Editorial

Hello! Welcome to the second edition of our 2014-2015 Interdivisional ODR cycle.

Thanks to all who provided positive feedback about the September/October edition of the ODR which was a collaboration between the Orthopaedic Division and the Neurosciences Division (Vestibular and Balance Subgroup). We always appreciate hearing from our members, especially when we are trying a new approach to make the ODR a more valuable part of your Orthopaedic Division membership.

In this new edition, we have been working with members of the Women's Health Division to discuss pelvic health physiotherapy (both male and female). As an orthopaedic physiotherapist who works closely with pelvic health physiotherapists, I thought I was already pretty familiar with the role of pelvic health physiotherapists. However, the content of this ODR has opened my eyes as to how much more I have to learn! For many orthopaedic therapists, pelvic health physiotherapy seems to hover on the periphery of our clinical awareness as something separate from mainstream orthopaedic practice. As this edition will show, pelvic dysfunctions are extremely common but underdiagnosed (often actually misdiagnosed as 'traditional' orthopaedic complaints). As such, it is important for us as orthopaedic therapists to be able to recognise signs and symptoms of pelvic dysfunction and, if we are not trained in this area ourselves, to refer on.

For our Clinical Tid Bits, we have again provided questions submitted by our readers along with answers this time provided by pelvic health physiotherapists. We have included four articles covering pelvic floor dysfunction and rehabilitation in both men and women. We also have a great case study from Kristy Lerch on post-partum pelvic dysfunction as well as an original article by Carolyn Vandyken entitled "A biopsychosocial perspective and the pelvic floor: Two key elements of persistent lumbo-pelvic pain."

To continue the discussion, feel free to add comments through Twitter (@OrthoDiv) or email me atsenioreditor@orthodiv.org.

Finally, please see below for more information on the Women's Health Division.

Happy reading!

Laura Ritchie

The Women's Health Division (WHD) of the Canadian Physiotherapy Association (CPA) has almost 500 members. The mission of the WHD is to provide leadership and direction to members of the CPA for the advancement of physiotherapy practice in women's health by fostering excellence in practice, education, and research to improve health care.

We strive to unite Canadian Physiotherapy members who are interested in all aspects of women's health (pelvic health, lymphedema, osteoporosis are just some of the examples). Our aim is to acquire and make available information and educational materials, to encourage and develop the publication of research in the field of women's health, and to facilitate opportunities for professional development. We are working to develop a series of pelvic health brochures, we have recently developed the Women's Health Division Research Grant ($5000 value), and inform our members regularly of upcoming women's health courses.

Members receive a quarterly electronic newsletter, access to online educational resources, information on upcoming courses, news and job postings, they receive discounts on division-sponsored events and continuing education courses, and they have access to a variety of networking opportunities.

We encourage all visitors to contact us with any questions, comments or suggestions.

Email us at: womenshealth@physiotherapy.ca

Like us on Facebook: www.facebook.com/WHDCPA

Follow our Twitter feed: twitter.com/CPAWHD

Report from the Chair

I've just returned from a mind-blowing weekend of collaborative meetings with the Division Chairs' Committee (DCC), in Toronto. This committee is the collective of all National Division Chairs of CPA. I am fortunate to have had this experience to connect with my leadership colleagues.

Moving forward beyond the weekend, the National Orthopaedic Division will continue to be busy planning Symposium Halifax 2015, strategic planning and management, as well as consideration of developing collaborative efforts with other CPA Divisions, that will allow integration of other areas into musculoskeletal/orthopaedic practice, in some of the courses that we could potentially offer. We have a multitude of things to think about and discover, all before the end of the year!

In preparation of this report, I made sure this weekend to shoulder tap and have dinner with the wonderful Chair of the Women's Health Division, Marie-Josée Lord. In the running theme of collaboration, I thought it fitting to incorporate some of her thoughts about this edition of the ODR.

Have an amazing and restful holiday season.

Vince Cunanan

Chair National Orthopaedic Division

Twitter @funsocksphysio

From Marie-Josée Lord:

Not so long ago, we still viewed the pelvic floor muscles as muscles 'down there', attaching somewhere onto the bony pelvis but difficult to talk about (very taboo) and even more difficult to evaluate. We now recognize the important role these muscles play in pelvic stabilization and their interaction in the whole abdominal cavity. We have come a long way!

As chair of the women's health division and having worked in Pelvic Health (PH) for 25 years, I am very pleased to see the collaborative work that was done to put this review together. When treating patients, physiotherapists value the interactions a multi/inter disciplinary team brings. We need to collaborate in the same way within our own profession so I hope that the article and the answers to your members' questions from our PH physios', will enlighten you as to when and who you should refer to, for a more thorough pelvic floor muscle evaluation. There is evidence to show that performing pelvic floor muscle contractions is not always easy and that some women don't perform proper contractions following verbal or written instructions. Take the time to talk with a pelvic health physiotherapist to see how you can both help each other in improving treatment outcomes.

Hope you enjoy reading this issue and let's keep collaborating!

Marie-Josée Lord, pelvic floor physiotherapist

Chair of CPA Women's Health Division

Clinical Tidbits

Q & A on Pelvic Health Physiotherapy

1) When should I refer to a pelvic health therapist?

- The pelvic floor musculature is the common denominator to the three major functions of the pelvic outlet: urinary, ano-rectal and sexual. If your patient has complaints/symptoms that relate to any of these systems, then he/she should be referred to a pelvic health (PH) physiotherapist. Symptoms that a patient may report include;
    - Leakage of bladder or bowel
    - Voiding frequency greater than eight times during the day
    - Urgency – a feeling of needing to void that cannot be put off
    - Feeling of pressure in perineum
    - Pelvic pain – pain in perineum, inferior abdomen, sacrum or buttocks
    - Sexual dysfunction
- Your patient may also report specific pelvic diagnoses such as prolapse or pelvic surgeries.
- Any orthopaedic issue from the diaphragm to mid-thigh can involve the pelvic floor. If your patient is experiencing lumbopelvic, SI, groin, hip, abdominal or lower extremity symptoms (pain or movement impairment) that are not improving as expected, consider a pelvic floor assessment.
- Carolyn Vandyken has kindly provided a screening tool which will help identify patients appropriate for referral. Please see the attachment.

2) Is pelvic health only for women after childbirth? How long after a baby can you make a difference?

- PH physiotherapy is appropriate for all women, regardless of age of parity. Childbirth is only one of many risk factors that can impact the pelvic floor.
- PH physiotherapy may be appropriate for women before they have children. Many women who have pelvic floor related problems postpartum had some symptoms or predisposing factors prior to pregnancy and delivery.
- Physiotherapy can start immediately postpartum but this can be done by assessing and treating prenatally so the woman knows what to do immediately postpartum and throughout the initial postpartum phase. Prenatal education allows the woman to assess her own abilities so that she knows if she should be seeing a physiotherapist postpartum.
- It is good to consult a PH physiotherapist after childbirth since it is soon after trauma and we can address the problem right away. If woman delivers in lithotomy (on her back), she should have her sacrococcygeal mobility checked and mobilized (if appropriate) as soon as possible. Cecile Rost's symmetry exercises may also be helpful. As well, women should ensure they have correct movement strategies before resuming moderate to high level activity by having a postpartum screening which is generally best done by a PH physiotherapist since they can perform an internal examination. At the very least, these

patients should answer postpartum screening questions and be assessed for optimal lumbopelvic movement patterns, if they have diastasis recti and if can they recruit TA.

- Once a woman has had children, she is post-partum for life. We often see women that had a problem for a few months after childbirth than the problem subsided on its own but comes back at menopause. We can still make a difference after so many years. We see women through the spectrum from adolescence to post menopause.
- Remember that men have pelvis' too! Pelvic floor dysfunction - tightness, weakness, poor neuromuscular awareness and cortical mapping issues of the pelvis affect both men and women throughout their lifespan. It is never too late to address dysfunction but the longer it goes on, the more potential problems that can be associated with it. If a woman has a weak pelvic floor, then progressive risk for prolapse occurs as she ages. If a woman has tension in her pelvic floor then painful intercourse, pain in her low back and SI joints are significant correlates to that problem. Eliasson (2008) and Smith (2006) have supported strong correlation between chronic low back pain and pelvic floor dysfunction. VanWingerden (2013) in a poster presentation at the 1st World Congress on abdomino-pelvic pain demonstrated that 1/3 of men with lumbo-pelvic pain also had pelvic floor dysfunction. Testicular pain, painful bladder syndrome, non-bacterial chronic prostatitis (which is not usually a prostate problem), penile pain, post-ejaculatory pain all have strong foundations in pelvic floor dysfunction - usually increased tension and muscular tone, not weakness.
- Ultimately pelvic health physiotherapy applies to all people – men and women - at any stage of life, including childhood. Pelvic health physiotherapists can effect change at any time throughout the lifespan.

3) Why don't physicians send people for pelvic health work? I have found it really helpful but my doctor just shrugs. Is there no research supporting it or are they just unaware?

- This shows that a lot of education and sharing needs to be done with physicians!
- After performing pelvic floor treatments for 25 years, one of our experts still finds that many doctors don't know what PH physiotherapists do. Physicians are used to referring to physiotherapists for MSK problems but they don't see weak pelvic floor muscles as an MSK issue! If a physician isn't referring, it is either because he/she doesn't know about PH physiotherapy, doesn't think that it works or might not think that it is appropriate for anyone other than a physician to do transvaginal assessment/treatment. We have to keep raising awareness by informing the physicians and patients.
- Referrals for PH physiotherapy can come from physicians, urogynecologists, gynecologists, gastroenterologists and colorectal surgeons. Building a strong working relationship is key. As a physiotherapy profession and as individual clinicians, we have a responsibility to share study findings with other health care providers including family and specialist physicians. Level 1 evidence supports the use of pelvic floor physiotherapy for all stress, urge and mixed incontinence. Level 1 evidence is supported by the Cochrane collaboration (2010) and in men by Sacco (2011). Level 1 evidence also supports the use of pelvic health physiotherapy for painful urogynecological conditions and is the only treatment in ten years that has been demonstrated in a randomized control trial to help with painful bladder syndrome. (Fitzgerald

2012). This evidence has been accumulating in the last five years. Many physicians, especially general practitioners, are not aware of this evidence and it needs to be brought to their attention.

