Your Pelvic Floor as a Threat-o-meter

Posted on October 2, 2018 | Leave a comment

This past weekend, I was fortunate to work with an incredible group of practitioners at a Level 1 Pelvic Floor Course in my home city of Atlanta. I always leave these weekends renewed, excited, and yes, somewhat exhausted ;-). Not only do I get to teach with some pretty incredible colleagues (in this case, Sara Reardon-- the VAGINA WHISPERER!! and Darla Cathcart-- who literally is the reason why I practice pelvic health!), but I also get the opportunity to see the transformation of clinicians who start the weekend a little nervous about the possibility of seeing a vulva, and end the weekend confident and empowered to start helping people who are experiencing pelvic floor problems. (Ok, some may not be 100% confident--but definitely on the road to confidence! ;-))

One of my favorite research studies of all time (yes, I am that nerdy) is always shared at this course with participants. This study by van der Velde and Everaerd examined the response of the pelvic floor muscles to perceived threat, comparing women who have vaginismus (painful vaginal penetration) compared to women who don't.

Throughout my clinical career, the concept of stress and threat worsening pelvic floor problems has been a consistent thread. I frequently hear:

“My job has been so incredibly stressful this week. I am in so much pain today.”

“Everything started this past year… during that time, my parents had been very sick and it was a very emotionally and sometimes physical stressful time for me”

“I’ve been having a severe flare-up of my pain. Do you think the stress that I’ve been dealing with in going through a divorce/break-up/job change/move/new baby/new house/etc. etc. etc. could be related to this?”
Honestly, I could go on and on with continued statements like this. Stress is a complicated topic, and there are many factors involved that can contribute to an alteration or increase in symptoms when a person is in a persistent stressful situation. So, back to my favorite study. In this study, the researchers had the participants watch four different film excerpts that were considered to be: neutral, threatening, sexually threatening or erotic. They then recorded the response of the pelvic floor muscles using EMG. The results of this study were fascinating. They found that with both the threatening stimulus (which happened to be an excerpt from the movie Jaws) and the sexually threatening stimulus (which was an excerpt from a TV movie called Without her Consent—which frankly, sounds awful to me!) the pelvic floor muscles demonstrated increased muscle activity. And this was true in both the groups of women who had vaginismus and the groups of women who did not. (side note: they also saw that the upper traps had this same activation pattern! Makes sense, right?)

Fascinating right? So, what does this mean? I always tell patients that the pelvic floor can be like a threat-o-meter. When a person is experiencing a threat–this can be a physical or emotional threat– the pelvic floor will respond. You can imagine then what happens when that stressful situation or threat stays around for a long period of time! This knowledge alone can sometimes be so empowering for people in better understanding why their bodies might be responding the way that they are.

SO WHAT CAN WE DO ABOUT IT?

If you are dealing with pelvic floor muscle overactivity problems or pain, and you find yourself in a stressful or threatening period of time in life, try these ideas:

- **Be mindful of what is happening in your body**: I encourage people to do regular “check-ins” or body scans throughout the day to feel how their pelvic floor muscles and other muscles might be activating. If you feel any muscles gripping, try to see if you can consciously soften and let go of tension you might feel. After doing this, try to take a slow long breath in and out thinking of letting tension release.

- **Remember that self-care is actually self-less**: Taking care of our own needs allows us to better care for the needs of those around us. Remember the last time you flew in a plane– secure your own oxygen mask before helping those around you! Self-care can mean making time in your day for regular exercise, taking steps to ensure you get the right nutrition you need to feel healthy, taking a break for yourself when you need it, being conscious about following the recommendations given to you by your pelvic PT or spending time doing a guided meditation or relaxation exercise.

- **Drop it like it’s hot**: Your pelvic floor, that is. Several times throughout the day, consciously think about letting your pelvic floor drop and lengthen. If you have a hard time feeling what your muscles are doing, you can try performing a small (think 10-25%) activation first and then think about letting go of any muscle activity.

