysfunction is also common, and this condition can have a significant impact on the quality of life of children and their families. There can also be negative health consequences for the lower urinary tract if the condition is left untreated.

Treating paediatric incontinence and pelvic floor dysfunction

The term "urotherapy" is often used in the literature on paediatric bowel and bladder dysfunction (Seyedian *et al.* 2014). This is a conservative, management-based approach to the treatment of lower urinary tract dysfunction that involves a variety of healthcare professionals, including physicians, physiotherapists, occupational therapists and registered nurses (Austin *et al.* 2014).

Basic urotherapy includes education about the anatomy and function of the lower urinary tract, and behavioural modifications, which can involve:

- the adjustment of fluid intake;
- timed or scheduled voids;
- the correction of toilet postures and the avoidance of holding manoeuvres;
- changing diet;
- eschewing bladder irritants; and
- the management of constipation.

Parents may not be as aware of their children's voiding habits once they are relieved of their nappy-changing duties after successful toilet training. All urotherapy programmes must be tailored to the patients' needs. For example, a child with an underactive bladder needs to learn how to sense urgency, and one who postpones a void should be given a voiding schedule. While urotherapy can be helpful by itself, a recent study by Chase *et al.* (2010) demonstrated statistically significant improvements in urine flow, electromyographic PFM activity during a void, urinary urgency and daytime wetting, and a reduction in post-void residual urine volume

in patients who also received PFM training in comparison to those who were only prescribed urotherapy. This is great news for all of us who are qualified to teach PFM exercises!

The International Children's Continence Society has now expanded the definition of urotherapy to include specific urotherapy (Austin *et al.* 2014). This approach includes biofeedback of the PFMs administered by a trained professional who is able to teach a child how to alter his or her pelvic floor activity specifically in order to void. It is always important to assess whether cognitive behavioural therapy and psychotherapy might also be useful.

Functional PFM exercises combined with urotherapy are a safe, inexpensive and effective treatment option for children with paediatric voiding dysfunction (Hoebeke *et al.* 1996; Zivkovic *et al.* 2012; Farahmand *et al.* 2015).

Do bladder and bowel problems cause psychological issues, or is the reverse true?

I will never forget the morning when I was called by one of my referring paediatricians to tell me that an 11-year-old boy with faecal incontinence had hung himself because his siblings had ridiculed him. If I am ever asked why I do what I do, I say that it is so that nothing like this will ever happen again.

When we think of paediatric bowel and bladder issues, we primarily focus on the physiological issue itself and treatment of the underlying pathology. I think it is imperative to teach children that they do not have a leak, their bladder or bowel has one. This makes these incidents a physiological issue and not a problem intrinsic to the child.

It is not always apparent how much a child is suffering from low self-esteem, embarrassment, internalizing or externalizing behaviours, or oppositional defiant disorder. Hinman (1986) recognized these issues over 30 years ago, and commented that voiding dysfunctions might cause psychological disturbances rather than the reverse being true. Furthermore, although many children with enuresis are maladjusted and exhibit measurable behavioural symptoms, Rushton (1995) reported that only a small percentage have a significant underlying psychopathology. Other, more-recent studies (Kodman-Jones *et al.* 2001; Joinson *et al.* 2006a, b, 2008) have noted that elevated psychological test scores returned to normal after the urological problem was cured.

I frequently receive testimonials from my patients. I would say the common denominator is the children and/or their parents reporting that my clients are "much better adjusted", "happier", "coming out of his/her shell", "more outgoing" and "making friends". As a side note, the children are delighted that they no longer leak.

Physiotherapists are increasingly learning about and treating paediatric patients who have pelvic floor dysfunction, but there are still not enough of them to meet the demand. There are children and parents out there who need your expertise and passion!

References

Austin P. F., Bauer S. B., Bower W., *et al.* (2014) The standardization of terminology of lower urinary tract function in children and adolescence: update report from the Standardization Committee of the International Children's Continence Society. *The Journal of Urology* **191** (6), 1863–1865.e13.

Chase J., Austin P., Hoebeke P. & McKenna P. (2010) The management of dysfunctional voiding in children: a report from the Standardisation Committee of the International Children's Continence Society. *The Journal of Urology* **183** (4), 1296–1302.