- A good resource for the clinical physiotherapist wanting to become familiar with the strength of research in this area will be the book "Evidence-Based Physical Therapy for the Pelvic Floor: Bridging Science and Clinical Practice" by Kari Bo and team coming out mid-December. This book outlines the evidence for Pelvic Health Physiotherapy and implications for clinical practice.
- The Cochrane Collaboration has looked at a variety of areas of PH Physiotherapy. The following reviews are a good place to start to get an appreciation of the scope of literature in this area.
    - Dumoulin et al (2014) – Authors' conclusions: "The review provides support for the widespread recommendation that PFMT be included in first-line conservative management programmes for women with stress and any type of urinary incontinence. Long-term effectiveness of PFMT needs to be further researched."
    - Boyle et al (2012) – Authors' conclusions: "There is some evidence that for women having their first baby, PFMT can prevent urinary incontinence up to six months after delivery. There is support for the widespread recommendation that PFMT is an appropriate treatment for women with persistent postpartum urinary incontinence. It is possible that the effects of PFMT might be greater with targeted rather than mixed prevention and treatment approaches and in certain groups of women (for example primiparous women; women who had bladder neck hypermobility in early pregnancy, a large baby, or a forceps delivery). These and other uncertainties, particularly long-term effectiveness, require further testing."
    - Hagen and Stark (2011) – Authors' conclusions: "There is now some evidence available indicating a positive effect of PFMT for prolapse symptoms and severity. The largest most rigorous trial to date suggests that six months of supervised PFMT has benefits in terms of anatomical and symptom improvement (if symptomatic) immediately post-intervention. Further evidence relating to effectiveness and cost-effectiveness of PFMT, of different intensities, for symptomatic prolapse in the medium and long term is needed. A large trial of PFMT supplementing surgery is needed to give clear evidence about the usefulness of combining these treatments. Other comparisons which have not been addressed in trials to date and warrant consideration include those involving lifestyle change interventions, and trials aimed at prolapse prevention."
    - In May, the Cochrane Collaboration blog "Evidently Cochrane" did a piece on the pelvic floor called 'Women, embrace the power of your pelvic floor!' http://www.evidentlycochrane.net/women-embrace-power-pelvic-floor. This is a great read with some historical context.
- The International Continence Society' recommendations flow-chart shows pelvic floor re-education as a first line of treatment. A flow-chart from the Canadian Continence Foundation

also recommends initial management of urinary incontinence as pelvic floor retraining. http://www.canadiancontinence.ca/images/chart-initial-management-of-ui.gif

4) I have a few patients whose back pain gets worse when I have them contract their inner unit. Can this be a problem in the pelvis?

- Yes. The pelvic floor muscles attach on many different parts of the pelvis. Those muscles will influence the pubic bone, ilium, sacrum and coccyx. If there is a problem with the bony pelvis, contracting the pelvic floor muscles could cause some pain. There is also a possibility that those muscles are hypertonic and this could cause some pelvic/back pain if the pelvic floor is one of the drivers. (See Smith et al).
- Something is causing a non-optimal recruitment of the inner unit leading to pain but assessment is required to determine what is driving this pattern. This may or may not include an internal pelvic assessment – referral to a physiotherapist that can add this information and work with you collaboratively may be necessary to meet the patient's needs to achieve his/her goals.
- How do you know that when they are contracting their inner unit that their pelvic floor is not too tight? There are many conditions where tension in the pelvic floor is the biggest driver of lumbo-pelvic pain, and orthopaedic physiotherapists are not assessing it. Neville et al (2012) completed a triple-blind study looking at which clinical tests could be used to identify women with chronic pelvic pain. Hypertonicity of the muscles on internal pelvic floor exam and a positive Forced FABER's test were the two tests that most strongly correlated with correctly identifying pelvic pain in these women. Pelvic floor exams need to be completed on all men and women who present with any of the findings on the provided clinical checklist that have concurrent low back pain.
- "Kegels" or the preferred term "Pelvic floor muscle exercises" are not always appropriate, depending on if the pelvic floor is hypotonic or hypertonic. We must get the concept of strength or "tighten tighten tighten" out of our heads. It's about quality of movement and how to use the pelvic floor given the task at hand. You don't need a maximal pelvic floor muscle contraction while walking down the street. However, if you trip on a curb with a full bladder, your pelvic floor must contract strongly and quickly to prevent urine loss.

5) What's the cost/benefit ratio of the internal exam work re: effectiveness? There is a big "ick" factor with discussing/doing it - is it really worth it?

- Many patients have spent thousands of dollars on physiotherapy and chiropractic treatment that has been completely ineffective for chronic low back pain simply because the pelvic floor was not addressed. Upon addressing the pelvic floor, these patients resolve quickly and effectively (with a high degree of angst and frustration because the pelvic floor was not addressed earlier). As an orthopaedic therapist, if you ask good questions and get their pelvic history (see attached checklist) accurately from the beginning, all patients with pelvic floor dysfunction need to be assessed specifically by a pelvic floor physiotherapist.
- Pelvic floor physiotherapists address the entire body. You cannot take the pelvic floor out of the body and address it as a separate problem - we will be no more effective if we take this

approach than if we continue to ignore the pelvic floor's contribution to musculoskeletal pain and dysfunction. This is the only area of the body that physiotherapists and other medical professionals give recommendations and treatment advice for a problem that they do not assess first. For example, not all urinary incontinence stems from a weak pelvic floor. Some women/men may have tight/hypertonic/stiff pelvic floors. The last thing they would need is pelvic floor strengthening, as that would likely make their symptoms worse. We know as physiotherapists that tightness and/or weakness can lead to dysfunction anywhere in the body – this also applies to the pelvic floor.

- As an orthopaedic therapist you are no more likely to assess and treat the knee through a pair of jeans or the shoulder through a winter jacket - why should the pelvic floor be any different? No physiotherapist went into their training expecting to do an internal exam - so the "ick" factor is understandable for many of us. However, patients want to get better and most are thrilled to have this aspect looked / dealt with as it has often not been addressed. The pelvic health problems may be a piece of that person's puzzle that must be dealt with before they can progress. When the situation is well explained and presented to the patient, it is well accepted to have an internal exam done. The pelvic floor is just another muscle group and becoming comfortable with the language used in clinic will eliminate the issue of discomfort talking about it. Doing an internal exam is the best way to properly evaluate them.
- In addition, we have stronger evidence behind what we do as pelvic floor physiotherapists that many or most other areas of physiotherapy, yet we don't embrace it because it makes us uncomfortable. Why should our patients with pelvic floor dysfunction expect anything less than professional care? We are losing the "war" against chronic low back pain. Something has to change and it needs to start with addressing the pelvic floor appropriately. This is evidence-based practice (Eliasson 2008, Smith 2006, VanWingerden 2013) A key referral source for one of our experts is a male FCAMPT physiotherapist and because of his comfort level, his patients are very open to discussing their issues with him and happy to have a pelvic floor assessment with the PH physiotherapist based on his recommendation.
- Finally, reviewing the costs and benefits should definitely outweigh the 'ick' factor;
    - The cost: Low! Generally, in PH physiotherapy, we spend 30-60 minutes with patients so the cost of the appointment may be higher than an orthopaedic treatment but we tend to see patients less often. Much can be achieved in 1-2 sessions. The cost of 'another' assessment-treatment is offset by having symptoms resolve faster with earlier return to function because the driver of the problem has been found and addressed.
    - The benefits: Immeasurable! Improved patient satisfaction, decreased lost work time, increased function and decreased long-term medical costs associated with unnecessary surgeries for prolapse and incontinence.
- Pelvic floor dysfunction is a problem for physiotherapists to embrace - we are the rehabilitation experts. If we don't embrace it, someone else will and they won't do the quality job that we are able to do.

6) A barrier to referring for PH is knowing what types of conditions this therapy can treat, what's the scope of practice, and how does one recognize what symptoms might be stemming from the pelvic floor without taking the courses?

- PH physiotherapists see patients with pelvic girdle pain (e.g. prenatal), stress and urge urinary incontinence, anal incontinence (stool and/or gas), outlet constipation, pelvic organ prolapse, pelvic pain, chronic pelvic pain and any orthopaedic condition between the diaphragm and mid-thigh. Ask if the patient has any difficulty with bowel/bladder (not just cauda equina screening questions; ask about urinary urgency (feeling like they have to urinate frequently and worry they cannot make it to washroom), frequency, do they lose urine with coughing/sneezing/laughing/jumping/running, difficulty holding stool or gas, difficulty emptying bowels (do they have to strain, do they have pain) , pelvic pressure, dyspareunia, (thinking of the impact of the pelvic floor on its openings - urethra, vagina, anus).
- Bladder problems: incontinence with physical activity, urinary urgency, pain in supra-pubic area.
- Sexual: if there is some hypertonicity of major pelvic muscles, there might be hypertonicity of pelvic floor muscle which could lead to painful intercourse, pain in the vulvar area or testicles/anal region in men, or problems with holding urge for stool, anal incontinence or constipation.
- If the patient is not improving with orthopaedic treatment, consider the pelvic floor. Groin, suprapubic, lower abdominal quadrant, coccyx, and ischial tuberosity pain are often areas of pain with pelvic floor muscle dysfunction.
- Urinary urgency, frequency, and a sense of incomplete emptying may also occur. Viscerosomatic reflexes may be involved causing organs to "wind up" the somatic system and vice versa.
- As in all areas of physiotherapy it will depend on the physiotherapist's training and experience but in general, PH therapists perform manual therapy, exercise training, EMG, Real Time Ultrasound, pain education and acupuncture. Have a conversation with the PH physiotherapists in your area so you know what experience and expertise they have, what assessment or treatment tools they use. As in orthopaedic manual therapy, pelvic health physiotherapists have different training and different areas of interest e.g. prenatal vs pelvic pain.

7) What are some screening questions I could ask a client to determine if their condition suggests pelvic floor dysfunction involvement?

- CVD: Please see attached checklist.
- MW:
    - Is there pain in vulvar/vaginal area? Testicles/scrotum/perineum in men? Any coccygeal pain?
    - Do you have leakage with cough, laugh, sneeze or other activities?
    - Research on elite athletes shows a percentage report leakage while jumping

- Do you have urge to void or pass stool that cannot be put off (that is, you don't feel like you can hold it)?
- Do you find yourself searching for bathrooms when you are in public?
- Do you have feelings of pressure on your bottom like something is falling out?
- Do you pee more than 8 times during the day or more than once at night?
- Urination normally occurs 5-7 times per day
- Do you have pain when peeing or having a bowel movement?
- Since you have had this problem has your sexual function been affected?
- Do you have pain with sexual activity?
- Do you have chronic constipation (e.g. needing to push)?
- Do you have abdominal pain with bladder or bowel function?
- Do you find it hard to sit because of pain in your tailbone?
- Do you find it hard to sit because it is like sitting on a ball?

8) I know that there are male pelvic dysfunctions that can also respond to pelvic therapy. What should I be looking and listening for when treating my male patients to determine if they would benefit from referral to a Pelvic Health therapist?

- Ask the same questions as above regarding urinary and bowel dysfunction. If your patient is complaining of any pain in the pelvis, they should be referred on. Research has also shown that pelvic floor muscle training is helpful for the post-prostatectomy group with urinary incontinence (Campbell 2012) and erectile dysfunction. (Geraerts 2014)
- Pain described as a burning sensation/irritation anywhere from the pubic bone to the coccyx area. 95% of men diagnosed with prostatitis is in fact CPPS (chronic pelvic pain syndrome) which will not respond to antibiotics but should be receiving physiotherapy including bony pelvis work, normalizing pelvic floor muscles tone, loosening connective tissue around pelvic region, stretching exercises, general relaxation exs through yoga, Qi-Gon etc
    - Statistics from Jeannette Potts' presentation at IPPS Chicago October 2014.
- Changes in urinary function (e.g. poor stream, pain with voiding)
- Pain with erection/ejaculation
- If your patient reports a history of prostate surgery, consider PH physiotherapy
- Do a coccygeal movement test (Stensgaard 2014) – the majority of male problems come from an inability to relax

Assessment

- PH therapists assess and treat the pelvic floor structures internally as well as looking at low back, pelvic girdle and hip problems, which are often co-existing problems.
- The history taken is typically more detailed about urinary and bowel function.
- Typical outcome measures include;

    - PFDI IIQ/ UDI VQ for function
    - DASS, TSK and PCS especially for pelvic pain but useful for all PH conditions since most are persistent
- A typical assessment includes an MSK screen and looks globally at posture, abdominal muscle function and breathing.
- Additional assessment components include;
    - palpation of abdomen for diastasis rectus abdominus (which all patients should be screened for)
    - mobility of connective tissue of abdomen, thoracolumbar, buttocks and thighs
    - visual assessment of perineum
    - Internal pelvic exam vaginal and or rectal depending on findings
- The gold standard is an internal vaginal and/or rectal exam. An external exam is done (checking reflexes, skin integrity, scars, ability to perform a pelvic floor muscle contraction, any visible prolapse on Valsalva, hemorrhoids). A vaginal exam involves looking at the superficial and deep pelvic floor muscles and comparing strength, speed, endurance, the ability to relax and muscle tone from right to left.
- There is no other area of the body that physiotherapists don't assess by using a hands-on approach. Hypertonicity and hypotonicity need to be considered when developing an appropriate treatment plan. The gold standard of teaching Kegels is by internal palpation (Cochrane Collaboration 2010). This is standard orthopaedic practice.
- Pelvic health physiotherapy is just orthopaedics in a cave. Your discomfort should not increase the discomfort of your patients. This area is crucial - a basic, important function for everyone. Maslow's hierarchy of needs states clearly that eating, bowel/bladder function and sexual function are basic physiological functions of every person. Not only are they supposed to work well, they are supposed to be pleasurable. Everyone requires pleasurable function of these basic needs before more complex needs can be met. Physiotherapists are evidence-based practitioners. We need to follow the evidence trail by integrating PH concerns into our clinical practice. The intrinsic reward and job satisfaction for helping patients recover these basic functions is second to none.