- **Don’t be an island**: Know that there are so many resources to help you if you need them! Working with a skilled psychologist or counselor can be incredibly beneficial to many people! And, if your pelvic floor is giving you some problems, always remember that you can go see a pelvic PT– yes, even if you had worked with one in the past! We are always here to help you get through life’s hurdles! Sometimes people end up needing little “refresher courses” along the way to help when the body needs it.

So, what are your favorite ways to manage stress? Fellow PTs- how do you help patients handle flare-ups that happen when life starts to get stressful?

I love to hear from you, and meet you! Always feel free to reach out to me here! If you would like to take a course with me, check out the schedule listed on my For Professionals page! I hope to meet you in person soon!
Guest Post: There’s a pelvis… in your brain?!

As an educator, one of my biggest rewards is working with students and clinicians as they learn and grow in the field of pelvic floor physical therapy. This past winter, I was fortunate to work with Amanda Bastien, SPT, a current 3rd year doctoral student at Emory University. Amanda is passionate about helping people, dedicated to learning, and truly just an awesome person to be around, and I am so grateful to have played a small role in her educational journey! Today, I am thrilled to introduce her to all of you! Amanda shares my fascination with the brain and particularly the role it can play when a person is experiencing persistent pain. I hope you all enjoy this incredible post from Amanda!

Have you ever been told your pain is “all in your head?” Unfortunately, this is often the experience of many people experiencing persistent pelvic pain. Interestingly enough, the brain itself is actually very involved in producing pain, particularly when a person has experienced pain for a long period of time. In this post, I’ll explain to you how someone can come to have pain that is ingrained in their brain, literally, and more importantly, what we can do to help them get better.

Our brains are incredible! They are constantly changing and adapting; every second your brain fine tunes connections between brain cells, called neurons, reflecting your everyday experiences. This works like a bunch of wires that can connect to one another in different pathways and can be re-routed. Another way to say this is “neurons that fire together, wire together.” This process of learning and adapting with experiences is known as neuroplasticity or neural plasticity. It is a well-documented occurrence in humans and animals. If you’re interested in learning more, this is a great article that summarizes the principles underlying neuroplasticity.1

In the case of pain.... well, here's where it gets a little complicated.

The brain has distinct physical areas that have been found to relate to different functions and parts of the body.

Those two spots in the middle that read “primary motor cortex” and “primary sensory cortex” relate to the control of body movements, and the
interpretation of stimulus as sensations like hot, cold, sharp, or dull. By interpretation, I mean the brain uses this area to make sense of the signals it’s receiving from the rest of the body and decides what this feels like. These areas can be broken down by body structure, too.

In this next image, you’re looking at the brain like you’ve cut it down the middle, looking from the back of someone’s head to the front. This image illustrates the physical areas of the brain that correlate to specific limbs and body parts. This representation is known as a homunculus.

See how the hand and facial features look massive? That’s because we do a LOT with our hands, have delicate control of our facial expressions, and feel many textures with both. Thus, these areas need a lot of physical space in our brains. In this image, the pelvis takes up less space than other areas, but for people who pay a lot of attention to their pelvis, this area may be mapped differently, or not as well-defined. We know that the brain changes due to experiences, and ordinarily, it has a distinct physical map of structures. But what happens when that brain map is drawn differently with experiences like pain?

Studies suggest that over time, the brain undergoes changes related to long-lasting pain. If someone is often having to pay attention to an area that is painful, they may experience changes in how their brain maps that experience on a day-to-day basis. This varies from person to person, and we're still learning how this happens. Here's an example: in a recent study, people experiencing long-standing pelvic pain were found to have more connections in their brains than in those of a pain-free control group, among other findings. The greater the area of pain, the more brain changes were found. My point here is to provide you with an example of how the brain can undergo changes with pain that can help explain how strange and scary it can feel for some. Read on to find out how we can work to reverse this!

The process that makes pain occur is complex. It often starts with some injury, surgery, or other experience causing tissue stress. First, cells respond by alerting nerves in the tissues. Then, that signal moves to the spinal cord and the brain, also called the central nervous system. The brain weighs the threat of the stress; neurons communicate with each other throughout the brain, in order to compare the stressor to prior experiences, environments, and emotions. The brain, the commander-in-chief, decides if it is dangerous, and responds with a protective signal in the form of pain.