De Paepe H., Renson C., Hoebeke P., *et al.* (2002) The role of pelvic-floor therapy in the treatment of lower urinary tract dysfunctions in children. *Scandinavian Journal of Urology and Nephrology* **36** (4), 260–267.

Farahmand F., Abedi A., Esmaeili-dooki M. R., Jalilian R. & Tabari S. M. (2015) Pelvic floor muscle exercise for paediatric functional constipation. *Journal of Clinical and Diagnostic Research* **9** (6), SC16–SC17.

Fazeli M. S., Lin Y., Nikoo N., *et al.* (2015) Biofeedback for nonneuropathic daytime voiding disorders in children: a systematic review and meta-analysis of randomized controlled trials. *The Journal of Urology* **193** (1), 274–280.

Hinman F., Jr (1986) Nonneurogenic neurogenic bladder (the Hinman syndrome) – 15 years later. *The Journal of Urology* **136** (4), 769–777.

Hodges S. J. & Anthony E. Y. (2012) Occult megarectum – a commonly unrecognized cause of enuresis. *Urology* **79** (2), 421–424.

Hoebeke P., Vande Walle J., Theunis M., *et al.* (1996) Outpatient pelvic-floor therapy in girls with daytime incontinence and dysfunctional voiding. *Urology* **48** (6), 923–927.

Joinson C., Heron J., von Gontard A. & the Avon Longitudinal Study of Parents and Children Study Team (2006a) Psychological problems in children with daytime wetting. *Pediatrics* **118** (5), 1985–1993.

Joinson C., Heron J., Butler U., von Gontard A. & the Avon Longitudinal Study of Parents and Children Study Team (2006b) Psychological differences between children with and without soiling problems. *Pediatrics* **117** (5), 1575–1584.

Joinson C., Heron J., von Gontard A., *et al.* (2008) Early childhood risk factors associated with daytime wetting and soiling in school-age children. *Journal of Pediatric Psychology* **33** (7), 739–750.

Kajbafzadeh A.-M., Sharifi-Rad L., Ghahestani S. M., *et al.* (2011) Animated biofeedback: an ideal treatment for children with dysfunctional elimination syndrome. *The Journal of Urology* **186** (6), 2379–2385.

Kaye J. D. & Palmer L. S. (2008) Animated biofeedback yields more rapid results than nonanimated biofeedback in the treatment of dysfunctional voiding in girls. *The Journal of Urology* **180** (1), 300–305.

Kodman-Jones C., Hawkins L. & Schulman S. L. (2001) Behavioral characteristics of children with daytime wetting. *The Journal of Urology* **166** (6), 2392–2395.

National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) (2017a) *Bladder Control Problems & Bedwetting in Children.* [WWW document.] URL https://www.niddk.nih.gov/health-information/urologic-diseases/bladder-control-problems-bedwetting-children

National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) (2017b) *Constipation in Children.* [WWW document.] URL https://www.niddk.nih.gov/health-information/digestive-diseases/constipation-children

Neveus T., Eggert P., Evans J., *et al.* (2010) Evaluation of and treatment for monosymptomatic enuresis: a standardization document from the International Children's Continence Society. *The Journal of Urology* **183** (2), 441–447.

Rushton H. G. (1995) Wetting and functional voiding disorders. *Urologic Clinics of North America* **22** (1), 75–93.

Seyedian S. S. L., Sharifi-Rad L., Ebadi M. & Kajbafzadeh A.-M. (2014) Combined functional pelvic floor muscle exercises with Swiss ball and urotherapy for management of dysfunctional voiding in children: a randomized clinical trial. *European Journal of Pediatrics* **173** (10), 1347–1353.

Thibodeau B. A., Metcalfe P., Koop P. & Moore K. (2013) Urinary incontinence and quality of life in children. *Journal of Pediatric Urology* **9** (1), 78–83.

Zivkovic V., Lazovic M., Vlajkovic M., *et al.* (2012) Diaphragmatic breathing exercises and pelvic floor retraining in children with dysfunctional voiding. *European Journal of Physical and Rehabilitation Medicine* **48** (3), 413–421.

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