10) With my patients who report just a bit of urine leakage with high level activity - do they really need to go through the whole internal exam? I am pretty confident I am getting them to properly recruit their pelvic floor without performing an internal.

- Would you assess a knee or a shoulder without actually putting your hands on it? Assuming the patient is contracting her pelvic floor correctly (only 25% do with verbal instruction as per Bump et. al.), have you addressed the strength of the pelvic floor and its ability to contract quickly under a sudden high load? Many patients can contract their pelvic floors but are unable to do it in a standing position let alone during a high level activity. Like any other muscle group, rehab must be graduated, perhaps even starting in supine/gravity eliminated positions and progressing into more difficult and functional positions.

- These patients should go through a complete assessment. External work is effective for screening only. Internal assessment is required to assess right vs left and lift component, ability to recruit, the timing of the contraction with effort, the quality of muscle recruitment and how they manage the increase of abdominal pressure with activity. Even Transabdominal RUSI will not give this information accurately. PH conditions do not improve on their own.
- Many patients have stress incontinence which is what is described in this case. These patients are often tight, especially if they are high-level athletes. This means that their pelvic floor is held in inner range and when they try to recruit it in high-level activity, they are not able to do so effectively. Imagine if you hold your hand in a tight fist and then go to squeeze some more. You can't. If you train this type of pelvic floor problem with Kegels, you will not help your patient. In fact, you will make them worse. Hippocrates said, "First, do not harm". Research reports that as many as 30% of women cannot contract their pelvic floors on command, even before they have children. Having children creates even more of a neuro-muscular disconnect.
- So, in effect, you have three questions that you cannot answer when you don't do a pelvic floor exam 1) Are they tight or weak? 2) Are they contracting properly? 3) What is the timing of their contraction like? The Knack is a term coined by the Australians that looks at the timing of the pelvic floor contraction. They may have grade 5/5 strength but don't contract their pelvic floor muscles until after the rise in intra-abdominal pressure.
- Why is it okay for you to guess at these answers and not use best evidence practice? Nowhere else in physiotherapy would that be acceptable! Why is it in pelvic health?

11) Without conducting an internal assessment, what are the best methods to determine if a client is correctly (or incorrectly) performing kegels?

- Make yourself aware of the questions that you need to ask IN YOUR INITIAL EXAM in order to assess whether your patient has evidence of a co-existing pelvic floor problem (see attached checklist).
- You can do a screening of pelvic floor by doing the coccygeal movement which will give an awareness of movement (contraction and relaxation can be felt or not). Ask your patient to show you how they do a pelvic floor contraction and look for overuse of abdominals (should be minimal), gluteals or adductors (should be absent) and tendency to hold breath.
  Real-time ultrasound is an excellent tool, but a caution with interpretation especially with patients who may be hypotonic or unable to perform a pelvic floor muscle contraction that will show up on ultrasound. Also, with those patients who are hypertonic or "nonrelaxers", it is difficult to decipher on ultrasound; it may not be able to differentiate between a pelvic floor muscle that is weak secondary to tightness vs a pelvic floor muscle that is weak and needs strengthening.
- The patient can use a hand mirror to visualize the perineum. It should move cranially if the contraction is being done correctly. Placing two fingers in the vagina and feeling the fingers being "squeezed" and pulled up and into the body will also confirm a proper contraction. If the patient can interrupt urine flow, this is an indication that the patient has some pelvic floor awareness (DO NOT give this as an exercise.).

- We need to get away from the term ‘Kegels’. In the mind of many people, including physicians, a Kegel is the muscle contraction that is performed during urination to stop the flow. Not a recommended thing to do! We should refer to those exercises as pelvic floor contractions. It is very difficult to be sure without performing and internal exam that the patient is doing is properly. This is where the use of a 3D US would give this information without having to do an internal exam. Mind you the US does not give much information about the tone of the muscles which is a major part of the evaluation.
- If you are not going to do an internal exam, then default to more dynamic exercises of the pelvic floor so that strength and length can be considered as a dual function in movement and exercise. Eric Franklin describes these types of exercises nicely in his book, Pelvic Power. These types of exercises are also taught at the Non-internal pelvic floor-retraining course with Pelvic Health Solutions and in other continuing education courses by physiotherapists such as Julie Wiebe. Most importantly, if you chose to take an externally-driven approach, re-evaluate your patients often. With failure to improve their symptoms, or worsening of their low back pain, hip pain, incontinence symptoms, pelvic girdle pain, genital pain or urinary urgency problems, refer them immediately to a PH physiotherapist who is able to complete an internal exam.

12) Do PH therapists still assess/treat orthopaedic concerns?

- Thank you for asking this question because I feel that it is a common misconception about PH physiotherapy that it is not part of orthopaedic PT!! Pelvic health is part of the whole system and there are many orthopaedic PTs who treat different parts of the body, including the PFM.
- One of our experts is an FCAMPT and practised orthopaedics/sports physiotherapy for 10 years before including pelvic floor treatment into her practice. She is an orthopaedic physiotherapist who also assesses pelvic floor muscles. Most of her PH physiotherapist contemporaries have come through the orthopaedic system and added pelvic floor treatment to their skill set.
- PH therapists by virtue of the connection of the Pelvic Floor to the “canister” (diaphragm, abdominal wall, lumbopelvic girdle, and hips) are orthopaedic therapists. Addressing only the pelvic floor will severely limit outcomes. You cannot take the pelvic floor out of the body (and treat just that structure) any more than you can ignore the pelvic floor as a very real consideration with all patients who present with low back pain, hip pain and pelvic girdle pain.
- PH physiotherapists will assess orthopaedic concerns. Regardless of symptoms, they will do an MSK scan, review posture and look at external movements e.g. one leg stance, squat before doing an internal examination because they need to determine the area that is driving their impairment. They often do multiple other tests that might typically be considered as orthopaedics.
- Depending on their experience, PH physiotherapists may choose to treat those ortho concerns or collaborate with an ortho physiotherapist so they can concentrate on the internal issues and let the ortho physiotherapist work on the other issues.

Treatment

13) Can an ortho and PH therapist work on the same patient at the same time?

- They absolutely can. Collaborative care is best for the patient and allows for great learning opportunities for both therapists.
- However, excellent communication needs to occur so that
    - the patient has consistent goals and explanations of their problem
    - the patient is not being overwhelmed with their home program
    - the patient is not being over-treated
    - the patient's tolerance to treatment is respected
- If there is a dual approach taken, then delineating each therapist's role and responsibility is important.
- One of our experts usually chooses to let the patient work on one aspect for a few treatments then come back to her and continue the internal work.

14) What can an orthopaedic therapist do on his/her own for someone with pelvic-type complaints?

- Lots!
- There are courses that focus on educating therapists about pelvic floor considerations.
- Educate yourself with regards to the evidence to ensure that you are practicing within best evidence guidelines.
- There are many great educational resources available including websites and text books: Heal Pelvic Pain, A Headache in the Pelvis, When Sex Hurts, Anatomy of the Female Pelvis, www.pelvicfloorfirst.au. Educating yourself through these resources will improve your comfort level and provide you with the language to address the pelvic floor.
- Educate yourself on all of the pelvic health conditions, such as vulvodynia, interstitial cystitis, endometriosis, chronic prostatitis (just to name a few) which affect the functioning of the pelvic floor, leading to or complicating abdominal, back, hip and pelvic girdle pain. Do you ask your orthopaedic patients specifically if they have been diagnosed with any of these conditions? 1 in 6 women and 1 in 7 men have chronic pelvic pain, which is highly correlated to pelvic floor dysfunction (Neville et al 2012). It is very common in your patients with low back pain or hip dysfunction so you need to start asking the questions every single time you assess a patient.
- Ask the screening questions outlined above and provide basic information about good bowel and bladder habits.
- Ensure good alignment and movement of the pelvis, including the coccygeal movement screen.
- Working on any trigger points in the muscles around and attached to the pelvis by teaching stretching exercises and relaxation techniques
- Explain that pelvic floor muscle training (PFMT) is more than just Kegels.

- Ensure that the patient is recruiting appropriately during core engagement exercises – like goldilocks it needs to be "just right" for the activity.
- Network and find PH physiotherapists to refer to and collaborate with.

15) Can a patient with extensive external scar tissue from complications in childbirth be taught strengthening exercises? She has stress incontinence (urinary) with sneezing/coughing/jumping/running. She is very active and would like to do more running without incontinence. What are the treatment options?

- This person needs a thorough assessment to determine what is driving her problems. This is a great example where assumptions are often made that she is weak; her history lends itself to an underlying tension problem as well. The scar tissue might be preventing the muscle fibers from contracting properly. Have you assessed the scar? How mobile is it?
- If she has significant scar tissue in her abdominal wall and she is very active, chances are she may be tight internally as well. This would need to be assessed. A thorough internal exam should also be performed to evaluate if there is any pelvic organ prolapse especially because the patient would like to do more running. After damage to the pelvic floor from childbirth, there should be an internal exam before the person resumes any activity with jumping or ponding.
- For treatment, have a good massage therapist (or pelvic floor therapist) with extensive scar management training start to release some of the tension along a scar if it has healed too tight.
- Much can be done for external scarring using laser, manual therapy, self- management techniques, etc. Assess for good lumbopelvic movement and strategies for engaging core – she may be overusing obliques and causing a downward pressure. This patient will need her own techniques for releasing tissues, to know if she has good alignment and how to connect with muscles and movements using optimal strategies.
- Only once the tight tissue has been release and she has a good awareness of core activation and lumbopelvic movement, should this patient start a graduated pelvic floor muscle exercise program. She may also benefit from a pessary to support the bladder neck during impact activity if the stress incontinence is more severe.

16) My client came in with a knee problem which has resolved. She is hoping to commence a general exercise program. She reports having a mild asymptomatic pelvic organ prolapse. What are some recommendations I should make to protect the prolapse during exercise?

- Over 50% of women will have some degree of prolapse after a vaginal delivery. If it is small and/or asymptomatic, we do not treat it. (Don't fix what isn't broken). In terms of prevention, it would be prudent to make sure she has good pelvic floor muscle function but she should not need to avoid any specific activities such as running.
- This patient needs to be assessed for the degree of prolapse and the underlying strength of her pelvic floor. If she is less than grade 3/5 strength, she should not be doing any heel strike

activities such as running and jumping. Those types of exercises would definitely worsen the prolapse.