Pain is a great alarm to make you change what you’re doing and move away from a perceived danger. Over time, however, the brain can over-interpret tissue stress signals as dangerous. Imagine an amplifier getting turned up on each danger signal, although the threat is still the same. This is how tissue stress can eventually lead to overly sensitive pain, even after the tissues themselves are healed.

Additionally, your brain attempts to protect the area by smudging its drawing of the sensory and motor maps in a process called cortical remapping. Meaning, neurons have fired so much in an area that they rewire and connections spread out. This may be apparent if pain becomes more diffuse, spreads, and is harder to pinpoint or describe. For example, pain starts at the perineum or the tailbone, but over time is felt in a larger area, like the hips, back, or abdomen. To better understand this, I highly recommend watching this video by David Butler from the NOI group.
He's great, huh? I could listen to him talk all day!

Pain alarms us to protect us, sometimes even when there's nothing there! After having a limb amputated, people may feel as though the limb is still present, and in pain. This is called phantom limb pain. The limb has changed, but the connections within the brain have not. However, over time the connections in the brain will re-route. **I share this example to illustrate how the brain alone can create pain in an area. Pain does not equal tissue injury; the two can occur independently of one another.** Pain signals can also be created or amplified by thoughts, emotions, or beliefs regarding an injury. Has your pain ever gotten worse when you were stressed?

There is also some older case evidence that describes how chronic pain and bladder dysfunction evolved for people after surgery, in a way that suggests this type of brain involvement. Another case study describes a patient with phantom sensations of menstrual cramps following a total hysterectomy!

**So, can we change the connections that have already re-mapped?**

Yes!! The brain is ALWAYS changing, remember? There are clinicians who can help. Physicians have medications that target the central nervous system to influence how it functions. Psychologists and counselors can help people better understand their mental and emotional experiences as they relate to pain, and to work through these to promote health. **Physical therapy provides graded exposure to stimuli such as movement or touch, in a therapeutic way that promotes brain changes and improved tolerance to those stimuli that are painful.** This can result in a clearer, well-defined brain map and danger signals that are appropriate for the actual level of threat. Physical therapists also help people improve their strength and range of motion, so they can move more, hurt less, and stay strong when life throws heavy things at us! **It is SO important to return to moving normally and getting back to living!** Poor movement strategies can prolong pain and dysfunction, and this can turn a short-term stressor into long-lasting, sensitized pain. (See Jessica’s blog here: [LINK](#)).

Of course, with any kind of treatment, it also depends on the unique individual. Everyone has personal experiences associated with pain that can make treatment different for them. We are still learning about how neural plasticity occurs, but the brain DOES change. This is how we are all able to adapt to new environments and circumstances around us! Pain is our protective mechanism, but sometimes it can get out of hand. While tissue injury can elicit pain, the nervous system can become overly sensitized to stimulus and cause pain with no real danger. This perception can spread beyond the original problem areas, and this can occur from connections remapping in the brain and the spinal cord. For pelvic pain, treatment is often multidisciplinary, but should include a pelvic health physical therapist who can facilitate tissue healing, optimal movement, and who can utilize the principles of neural plasticity to promote brain changes and return to function.

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**References:**

The benefits of slowing down

Posted on March 30, 2016 | 1 comment

“Ok, let’s try that again, but I want you to do it a little bit more slowly.”

“Let’s see if you can do that with a little bit less tension.”

“Do you feel how your neck is working while you’re trying to move your hips? Let’s see if you can do that with only moving your hips.”

These statements (or variations of them) are ones I tend to make most days of the week. One of the most common things I notice in the men and women I treat with persistent pelvic pain is difficulty in modulating tension. I generally can see this from the moment they walk in my office: grip postures, sitting with the shoulders elevated, gripping the chest or the glutes, tightening the back.

- Minimal variability of movement (basically meaning it is difficult for them to move in different patterns, fully bend and rotate their spines and hips, etc)
- Altered breathing patterns with poor diaphragmatic excursion

This type of high-tension behavior often occurs in conjunction with a dominant sympathetic nervous system (which we have discussed several times in the past– read here and here). In these cases, the body will feel constantly threatened (makes sense if you’ve had pain for a long time and don’t seem to get better) which can lead to the “fight-or-flight” response being pushed into overdrive. When this occurs, we typically see amped up muscle tension, changes in breathing patterns, and many additional physiological compensations (which you can read more about here). And, I believe this pattern tends to also lead to an overly gripped, hypervigilant pelvic floor muscle group. Then, what I typically see is that instead of the pelvic floor activating with variability, based on the required task at hand (meaning, small amounts of activation for small tasks, and large amounts of activation for bigger tasks), we will instead see loss of force modulation with very high amounts of activation for basic tasks and an inability to let go of that force for simple tasks or tasks that require relaxation (bowel movements, sex, etc).

So, with all of that being said, one of the best things a person with persistent pelvic pain can do is to learn to slow down and control his or her tension patterns. My patients typically begin working on this within the first week or so of treatment, and we continue working on this throughout the initial phase of their care. Basically, our goal is to create awareness of movement–to move mindfully and truly feel what the body is doing to accomplish a task. Typically, as a person becomes more mindful of the movements he or she is performing, we will see an alteration in the force required to perform the movement and this, along with other treatments we are working on, encourages a shift of the body from an overly sympathetic state to a more neutral one.

So, how can you get started with slow and mindful movements if you are struggling with persistent pelvic pain?

First, if you are already working with a pelvic PT, talk with them about your tension strategies. Ask her if she has noticed you moving with higher tension and discuss with her integrating slow and mindful movements within your treatment program. If you are not in pelvic PT, or wish to try something on your own, here is one of my favorite exercises to start with:

The Pelvic Clock

- This exercise is adapted from a Feldenkrais movement (I believe). I love it because I can integrate diaphragmatic breathing with pelvic floor relaxation, and it encourages awareness of the movement of the pelvis. I tend to find that many people with pelvic pain have difficulty truly knowing where their pelvis is in space and how it moves, and this exercise can help to improve that. So, let’s get started.
Begin in a relaxed comfortable position, lying on your back with your knees bent and your feet resting on the mat (bed, floor, whatevs). Visualize a clock sitting on your pelvis as is shown in the picture above.

Start with slow, diaphragmatic breathing. Remember, breathing with your diaphragm will allow the ribcage to expand in all directions, the belly and chest will lift, but the muscles of your neck and shoulders should stay relaxed. If you have not read much about diaphragmatic breathing, read this post and its links before moving forward.

Next, we will start to integrate your pelvic floor into your breathing. So, on the next inhale, visualize the breath allowing your pelvic floor to lengthen and relax. This should not be something forceful (ie. don't push out your pelvic floor), but rather, just focus on letting go of tension as you inhale, allowing the pelvic floor to gently lengthen and the abdominal wall to let go of any tension.

Next, we will add in gentle movement of the pelvis with your breath. As you inhale, the pelvic floor will relax and pelvis will gently tilt toward 6 o'clock (allowing the tailbone to fall toward the mat). As you exhale, gently tilt the pelvis back to 12 o'clock allowing the low back to slowly come into contact with the mat. Repeat this slow pattern, focusing on trying to use small amounts of muscle tension to accomplish the task. Remember that this movement and really any other movement should not cause you to guard, tense your muscles or drive up any of the pain you are experiencing.

Once you feel confident and comfortable with the previous step, you can begin to add the rotational component. This time, as you inhale, slowly rotate the pelvis around the clock shifting from 12 --> 3 --> 6, ending in the position where your tailbone is gently dropped toward the mat. As you exhale, allow the pelvis to rotate from 6---> 9--> 12, ending in the position where your low back is gently resting on the mat. Repeat this pattern for several breaths, then try to reverse the motion (inhaling as you move from 12 --9-->6 and exhaling from 6-->3-->12)

Challenge yourself further by trying to allow the pelvis to move through all the numbers of the clock (12-->1-->2-->3... etc).