- It is interesting to note that patients are told to check with their doctor before they commence a new exercise program. Their cardiovascular system is assessed but consideration for musculoskeletal integrity is often not considered - especially of the pelvic floor. As physiotherapists, how do we assess their readiness to participate in a physical exercise program? Especially in pelvic organ prolapse and stress incontinence, not only is strength of the pelvic floor an important consideration but also timing. Patients may have great strength but poor coordination and every heel strike, squat or lunge may be increasing their level of prolapse.
- Assess for optimal engagement of muscles by assessing her strategies during screening tasks that mimic her activities e.g. running – assess step forward.
- Make sure load transfer through the pelvis is well controlled. If she came in with a knee problem that is now resolved, hopefully "resolved" includes good lumbo/pelvic/hip load transfer.
- Educate the patient to maintain neutral pelvis during activities
- Ensure she is not constipated and/or straining with bowel emptying
- General exercise considerations for prolapse would be:
    - Good posture, biomechanics and breathing during her chosen exercise is important
    - If she wants to do heavy weight lifting, or similar activities, ensure she does not brace/breath hold, does not bear down, etc
    - NO sit-ups – home program should include more core stabilising exercises rather than 'crunches'
    - NO wide-stance exercises such as deep squats
    - Low impact exercises. Be very careful of Pilates and core loading exercises which increase intra-abdominal pressure without ensuring the timing and coordination of the pelvic floor. Make sure that there isn't any 'doming' of abdominals when performing any abdominal exercises such as Pilates
    - Running/jogging would not be a good activity for this patient
    - Possibly suggest hypopressive training to be done after strenuous activities

Other

17) As a pelvic health therapist and FCAMPT, I see the two issues as being on the same spectrum with respect to manual therapy and the interconnectedness of tissues- why don't they include this in the ortho division courses?

- Excellent question! How can we ignore a key part of the body, especially when it relates so strongly to the spine, pelvic girdle, and hips? The pelvis is not a separate entity from the rest of the body and should not be treated as such.

- Our experts all agree that more training in PH physiotherapy is important. Some of our experts identify themselves firstly as orthopaedic therapists who include the pelvic floor in their assessment and treatments.
- One expert felt that the pelvic floor should be included in our undergrad training. U of A now offers a weeklong elective course. It covers basics about what a general physiotherapist should know about pelvic floor, how to check externally for pelvic floor muscle contraction, and some information about pelvic pain, perinatal, incontinence and pelvic organ prolapse. Even if we do not go on to perform internal exams, we must understand the relationship between the pelvic floor and the rest of the body.
- With the orthopaedic courses, there is agreement that there should be more basic pelvic health information as well as increased awareness of screening questions for pelvic floor muscle function and dysfunction and of the coccygeal movement test. Orthopaedic physiotherapists should feel comfortable with these questions and when it is appropriate to refer on. Not only would this normalize discussion around pelvic health but clients would have the best possible outcome.
- However, some of our experts felt that direct assessment and treatment of the pelvic floor should only be taught in PH specific courses and not in orthopaedic courses.
- Carolyn Vandyken: In my opinion, pelvic floor physiotherapy needs to be taken out of the realm of Women's Health. It belongs in the orthopaedic division, since pelvic floor retraining falls in the spectrum of manual therapy and is really just manual therapy in a cave. Second, men have pelvic floors too. This is one area of research and practice that men are at a disadvantage since their pelvic floors are being even more ignored than women's. If we integrate pelvic floor retraining into mainstream orthopaedic practice, the relevant importance of these structures would be recognized and retrained in keeping with best evidence practice.
    - We are currently running a study with McMaster University to identify, by internal palpation, the number of women with chronic low back pain who have concurrent pelvic floor dysfunction. Results of the pilot study would suggest that upwards of 80% of women with chronic low back pain have pelvic floor dysfunction which falls in line with the descriptive research completed to date (Eliasson 2008, Van Wingerden 2013).
    - We cannot call ourselves evidence-based practitioners and cherry pick which evidence we want to follow. This is Level 1 evidence. It can no longer be ignored just because of the "ick" factor.

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Sincere thanks to the members of our expert panel who volunteered their time in providing such comprehensive responses to our questions;

JODI BOUCHER BScPT, MRSc

Jodi works with postpartum women in a multidisciplinary pelvic medicine program in Calgary, Alberta. She graduated from the University of Alberta physiotherapy program in 1996 and the University of British Columbia with a Masters in Rehabilitation Science in 2013. Jodi is passionate about Women's Health and Pelvic Health education and has worked in this field for most of her career.

MEAGHAN EVANS BScPT, MClSc, FCAMPT

Meaghan works for Alberta Health Services at the Pelvic Floor Clinic and Calgary Chronic Pain

Centre in Calgary, Alberta. These two clinics are the only publically funded programs in Calgary that offer pelvic floor physiotherapy for patients.

KRISTEN GROVUE BScPT, CGIMS

Kristen Grovue graduated with distinction from the University of Alberta in 1991 with a BscPT. She received her Intermediate Orthopaedic designation in 1997. She has been treating pelvic conditions for the last decade. She works in a private practice and at the Pelvic Floor Clinic and the Calgary (AHS) Chronic Pain Centre in the Pelvic Pain Program.

MARIE- JOSÉE LORD BSc (PT)

Marie-Josée graduated in Physiotherapy from McGill University in 1984 and then studied 5 years of osteopathy at the COQ in Montreal to specifically learn gynecological techniques to treat pelvic dysfunctions. Her interest in pelvic health was there right from the beginning of her career, but it was not a very well-known field which made things very difficult for referrals and training. Marie-Josée continued further pelvic floor training in both France and Quebec from our French colleagues. There was so much work to do to educate the public, GPs, urologists, gynecologists and fellow physiotherapists about this unique field. She, with her colleague Claudia Brown, began in 1991 training physiotherapists across Canada in pelvic health. Although there is still a lot of work to do to increase awareness with women and physicians, the pair are pleased to see how much it has developed through the past 25 years.

Although Marie-Josée has been involved in some research projects with the psycho-genealogical unit at McGill University, she has concentrated on a clinical practice and I am working on establishing interdisciplinary clinics in the treatment of pelvic floor dysfunctions. It was a great honour for her to receive the Mentorship award from CPA in 2009.

JULIET SARJEANT BSc (PT), MSc

Juliet graduated from the School of Physical Therapy at the University of Saskatchewan in 2002 and just finished her Masters of Health Sciences, also from the U of S. She has worked for the 12 years in pelvic health and strongly believes that all women, regardless of socioeconomic status or geographical location, should have access to pelvic health services. She was part of the Pelvic Floor Pathway Working Group, initiated by the Saskatchewan Ministry of Health, that established multi-disciplinary teams in Regina and Saskatoon to assess and treat women with urinary incontinence and pelvic organ prolapse. The Pelvic Floor Pathway is now being offered in smaller centres throughout the province.

CAROLYN VANDYKEN BHSc, PT, Cred MDT, CCMA (acup)

Carolyn graduated from McMaster University in 1986 with a Bachelor's Degree in Physiotherapy; she has practiced in a wide variety of clinical settings, focusing primarily on orthopedics. She has been a McKenzie credentialed physiotherapist since 1999 and has been a member of the Canadian College of Medical Acupuncture since 2002. Her clinical focus changed to Pelvic Health in 2001. She owned and managed her own clinical practice from 1999-2009; she then became the Clinical Practice Leader/Pelvic Health for Centric Health from 2009-present, mentoring and training pelvic health physiotherapists throughout Canada. Carolyn has spoken at over 50 conferences and grand round presentations, and has taught post-graduated courses extensively throughout Canada and the United States. Carolyn was an invited speaker at the First World Congress for Abdominal-Pelvic Pain in Amsterdam (2013) and the International Pelvic Pain Society conference (2014) on central pain mechanisms and abdomino-pelvic pain; she also presented at the NOI Pain and

Neurodynamics conference in Adelaide, Australia (2012). Carolyn co-authored two peer-reviewed framework articles with Sandra Hilton on the assessment and treatment of persistent pelvic pain; they also contributed a chapter to the IASP textbook, Abdominal and Pelvic Pain: From definition to best practice (2014). They also co-authored a chapter on the integration of central pain mechanisms into clinical practice in the first textbook on the Overactive Pelvic Floor. Carolyn and Sandra just published the first book on patient-centered pain science education for pelvic pain, Why Pelvic Pain hurts, along with physical therapist, Adriaan Louw. She won the prestigious Woman of Distinction award from the YWCA in 2003 for her work in pelvic floor rehabilitation.

MARY WOOD BScPT, CAFCI

Mary is the Clinic Director of CURA Physical Therapies. She graduated from the University of Alberta many years ago (‘81). She added pelvic health physiotherapy to her general musculoskeletal practice in 1994 and has continued with mixed practice since. She uses the integrated systems model ISM (Lee and Lee) with all patients including those with pelvic health problems. ISM lets her use the tools and techniques she has gathered over her years of practice.

Additional thanks to the readers who emailed in their questions; Nancy Drouillard, Angela Growse, Theo Versteegh, Danielle Waite and Nicole Wilson.

Case Study

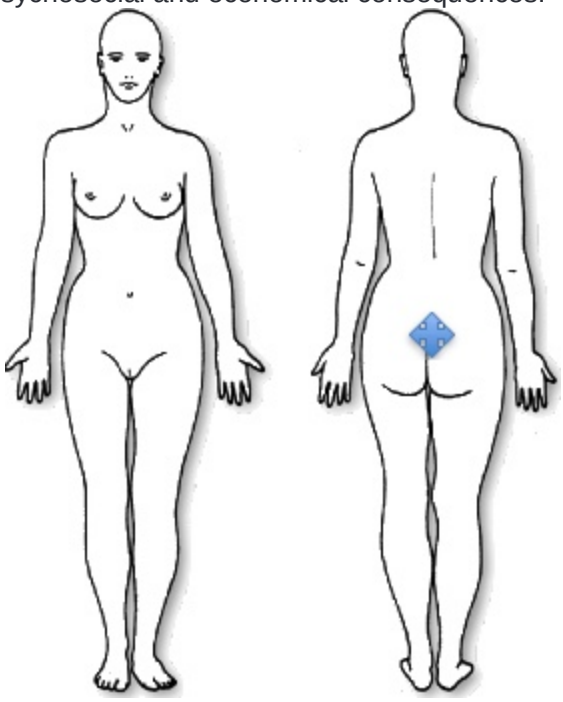
Pelvic Health Case Study

Kristy Lerch, BSc, BScPT, FCAMPT

1) Introduction

Management of female pelvic floor dysfunction is a big clinical practice area and is becoming more common as more of the population begin to seek treatment. Latthe et al. (2006) noted that 24% of community dwelling adult women suffered from chronic pelvic pain. In 2003, the World Health Organization estimated that as many as 23.8 billion people worldwide suffer from incontinence issues; 1 in every 3 women will suffer from this problem (Bump and Norton, 1998). With the aging population, this number is only going to increase (WHO website).

Symptoms of pelvic floor dysfunction can range from pain, to sexual dysfunction, to urinary and fecal incontinence and can comprise of myofascial and neuromuscular dysfunction. Chronicity of these problems can also lead to bladder and uterine prolapse among other things. While these symptoms are by far more prevalent in females due to their unique experience of childbirth, loss of estrogen with menopause, pelvic dysfunction is not unique to women. Being multi-factorial with likely neurological, emotional, behavioural and environmental influences, pelvic floor dysfunction can undermine the quality of life in both men and women and is an important public health issue with psychosocial and economical consequences.