Remember, there is no rush to performing this exercise! The purpose is awareness-- to really feel your pelvic move and shut off any additional tension in performing the task. Did you feel your neck tighten as you were moving? Try again with a focus on keeping it relaxed. Are your legs tightening and moving frequently as you move through the clock? Try to see if you can calm that tension and isolate the movement to your pelvis. Do you feel your pelvic floor gripping as you move? Try to see if you can keep the emphasis on relaxing the pelvic floor during your breathing.

Are you thirsty for more?

A few of my other favorites for slow, mindful movements are found in both Yoga and the Feldenkrais method. I love Dustienne Miller's (she's a pelvic PT too!) home video, yoga for pelvic pain and have had many patients benefit from using it. I also enjoy the Awareness Through Movement lessons with the Feldenkrais Method. Several free online lessons are available here via the OpenATM program.

I hope you have found this helpful! What other movements have you found helpful for pelvic pain? Pelvic PTs and patients, feel free to chime in, so we can all keep learning together!

Happy Wednesday!

~ Jessica

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Your Brain is Playing Tricks on You (Part 2): Pain

Posted on February 29, 2016 | 2 comments

Ok, before we dive into this post, I wanted to say I am SO sorry for taking so long to get this “Part 2” out there. I was at the American Physical Therapy Association’s Combined Sections Meeting in Anaheim, CA for a week, got home and put a contract down on a new house (YAY!!), and things have just been crazy crazy! So, please accept my apology, and I hope you enjoy this post! Stay tuned for some CSM-y posts in the future! Thanks for reading!! ~ Jessica

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“Perhaps it’s time to recognize that the division between mind and body may be no more than a pedagogic device for instructing medical students-- and not a useful construct for understanding human health, disease and behavior.” V.S. Ramachadran, Phantoms in the Brain
Last post, we discussed how the brain can be tricked by both optical illusions and magic tricks. If you haven’t read it yet, you really need to…because it basically sets the stage for our post this week.

So, how does pain play into all of this?

Well, pain is an output of the brain, much like vision. Meaning, your brain is receiving sensory information from your body (including your mechanosensation, vision, proprioception, hearing, vestibular/balance input, etc), integrating it with your prior knowledge, experiences, emotions and beliefs, and then creating an output. (ie. “This hurts, you better do something about it!” Or, “You just stubbed your toe you baby…you’ll be just fine!” Or, “Oh my gosh! Your back is never going to get better! It’s probably something super serious and dangerous!”). Just like your brain can sometimes mess with you in relation to your visual input, the same thing can happen with pain. Let’s look at a few examples.

The Phantom Limb

This example ends up being one that is discussed frequently…in fact, much of the current research on pain was inspired by people experiencing phantom limb pain. If you haven’t heard of phantom limb pain before, basically, this is when a person will feel pain in a limb that has been amputated. Crazy, right? We know that clearly the limb itself is not a source of pain, but rather, the brain is still perceiving threat from the area. This can happen for several reasons. One of the main reasons this can occur is that, although the limb itself is gone, the brain will often still have a representation of that limb.

Now, this representation is changeable over time, however, smudging can occur leading to referred sensations from one area to another. This can trick the body into thinking there is a problem with the non-existent hand. Now, normally, you could look down, see your hand, feel it, and that would then confirm for your brain that the hand it actually fine…however, in cases of phantom limb pain, the limb is not there, so reducing the treat becomes much more tricky. The cool thing is, amazing scientists have developed ways to retrain this using things like mirror therapy (Check out this video from David Butler!) and other innovative treatment approaches. So, obviously, I am wayyyy simplifying this phantom limb phenomenon for this blog, and there are other known contributors to phantom limb pain as well, so I really do recommend you read more. Check out this article from Body in Mind which goes into much more detail.

When Perceived Threat and Harm Level Don’t Quite Match

Have you ever had a little splinter that just hurt so much? That you couldn't get out of your head until is was gone? That's a little bit of harm…but somehow the brain is perceiving a big problem. Or, have you ever heard a story about a person walking into the ER talking normally with a knife sticking out of their arm? That’s a lot of harm…but somehow the brain is able to perceive a small threat (which is super helpful in that moment so that the person can get to the ER!).

My favorite example of this is Lorimer Moseley’s story of a snake bite in the brush in Australia. Check it out. He’s hilarious and awesome.
Basically, he tells the story of being bitten by a poisonous snake while walking through thick brush in Australia. When the bite occurs, he doesn't even realize it because his brain at that moment received the bite information and processed it, with the conclusion of “It's just a stick. There are tons of sticks around here, nothing to worry about.” He doesn't realize it's a snake bite until he passes out a while later. Fast forward to a later time, walking through the brush again, feels the same poke and immediately falls down in excruciating pain…only to realize, it was just a stick. Fascinating right? In that second scenario, his brain had the memory of the first snake bite and the trauma from that, thus, the poke felt much more dangerous and threatening than the first time, and he felt a much greater amount of pain.

So, what does this mean for you?

Basically, just like our brain can be fooled through visual illusions and magicians, we can also be fooled by pain. This is not meant to imply that pain is in your head…but rather, pain can play tricks on you. And what you feel is a problem in your tissues may not actually be a problem there…but rather could be simply the interpretation of your brain based on the information it is receiving in the moment. Pain, just like vision and hearing, is complex. And treating it thus requires a complex and integrative approach.

Wanna learn more? Check out these awesome articles/videos:

- “Pain is Weird.” by Paul Ingraham
- These articles from Body in Mind (Many are open access!)

Have a wonderful Monday!

~Jessica

Your Brain is Playing Tricks on You (Part 1): Visual Illusions

Falling in love is an incredible feeling, isn't it? One we don't tend to forget very quickly. At least, that's how it was for me and Neuroscience. I remember clearly when the falling in love started to take place. Junior year in college, reading a book called by V.S. Ramachadran, Phantoms in the Brain: Probing the Mysteries of the Human Mind, for my Neuroanatomy and Physiology of Human Movement class. I remember being glued to that book from cover to cover, only stopping briefly to write down a quick quote or call my parents to tell them the amazing piece of information I just learned (Yes, I still call them to tell them fun things like that :))

The amazing thing, that I'm sure you are realizing too, is that our brains are simply incredible. We have the ability to take in millions of tiny pieces of information in microseconds, integrate it within everything we believe to be true about our world and the universe and then make decisions on what that information means. It's incredible, really. But did you know that this ultimate perception can lead to misinformation? Did you know your brain can really really mess with you?
One of the most well-known tricks of the brain is an optical illusion. Do you see a bunny or a duck?

Which square is darker, A or B? (They're actually the same color!)

So, how did your brain trick you? Your nervous system is constantly gathering information about the body and the environment through multiple different inputs: visual, mechanical, temperature, proprioceptive (the position of your joints), vestibular (your inner ear). This process is called sensation. Perception, then, is your brain's interpretation of the information it receives. The brain receives and filters the information from various sensors and then interprets its meaning to create our experience. In these cases, your brain receives the signal (visual input) and then perceives meaning based on the information, and your experience. In the first picture, your brain likely can see either a duck or a bunny depending on how it chooses to interpret the information. In the second one, your brain took into account the shadow that the green cylinder was casting on the board—thus, your brain tricked you into thinking that tile B must be lighter than tile A (although, really they are the same!) And the third one, your brain saw the arrows in the first one as narrowing in the space, and the second as expanding it—even though the lines are the same length. Pretty cool, right?!

Magic Tricks

I have always loved a good magic trick. I remember seeing my first “real” magic show in Las Vegas at Harrah’s Casino. I was 11 or 12 I think, and was completely mesmerized by Mac King and his comedy magic show. My family just loved it! We were amazed, and couldn't figure out how he did what he did.

So what are magic tricks? How do they feel so “real” to us watching?