Subject History

Susan is a 32-year-old woman who was referred for pelvic health physiotherapy to address pain she was experiencing in her coccyx (tailbone). She reported that the pain could vary in intensity and had been slowly decreasing since the delivery of her first child six weeks prior to the assessment. She reported that for the most part, hers was a normal pregnancy until the end. She had endured a long active stage of labour that included over 3.5 hours of pushing. She remembers feeling and hearing

her coccyx ‘pop’ once during this time, which resulted in increased pain in the area. She was anxious that she might have “popped her tailbone out of place.”

Symptom Behaviour

Her symptoms were aggravated with any pressure on the tailbone so sitting for greater than 10 minutes could cause 5-7/10 pain on the VAS. She had pain with prolonged standing or walking greater than 1 hour. Any bending or twisting of her body would also aggravate her symptoms. She described her pain as dull and achy most of the time but becoming sharp with sudden movements. With prolonged sitting or standing, her pain changed to a burning sensation. She was always more comfortable in supine. She reported that neither Tylenol nor Advil helped her pain much.

On further questioning, Susan admitted to having bladder leakage in the early weeks post-partum with any sudden movements, coughing, sneezing, or laughing. This was much improved at the time of her assessment. Her voiding frequency was also increased but she attributed this to increased liquid intake. At this time, she was not having sexual relations with her husband, as she was still really tender in the genital region.

Past Medical History

Prior to coming to PT, Susan had a history of vulvodynia that was being adequately managed by topical estrogen therapy to the area. She had a history of a coccyx fracture two years back that was managed to her satisfaction with physical therapy. She felt she had a good resolution of her symptoms from that injury. She also had a history of hemorrhoids and anal fissures post-partum. Her family physician had advised her on changes to her diet and increasing her water intake. She was fit and fairly active before and during her pregnancy but had refrained from exercise since her delivery due to time constraints and the pain. She was otherwise healthy.

Social History

Susan lived with her husband in the Yukon while her family live in Quebec. She therefore had limited support from her family at six weeks post-partum.

2) Activity and Participation Limitations:

Susan’s coccygeal pain was really affecting her life, including her mental wellbeing. She was unable to sit or stand for any reasonable period of time and she felt she was unable to care for her baby well. She had a challenging time bending over to place him in or take him out of his crib or car seat. Since she was most comfortable in supine, she often laid down to breastfeed. She was unable to re-engage in sexual relations with her husband because it aggravated her pain.

Susan’s goals were to eliminate her pain so that she take care of her young child, enjoy leisure time with her family and return to normal marital relations with her husband.

3) Potential Mechanism influencing the patient’s presentation

There are many potential mechanisms that can cause pain in the coccyx region;

- Infection: Though uncommon, infections are possible after childbirth due to laceration in the cervix, vagina and/or perineum. Symptoms can include pain and tenderness in the area but can also include fever and foul-smelling odour. Susan was fatigued but she had no complaints of pain anywhere else or reports of fever. As such, it was unlikely that her symptoms were due to an infection. Nonetheless, it was not a bad idea to have her investigated.

- Nociception / Soft tissue injury: With her recent vaginal birth and report of a “pop” with pushing, Susan might have suffered tears in the surrounding ligament and muscles; as such her pain could be the result of local inflammation and therefore nociceptive in nature. There are many features of her subjective history that made me believe Susan symptoms were more nociceptive; she had clear mechanical aggravating factors, she avoided pressure to the perineum because of pain and any stretch or contraction of the muscles in that area reproduced her symptoms. The pain Susan experienced in the coccyx, buttock and posterior thigh fit the referral pattern of trigger points in various muscles of the pelvic floor. (Travell and Simon, 1993) Local muscle trauma can lead to ischemia and thus myofascial dysfunction.
- Peripheral Neuropathic Pain: I did not suspect that Susan’s symptoms were primarily due to a peripheral neuropathic mechanism based on her history and the lack of numbness or tingling. However, she did indicate that her pain would last long after she discontinued any aggravating activities. I also suspected injury to local nerve structures because at times her pain could go beyond the boundaries of the coccyx and perineum area into the buttocks. The resultant vascular, connective tissue and impulse-conducting tissue pathophysiological response to nerve injuries might explain pain in areas outside the immediate area of injury. (Nee and Butler, 2006)
- Centralised pain: I had no suspicion of centralized pain with this patient. Her symptoms were relatively new and were the result of her recent pregnancy and subsequent childbirth. They were focused and specific in region and clearly related to biomechanical factors. She had clear aggravating and relieving factors. While she did have an old injury in the area of her new symptoms, she felt that her previous injury was resolved and did not attribute her new symptoms to the old injury. As well, her pre-existing vulvar pain was relieved with estrogen therapy.

4) Clinically perceived level of irritability

Susan’s level of irritability was moderate to severe. She reported that sitting for less than 10 minutes could cause her pain to reach 5-7/10 on the VAS and last for some time before it settles. Lifting her infant child, standing, changing positions in bed could all aggravate her symptoms and leave her in pain for hours.

5) Flags

No red flags were identified with this patient. There were some moderate yellow flags that needed to be kept in in mind; Susan was a new mom therefore she was irritated by how her pain impeded her ability to care for her new baby. She was hardly sleeping and when she did sleep, she would wake up often because rolling in bed causes her pain. Understandably, she had a lot of fatigue. She was understandably frustrated and wanted a quick resolution to her pain.

6) Potential Risk Factors / Prognostic Indicators

Contributing factors

Susan’s symptoms could be a combination of many different things; the trauma of vaginal childbirth leaves many women sore and tender in the perineal area. Susan’s symptoms were not rare. She might have sustained tears in her pelvic floor muscles, the surrounding ligaments or injury to the pudendal nerve. It’s also likely she injured the sacrococcygeal joint which is the epicentre of her complaints. As such, hers might be a combination of true biomechanical dysfunction with some

muscle strength/control issues. With some healing over the past six weeks, there could be a small neural entrapment resulting in neural mobility issues. In order to minimize her pain, Susan might have developed postural compensations or altered her active movements; the resultant muscle imbalance could have contributed to her presenting symptoms.

Susan reported trouble with anal fissures and haemorrhoids post-partum. This could have been the result of a prolonged or obstructed labour causing traumatic pressure wounds to the vagina and subsequent fistula formation. (Puri, 2011) As Poskus et al (2014) show in their study, haemorrhoids and anal fissures are very common in the third trimester and a month post-partum. They cited constipation, personal history of haemorrhoids or fissures, birth weight of newborn >3800 g, and straining during delivery for more than 20 minutes as independent risk factors. Susan fit these risk factors exactly. Continued issues with constipation and straining during defecation can continue to cause injury to the local soft tissue thereby perpetuating her symptoms.

7) Clinical Assessment and Analysis

The initial assessment comprised of a physiotherapy orthopaedic assessment and an internal vaginal exam as documented by Newman, 2010.

Neurological Examination

There were no abnormal findings with reflex testing, dermatomal testing or myotomal testing

Internal pelvic exam

Susan presented with active trigger points and pain in her obturator internus, piriformis coccygeus and levator ani (iliococcygeus, pubococcygeus, and puborectalis) muscles bilaterally. Palpation of her coccyx was tender and painful. The coccyx was extended and deviated to the right in relation to the sacrum. The right anal sphincter muscles were profoundly tight and painful.

Perineal Observation and Internal examination of the Vagina

The perineal area was slightly dry but pink and otherwise healthy. Hair growth was normal. She had normal sensation and reflexes in this area. She was very tender to palpation in the perineum and coccyx region. I also observed a grade 1 cystocele and a grade 1 uterine prolapse.

Pelvic Floor Muscle Testing

Susan had grade 4/5 strength. On repeated contractions, it was clear that Susan was unable to properly release her pelvic floor muscles. She presented with active trigger points and pain in her obturator internus, coccyygeus and levator ani (ilioccoccygeus, pubococcygeus, puborectalis) muscles bilaterally.

8) Hypothesis/Analysis

1) Coccydynia with associated biomechanical dysfunction

2) Pelvic floor dysfunction (weakness and tension issues) with active myofascial trigger points in the pelvic floor muscles; obturator internus , piriformis, coccyygeus and levator ani (ilioccoccygeus, pubococcygeus, puborectalis)

3) Poor neuromotor control of the pelvic floor muscles.

9) Outcome Measures

Susan's perception of her pain level on a 10-point VAS was measured at each visit. Secondary outcome measures could have included the Pain Catastrophizing Scale (Sullivan, 1995) and the Tampa Scale for Kinesiophobia (Miller et al, 1991). However, I suspected neither pain catastrophizing, nor kinesiophobia with Susan so used neither. Instead, improvements in functional mobility and in her QOL were the primary outcome measures. Specific functional questions were

asked on the assessment regarding pain, duration of pain and function. Any changes were compared to these initial findings at each visit.

10) Management

Susan was in a fair bit of pain so her management had to be approached cautiously. I wanted her involved in her management as much as possible and to understand her management strategy well. Her initial treatment included:

Education: regarding her condition, her treatment plan, expected healing, modified sitting positions and activity modification. There was little hands-on treatment because her level of irritability was high and I did not want to send her home in more pain than she came in with. I wanted her to feel in control of her symptoms by giving her management strategies to reduce pain.

Home Program: One of the keys to her rehabilitation was therapeutic exercise to normalize pelvic floor function. Many authors support the use of a comprehensive exercise program to retrain the pelvic floor muscles. (Bo 2003, Bo 2012, Breakken et al 2010, Doumoulin et al 2014, (Sherburn et al 2011) I explained to her our goals of strengthening, relaxing and lengthening the pelvic floor muscles and improving her overall core strength.

A recent study by Bradley and Esformes (2014) concluded that inefficient breathing could result in muscular imbalance, motor control alterations and physiological adaptations that are capable of modifying movement. Janseen et al (2013) showed greater diaphragm fatigability in individuals with recurrent low back pain; as such, it is important to teach proper breathing techniques to our patients. Susan was taught to properly diaphragmatic breathe during the rest phase of her pelvic floor contraction.

11) Response to Initial Treatment

Susan did not have a significant decrease in pain after the first treatment. She was doing her exercises regularly and did report a slight decrease in symptoms of prolapse at her second visit.

Follow-up visits

Education: Continued education regarding condition and expected healing. Susan was advised to avoid sexual intercourse until she was able to use a specific size of vaginal insert without any discomfort. She was provided with education on the treatment plan, activity modification, exercises and home management as well as the rationale for the same. I ensured that she was well informed regarding side effects and post-treatment soreness after any manual technique.

Manual Therapy: Gr 3 mobilizations to sacrococcygeal joint to restore normal joint biomechanics. Myofascial release to the pelvic floor muscles and ligaments, including the pubococcygeal muscles, obturator internus, anal sphincters, and the sacrotuberous ligament.

Modalities: Venus vaginal inserts, purchased from Laurel prescriptions in Vancouver,BC.

Each subsequent session included a combination of higher grades of mobilization, soft tissue release of internal pelvic muscles and progression of her pelvic floor exercises. Basic pelvic floor exercises were progressed gradually to an endurance-level contraction (gradual deepening contraction over 5 seconds) and a focused strengthening contraction (hold at maximum effort for 3 seconds). Susan was gradually progressed to doing 30 contractions (15 of each) per day.

The criterion for progression was her ability to do an isolated pelvic floor contraction with good quality and form. I continued to instruct her on diaphragmatic breathing during her relaxation phase as part of her exercise regime. She was also given specific muscle stretches she could do at home for her tight pelvic floor muscles

Discharge Criteria

Discharge criteria included reducing pain to a level considered manageable and/or satisfactory by the patient. Susan needed to return to pain-free sexual function and to being predominantly pain-free in ADLs, work and leisure activities. It was important that she was armed with management techniques for self-efficacy so that should her pain return, she would be able to manage it.

12) Conclusion

Susan was seen for a total of 15 visits due to the increased complexity of her case. She demonstrated a consistent decrease in pain and increase in function over the period of treatment. At her last visit, she was predominantly pain-free although she would experience occasional discomfort after prolonged sitting or at the end of the day. This was not enough discomfort for her to continue with treatment, she felt she could manage things effectively on her own. By the time of her last visit, she was having pain-free sexual intercourse. She was provided with a comprehensive home management and exercise program to help her to manage and resolve her mild residual symptoms.

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Original Submission

A biopsychosocial perspective and the pelvic floor: Two key elements of persistent lumbo-pelvic pain

By: Carolyn Vandyken, PT

Pelvic pain and persistent low back pain are at an all-time high with escalating costs to society with increasing levels of disability (1). Despite a plethora of research, treatment options, and inter-disciplinary approaches, we are losing the "war" against persistent lumbo-pelvic pain. It is proposed that treating persistent lumbo-pelvic pain can be significantly improved by the consistent use of a biopsychosocial approach (2). It is further theorized and supported by a growing body of evidence that the pelvic floor may be a key biological driver in persistent lumbo-pelvic pain (3,4,5).

Mechanisms underpinning persistent pain differ significantly from those underlying acute pain states; yet from a therapeutic and medical perspective, they are often treated in a similar fashion (6). Distressingly, in the absence of anatomical causes in persistent pain states, medical subspecialties have historically applied various labels to those suffering from lumbo-pelvic pain including non-organic pain, fibromyalgia, or somatization (6). Patients have often been made to feel that their pain is all "in their head" as if they are imagining their symptoms, causing untold despair and frustration. Recent evidence has suggested central pain mechanisms play a considerable role in many patients with persistent pain, even in those that were traditionally thought to have strong peripheral mechanisms, such as rheumatoid arthritis and osteoarthritis (6). Therefore, the role of central pain mechanisms needs to be considered in all persistent pain states, not as a default diagnostic consideration but as a primary diagnostic indicator in pain that lasts longer than 3-6 months (6).

Definition of Central Sensitization

As early as 1883, Dr. Sturge envisaged a possible central nervous system "commotion passed up from below" that contributed to the clinical features of ischemic cardiac pain (7). Indeed, the spinal gate control theory proposed by Melzack and Wall in 1965 highlighted that this sensory relay system could be modulated in the spinal cord by inhibitory controls (8). Woolf first described central sensitization in the early 1980's and operationally defined central sensitization 30 years later as an amplification of neural signaling within the CNS that elicits pain hypersensitivity (7). The structural changes that occur in the nervous system are complex and are the subject of ongoing extensive basic science research. When pain persists, reorganization of the brain may contribute to chronic pain (7). Central sensitization is a real phenomenon that can contribute to inflammatory, immunological, neuropathic and dysfunctional pain states. In other words, people experiencing these symptoms are not crazy; the structural changes that occur in the nervous system in persistent pain are as tangible as the changes that occur in the tissues in acute pain.

What is a biopsychosocial perspective?

Thirty years ago, Dr. Waddell introduced the biopsychosocial model of disability for chronic low back pain (9). Waddell recommended taking a three-pronged approach to the management of chronic low back pain, including the assessment of tissue involvement (biological perspective), illness behavior (psychological perspective) and socio-economic factors (social perspective) as they affect persistent pain (9). He developed non-organic signs, which have been used extensively in the last thirty years to tease out malingers and patients with perceived secondary gain issues. Interestingly, non-organic signs such as non-anatomic tenderness and diffuse pain have now been identified as significant

factors on patient history that suggest central sensitization (10). Cogwheeling, another classic non-organic sign is now recognized as a lack of coordination in the sensori-motor cortex, leading to jerky movements within agonist and antagonist muscle groups. Cogwheeling represents an organic change within the central nervous system rather than a poor effort put forth by a patient. As identified by Waddell over thirty years ago, taking a biopsychosocial approach with patients who demonstrate these signs and symptoms is important, but our labels need to change. These patients should not be labelled with non-organic pain but with organic nervous system changes, as defined by central pain mechanisms. Woolf has created a list of syndromes and conditions that have been shown to have a strong basis in central pain mechanisms, and many of those conditions are familiar to many physiotherapists (7). These include:

1. Fibromyalgia
2. Myofascial Pain Syndrome/Regional Soft Tissue Pain Syndrome
3. Idiopathic Low Back Pain (LBP)
4. Irritable Bowel Syndrome and other functional GI disorders
5. Primary Dysmenorrhea
6. Interstitial Cystitis/Chronic Prostatitis/Painful Bladder Syndrome
7. Chronic pelvic pain and endometriosis (6).

When utilizing a biopsychosocial approach to the treatment of persistent lumbo-pelvic pain, both clinicians and patients alike must have an accurate understanding of pain. Pain is defined as an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage (11). Pain can exist without any anatomical tissue damage. The persistent use of phrases such as “pain receptors” and “pain pathways” provide examples of common misconceptions surrounding the pain system (12). Nociceptors include temperature, pressure and chemical sensors (13). There are no “pain” sensors. The information carried by the nerves is not pain; it is a neuro-chemical message (13). Pain exists only when the brain concludes that the body is in danger (or potential danger) and that action is required (13). There are no pain pathways that have been identified (12). The central nervous system can enhance, delay or cancel the messages it receives from nociceptive input (13). Neurophysiology-based pain education accurately explains the biology of pain and the pain system (14). Neurophysiology-based pain education as a treatment intervention has been extensively studied with consistent positive results (14). Good communication skills are required when providing pain education, and clinicians need to practice this approach with patients (15). Pain education reinforces the fact that pain is not “in their head”; instead, pain is understood to be a biological response to actual or potential threat (13). In this vein, persistent pain is explained as the result of central pain mechanisms and adaptive changes within the patient’s nervous system. This approach contributes to hope and transforms the despair and frustration often seen in people suffering from persistent pain states. In his research, George proposed that it is almost “unethical” to not provide accurate pain education to patients (16).

Two factors need to be considered when determining who requires pain education as an intervention:

1. The clinical picture is characterized and dominated by central sensitization. This includes those conditions as identified in research by Woolf and those patients who demonstrate those characteristics identified by Smart including disproportionate, non-mechanical pain- hypersensitivity and allodynia, pain persisting beyond normal healing time frames (12-16 weeks), and diffuse pain

(10,7).
2. The presence of maladaptive illness perceptions including catastrophization and fear avoidance in the acute and chronic phase of an injury. It is important to use standardized validated questionnaires to measure these important and predictive psychological factors that are strong predictors of chronicity (17).

It is helpful to start with an assessment and treatment framework for determining how to explore the presentation of tissue dysfunction and central pain mechanisms for each individual patient. These frameworks have been presented previously to guide this decision making process (see Appendix A and B) (18). The use of these frameworks can help to determine the balance of involvement of peripheral drivers versus central pain mechanisms and direct treatment to the appropriate structures right from the beginning (19). These frameworks employ the use of validated measures to assess the presence of psychosocial risk factors such as fear avoidance and catastrophization (18). The Pain Catastrophization Scale and the Tampa Scale of Kinesiophobia are good predictors of central pain mechanisms as one potential driver of the pain expression in persistent pain states (10).

Despite the preponderance of evidence supporting pain education, many health professionals are unsure how to incorporate this into practice in a way that the patient will accept and that does not sound as if the pain is “in your head” (14).

Effective rehabilitation for persistent lumbo-pelvic pain involves the targeting of cortical structures for those patients who present with indications of centrally driven pain states as described previously. Strategies for targeting cortical structures include cognitive behavioral therapy (CBT) and sensory discrimination training of the involved body part (8). It is necessary to re-establish ownership and accurate sensory/motor awareness of the affected areas in order to retrain accurate body mapping (8). Moseley and Flor discuss this issue with the use of Graded Motor Imagery involving three distinct components of 1) Laterality (right/left discrimination) 2) Imagined movements and 3) Mirror Therapy (8). The application of these techniques to lumbo-pelvic pain is pre-evidence, but it is reasonable to conclude that an accurate representation of sensation and movement in the sensori-motor cortex would be beneficial in the effort to reestablish efficient control and coordination. Focused treatment at the brain level should include purposeful attention to the affected area during functional movements and activities. Movement therapies such as Feldenkrais, the Franklin Method, Yoga, Tai Chi, or Qi Gong can provide graded exposure with a mind towards integrating function to the pelvic floor and low back in a nonthreatening way (19).

To assess effective rehabilitation strategies in persistent lumbo-pelvic pain, three case studies will be presented demonstrating the utilization of the assessment and treatment frameworks discussed earlier (18,19). In this case series, all three patients had significant physiotherapy intervention with an orthopaedic physiotherapist prior to their treatment with a pelvic floor physiotherapist. Physiotherapists often miss a deep understanding of the biological tissue drivers of lumbo-pelvic pain, specifically the pelvic floor. Pelvic floor dysfunction has been demonstrated to be a relevant contributing factor in persistent lumbo-pelvic pain repeatedly in the literature (3,4,5). Alternately, many physiotherapists focus on tissue dysfunction alone as the primary driver of persistent lumbo-pelvic pain, whether that be the hip, SI joint, lumbar joints and muscles, or the pelvic floor. Focus on biological tissue drivers outside of a biopsychosocial perspective also leads to sub-optimal treatment outcomes (17). This case series provides an example of the possible blend of central pain

mechanisms and tissue based drivers in persistent pain states within the framework of a biopsychosocial perspective.

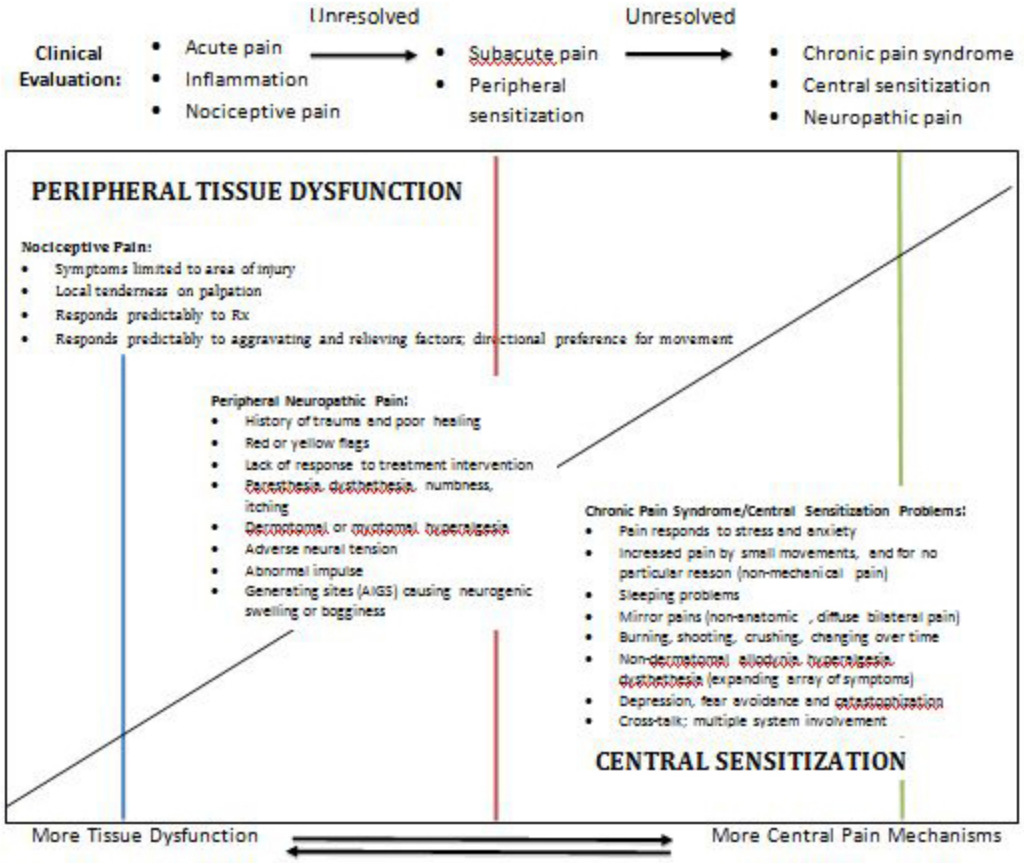
Patient #1 does NOT demonstrate specific components of central pain mechanisms. She meets the criteria of persistent pain based on the duration of her symptoms; however, she responds to treatment in the same way a patient with acute mechanical pain might respond. It is interesting to note that she had been treated within a biomedical framework in the past by another orthopaedic therapist; however, symptom resolution was not achieved since the pelvic floor, a potential tissue driver, was previously overlooked. Patient #2 demonstrates a combination of mechanical tissue-based pain and central pain mechanisms. This provides an example of the application of a clinical framework to successfully guide treatment in a time-limited fashion. Patient #3 demonstrates dominant components of central pain mechanisms. This case study demonstrates that patients with pain deeply rooted in central pain mechanisms can respond in a time-limited fashion, if the correct tissues are targeted, specifically cortical structures instead of musculoskeletal tissues. In this case series, the information that helped to guide the therapeutic assessment and treatment process has been bolded. These findings specifically contributed to guide this therapists' clinical reasoning.

Treatment sessions were 30 minutes long and involved the use of a physiotherapy assistant to teach some of the exercise components after the completion of each visit; therefore, each visit was approximately 45 minutes in duration. Extensive use of audio exercises was used to retrain the sensori-motor cortex with body mapping exercises, Franklin exercises, Feldenkrais exercises, Qi gong, therapeutic yoga, guided imagery and relaxation (21, 22). The patients were sent these exercises electronically in downloadable format to ensure ease and compliance of their home exercise component for the sensitive nervous system.

	Patient # 1	Patient # 2	Patient # 3
Age	45 y/o	34 y/o	57 y/o
Demographics	Married, 1 child, 1 stillborn (full-term), Teacher	Married, 2 children (ages 1 & 3), Physiotherapist	Committed relationship, 3 grown children, Real Estate Agent
History	Right SI joint (SIJ) pain, Stress incontinence, dyspareunia, 1 C-section/1 vaginal delivery History of breast cancer- put into medical menopause 3 years previously	(R) SI joint pain post-partum, **Believed SIJ "unstable"** **Chronic LBP after fall off of bike at age 16 and skiing accident at 18- never fully resolved** 2 C-sections	**24 months previously, she had surgical removal of coccyx secondary to pain** **Sjogren's Disease** **+++foot pain (CRPS)** **Urinary urgency** **Dyspareunia**
Pain regions **List of problems**	Pain localized to (R) SI joint and gluteal region but just starting to spread to upper back **Localized pain**	Pain localized to (R) gluteal region **History of depression** Chronic constipation **Localized pain**	Burning sharp pain in (L) sitz bone and perineum, burning, discolored and swollen feet; stiff/rigid posture; neck and upper back pain **Diffuse pain**
Previous **Treatment**	PT for SIJ externally, Pilates, yoga, core stability exercises, kegels	Pilates (kegels), PT, ART, Anti-depressants (while at University; not at present)	PT to external tissues post-surgically for 18 months; acupuncture, Chinese medicine, Pilates (kegels)
Outcome measures- **Pre Rx**	TSK=24/68 (low) (33) **PCS=0 (none)** (33) **DASS=no stress, anxiety or depression**	TSK=30/68 (low) (33) PCS=8/52 (low) (33) **DASS=10 for stress (moderate)**	TSK=28/68 (low) (33) **PCS=46/52 (severe)** (33)
Physical Findings	Active Straight Leg Raise (ASLR)=1/5 (R). Vulvar dryness, vaginal atrophy- medical menopause. **PFM TP: (R) obturator internus, ischioccocygeus and internal piriformis trigger points released nicely on assessment** PF muscle strength=2/3/5	PF trigger points (TP)- (R) piriformis, pubococcygues, obturator internus and right gluteal muscles. **ASLR =2/5 (R), worse with compression through pelvic girdle.** **Provocative testing of the SI joint (+ve) in 3/5 tests.** **Mechanical assessment of low back: directional preference for (R) flex/rot to reduce and centralize symptoms; may be consistent with a lateral disc component and mechanical pain.**	Uses a 6" wheelchair cushion with a sitting tolerance of <5 min. ASLR=0 **Provocative testing for SIJ was negative.** **No mechanical LBP.** Minor trigger point (L) obturator internus and coccygues. **No connective tissue dysfunction externally or internally.**
		Stressors: F/T work; busy mom	

Diagonal Diagram

(Adapted from CPA Teleconference, April 16, 2009 by Alejandro Elorriaga Claraco)



After several visits, determine the relative balance of tissue dysfunction and central pain mechanisms and place a vertical line which represents your patient's presentation. Let this guide your treatment and homework prescription

	Patient #1 (Blue line)	Patient #2 (Red line)	Patient #3 (Green line)
Treatment	**1st visit:** PFM TP release, education on vulvar care, OI/piriformis stretch given; discontinue Pilates, NO running b/c of grade 2/5 PFM strength **2nd visit:** reported increased (R) SIJ + (R) LBP- produced from ++ painting that week; mechanical LBP needs to be ruled out before SIJ considered. (R) L-spine facet pain diagnosed- looking back at her mechanical history, she reported a 3 yr. history of (R) flexion/rot'n only to stretch the fascia of her left breast every day for 3 yrs: instructed to stop this, and do flexion/rot'n to left 4-6x/day, 10 reps each time.	**Pain Education:** Educated on Sullivan's Classification system; she fits the category of excess tension not "unstable" SIJ. Therapeutic Neuroscience Education with Understand Pain. Live Well again. **Visits 1-3**: PFM release, mechanical Rx of lateral wall of disc. Starting to see relationship of stress to her symptoms. Goal: to r/o mechanical LBP. Mechanical LBP r/o after third visit **Visits 4-6:** Explored SIJ mechanically: Symmetry exercises improved (R) ASLR from 2/5 to 0/5.	**Pain education**: Therapeutic Neuroscience Education with Understand Pain. Live Well again. Worked on reconceptualization of information after each visit with patient-therapist handbook. Patient requested twice-weekly treatments- very motivated to improve; deeply entrenched belief that her pudendal nerve was entrapped. **Visits 1-6:** examined tissue dysfunction and possible mechanical components including pudendal nerve tension- negative. Minimal trigger points were non-contributing. TP's released but sitting tolerance did not change.
	3rd visit: (R) SIJ and LBP resolved with (L) flexion/rot'n; started flexibility stretches for low back in all directions. Released PFM for the 3rd time. ASLR=0/5 after release of PFM. **4th visit**: SIJ pain returned but not as intense as it had been-feels "unstable" 2□ to completing multi-directional stretches last week; she reports that this happens every time she does generalized stretches. ASLR 1/5: completed symmetry routine (64) x 10 minutes. ASLR 0/5 after symmetry routine. NO PFM TP on re-assessment	PGP (+ve) **HEP first 6 visits**: Piriformis, OI stretch, Cat/Dog to stretch the specific pelvic floor muscles that were being released. Anurex tube: prescribed for hemorrhoids 2x/day for 10 minutes. Bristol Stool Chart reviewed- Goal: Type 3 or 4 on Bristol Stool chart for stool. Fibre intake and toilet positions taught. **Weeks 7-8:** TP's not resolving; changed home exercise program (HEP) to a guided therapeutic yoga sequence for the pelvic floor and pelvic girdle to release tension more effectively- drive stretching exercises to tension in the nervous system.	Started immediately with a short, therapeutic yoga sequence with OI, Glut, Cat/Dog to connect tissues of the pelvic girdle and relaxation of nervous system. Used guided relaxation for pain and anxiety. (21) **Threat Assessment**: Poor health, hypervigilance, 2-3 hrs/day of exercise and medical appointments, rigid posture, would only wear rocker shoes- never walked or stood on bare feet. **Nervous System exercises:** Remapping sensori-motor cortex in sitting. (21) Started Qi Gong- alternating Lower and Upper Body exercises. Eric Franklin exercises for re-mapping feet (feet are next to genitals on the homunculus and often affected in sensori-motor smudging). (21)
	5th visit: painfree in all		

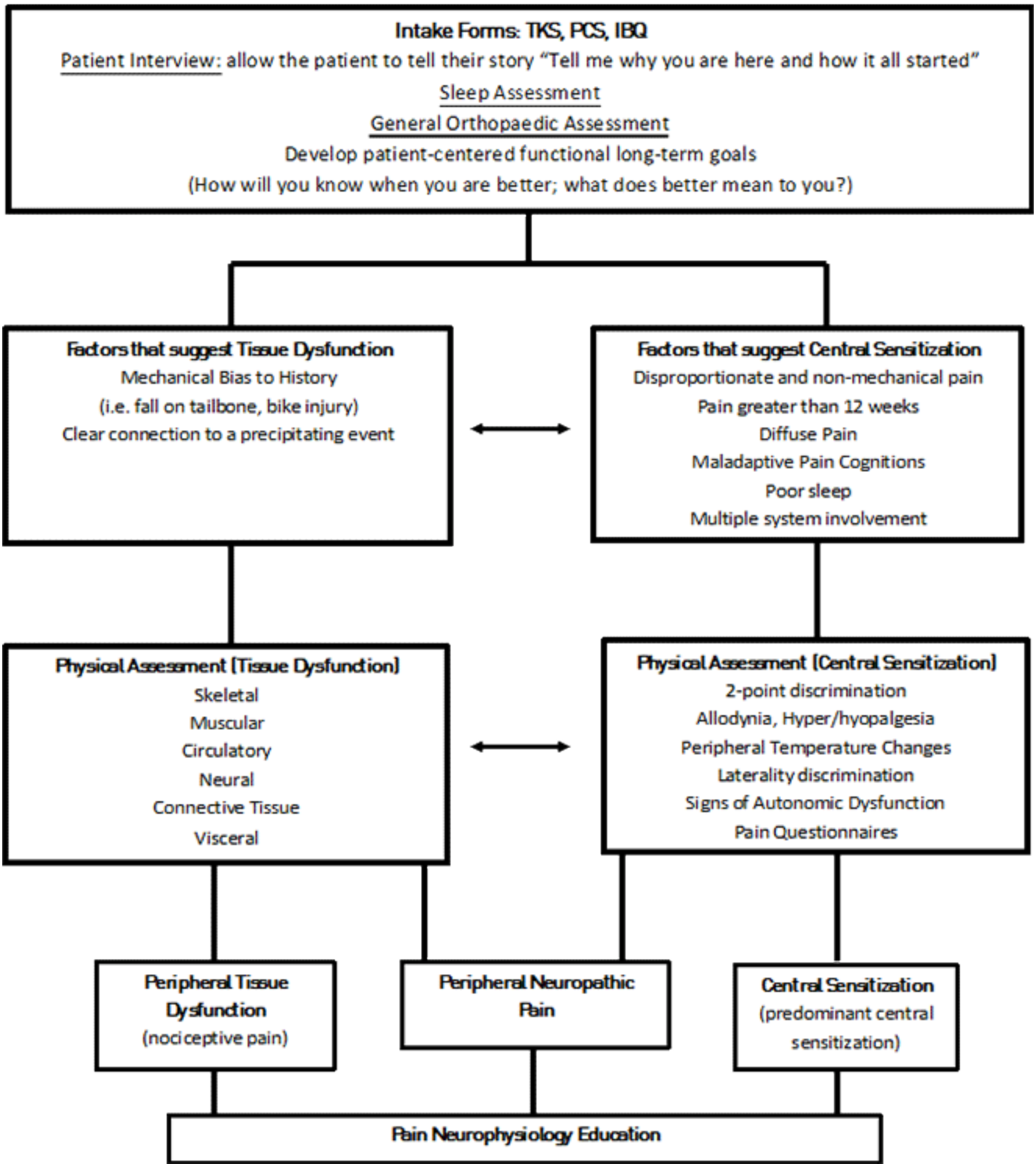
All three patients continued to work full hours and duties. This correlates accurately with their unremarkable scores on the Tampa Scale of Kinesiophobia (TSK), a measure of fear avoidance. Only Patient #3 had high catastrophization scores (PCS), which correlate well with her dominant presentation of central pain mechanisms. Pain education and strategies to down regulate her central pain mechanisms were sufficient to abolish Patient #3's high levels of catastrophization. Cognitive Behavioral Theory (CBT) or other psychologically based interventions were not required in this case, although they might have been a reasonable intervention if catastrophization levels were unchanging. The number of treatments required for each presentation type fit reasonably within their specific classification system. Mechanical pain, even from multiple mechanical sources as seen in Patient #1 (facet pain, SI joint pain and pelvic floor muscle hypertonicity) is relatively straightforward to identify and to treat. Although central pain mechanisms can present challenges, treatment directed at the appropriate tissues (central nervous system versus musculoskeletal system) will resolve problems in expected timeframes of reasonable duration, provided that treatment is proceeded with therapeutic neuroscience education as seen in Patients #2 and #3.

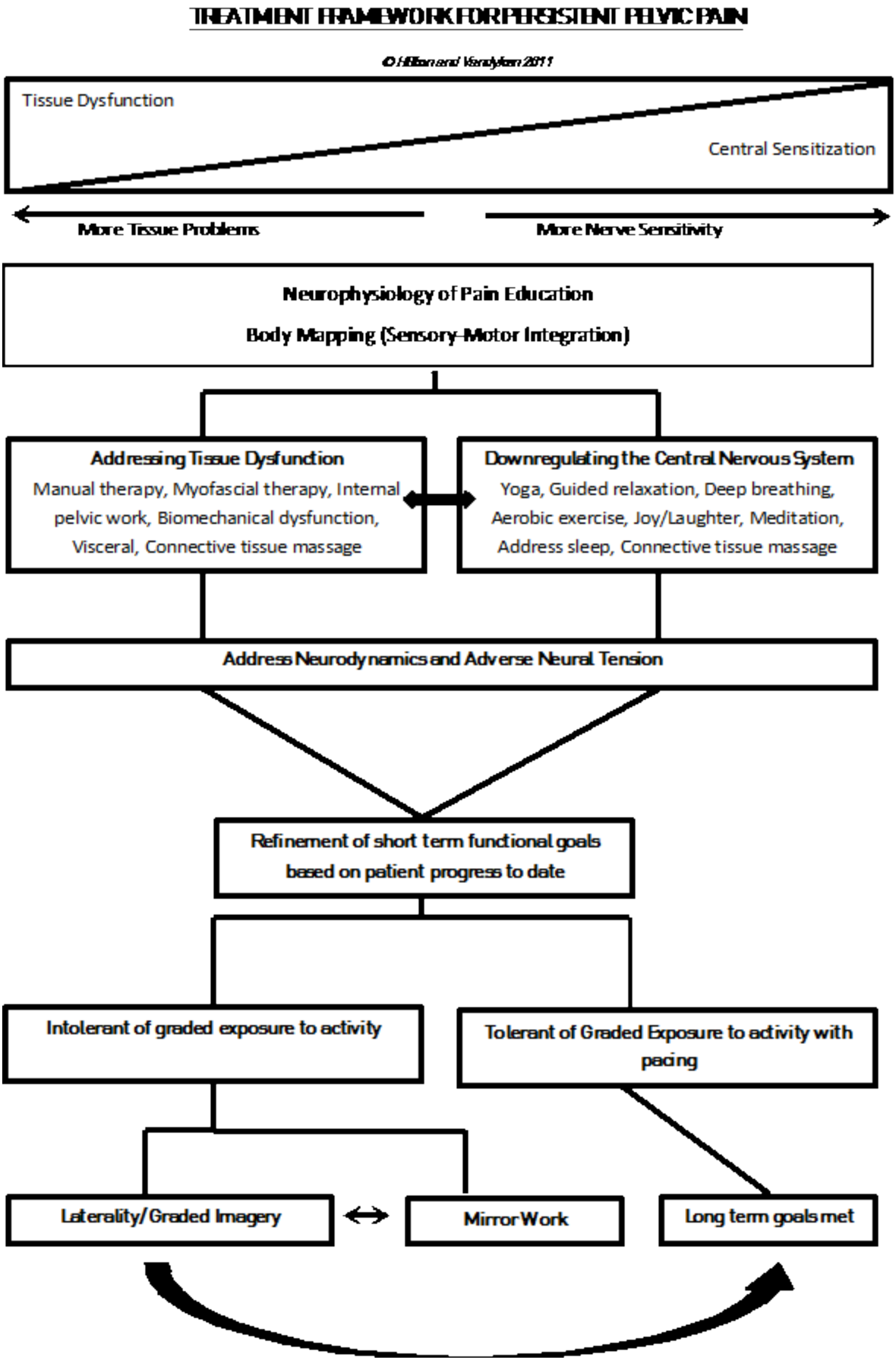
As demonstrated in these case studies, there is a proverbial "no-man's land" between the pubic symphysis and the coccyx, and these structures, although highly muscular and important in all basic physiological functions, are not adequately addressed in Master's level physiotherapy programs in Canada. The patients in this case series were given kegel exercises despite underlying hypertonicity in each of these cases. Kegel exercises should not be a default exercise for the treatment of all pelvic floor dysfunction. This case series also provides compelling evidence that therapists should not get mired in the biological tissue drivers in persistent lumbo-pelvic pain but need to take a biopsychosocial perspective.

More research is needed to help select the best strategies to address the sensitive nervous system in all persistent pain states. It is evidence-based practice to utilize CBT, Therapeutic Neuroscience Education, Mindfulness Based Stress Reduction, Yoga and imagery based exercises, including graded motor imagery when utilizing a biopsychosocial framework. Physiotherapists would benefit from further training in these techniques in order to successfully integrate these approaches into their clinical practice when treating patients within this framework.

Chronic lumbo-pelvic pain is escalating in its cost and toll on our societies (1). Change and transformation are required. Understanding that pain is complex and highly individual makes treatment perplexing but not impossible (18,19). Challenge yourself to identify any hesitancy towards using an approach that integrates the biological, social and psychological components of each patient's presentation. Weave a biopsychosocial approach through each patient interaction from the very first visit by starting with therapeutic neuroscience education (14). Embrace the complexity and share in the excitement that our patients CAN change their sensitive nervous system, gently, efficiently and permanently – by practicing what they want to become. Lastly, do not ignore the pelvic floor as a significant contributor to the biological drivers of persistent lumbo-pelvic pain (3,4,5). More importantly, give the pelvic floor the attention it deserves, a proper assessment before treatment is prescribed. That is the level of professionalism required of all physiotherapists when treating their patients. Why should patients with pelvic floor dysfunction expect any less?

PHYSICAL THERAPY ASSESSMENT FRAMEWORK




TREATMENT FRAMEWORK FOR PERSISTENT PELVIC PAIN
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Tissue Dysfunction
Central Sensitization
More Tissue Problems
More Nerve Sensitivity
Neurophysiology of Pain Education
Body Mapping (Sensory-Motor Integration)
Addressing Tissue Dysfunction
Manual therapy, Myofascial therapy, Internal pelvic work, Biomechanical dysfunction, Visceral, Connective tissue massage
Downregulating the Central Nervous System
Yoga, Guided relaxation, Deep breathing, Aerobic exercise, Joy/Laughter, Meditation, Address sleep, Connective tissue massage
Address Neurodynamics and Adverse Neural Tension
Refinement of short term functional goals based on patient progress to date
Intolerant of graded exposure to activity
Tolerant of Graded Exposure to activity with pacing
Laterality/Graded Imagery
Mirror Work
Long term goals met

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Original Submission

Pelvic Floor Dysfunction- A patient's perspective

Almost a decade of physiotherapy has kept me from needing surgery.

Over nine years ago I delivered a very large baby. Like most new moms I had to pee all the time and leaked usually without warning (incontinence). It didn't go away, and then I realized I had prolapse, which is internal tissue falling into or out of the vagina.

These issues are very common in women. I started talking about my battle against incontinence and realized most of the women I was talking with understood what I meant. They either had direct experience themselves, or knew a female relative or friend who was also incontinent.

Our conversations changed, though, once I got talking about the exercise routines I was doing. Most women didn't realize there was treatment – and many wanted more information.

In the past, I've had a serious ankle sprain and worked with a physiotherapist to get off crutches and back onto a soccer field. The muscles that make up our pelvic floors aren't all that different… they're just tucked away inside of us in an area considered private. The consequence of those muscles being weak is incontinence, which is embarrassing and frustrating. But ignoring it, or thinking that is just the way it is, won't make it go away.

To get treated, I started by talking with my family doctor. She referred me to the Urogynecology Clinic at the Lois Hole Hospital for Women. I was introduced to my physiotherapist and at a later date I met with the surgeon and learned about the repairs that could be done and the recommendations for my second delivery. I started individual physiotherapy sessions and worked very hard on my pelvic floor strength and decreasing my urgency.

Like with any other muscle injury, I go when I need more support – I started with once a week, and now will go once every several months. Physiotherapy involves an internal probe, which provides information on a monitor as to how hard I'm squeezing, and how long I've held the pose. It's comfortable and completely honest – there's no hiding from that sort of feedback! During each session my physiotherapist assesses where I'm at, discusses with me what I really can do, and gives me new goals. It's challenging but incredibly helpful.

I've also done group physiotherapy classes, gathering together in a room full of women who are all in different stages of dealing with this injury. That support network was invaluable because the mental health issues of incontinence and prolapse are very distressing.

We had a huge family celebration when I was deemed to be strong enough to be taken off the surgery list. I now work full-time outside the house, in a typical office cubical with a bathroom down the hall. I keep a change of clothes at work, just in case, and at times it feels like I am doing the Kegel exercises all the time. And don't get me wrong: some days it's exhausting and frustrating and sometimes I just wish it would all go away.

But it won't. So I do another round of exercises and think of how they are making my muscles stronger, and give thanks for my Physiotherapist. By Sheila Graham