In a way, magic tricks are very similar to optical illusions. Magicians are truly masters at using the brain to fool us into truly seeing something that did not happen. Magic tricks work based on several key principles. First, as we discussed above, your brain constantly creates perceptions based on...
the sensory inputs it receives from the environment. As was shown in our “illusions” section, the perception does not always directly match the visual input as our brain integrates vision with our previous knowledge, emotions, experiences, etc. to make predictions and ultimately create perception. These predictions are precisely what is exploited during magic tricks. This great article gives the example of the “vanishing ball” trick. In this trick, the magician throws the ball up in the air several times, and finally on the last one, the ball appears to vanish out of the air. But did it really vanish? Of course not! The magician used our brain’s predictions in his favor…thus, we saw the magician continuing to look up toward the ball, we saw the hand move in a “throwing pattern.” and the brain cut a few corners to tell us the ball had been thrown! While we’re busy watching that magician’s face, the ball is then palmed away, and our brain perceives it has vanished! Pretty cool, right? (check out the article for a larger, more detailed explanation!)

Magic tricks also work by confusing our brain with conflicting inputs and playing with our attention. For example, we are much more easily tricked and distracted when we have to multitask and focus on multiple different things at once. This is common with card tricks and other illusions. Emotions (such as humor, story-telling, etc) can also lead to some brain-trickery as it again creates a distraction for the brain, forcing the brain to “predict” to fill in the missing pieces.

It’s really, quite incredible, and learning about all of this actually has made me respect magicians even more as fellow neuroscientists! Check out these excellent articles if you want to dive a little deeper and further understand more of what happens with magic tricks!

- While a Magician Works, the Mind Does the Tricks (NY Times)
- Magic Tricks Revealed by Teller: 7 Ways to Fool the Brain (Reader's Digest)
- Study Reveals How Magic Works (LiveScience)

Now…You may be thinking… “What the heck Jessica? This is a “pelvic-focused” blog! Why are you writing about optical illusions and magic tricks?!” Well my dear blog reader, you’ll have to find out… Stay tuned for Part 2- Your Brain is Playing Tricks on You: Pain


One of my New Year’s resolutions was to build a better morning routine to help me use my time more optimally during the day. Part of that morning routine includes reading for 30 minutes over breakfast…and I have to tell you, it’s my most favorite part of the day. My first book of the year was Todd Hargrove’s A Guide to Better Movement, and I really really loved it. So much so, that I just needed to share it with you!

I was first introduced to Todd Hargrove through his blog post back in October, “Why do muscles feel tight?” I loved it, was hooked, and ordered his book the same day. Todd is a pretty smart guy, and has a unique background being a prior attorney and current Rolfer and Feldenkrais practitioner. I love learning from people who are not physical therapists because I find it challenges my viewpoints and helps me to see my clients from a different perspective. Todd’s book did not disappoint.

Who should read it?

- Anyone who likes moving, should move, and wants to move better
- Athletes (yes, this includes any of you who exercise regularly) who want to make sure they are caring for their bodies
- People experiencing persistent pain
- Practitioners working with humans who move
- (Is that broad enough for you?)

What are the details?

- Available on Amazon.com for $17.95, paperback  (Click here: A Guide to Better Movement: The Science and Practice of Moving With More Skill And Less Pain)
- Length: 277 pages, broken into the following sections:
  - Introduction
  - Part 1: The Science of Moving Better
    - Defining Better Movement
    - Learning Better Movement
    - The Brain Maps the Body
    - Motor Development and Primal Patterns
  - Part 2: The Science of Feeling Better
    - The Science of Pain
What's so great about it? As you may know, my studies recently have sent me deep into the world of neuroscience, so I love reading books that integrate the whole body rather than just focusing on specific tissues. Hargrove does an excellent job of not only teaching the science related to movement and pain in a way that is easily understandable by clinicians and patients alike, but also offers strategies and lessons for improving movement and shifting away from a pain state. He uses excellent analogies throughout his book that all people will be able to relate to and understand. On another note, his book is full of great quotes… and I've always been a sucker for a good quote… so you'll see some of my favorites here :).

In the first part, the science of moving better, Hargrove discusses the essential qualities of good movement (coordination, responsiveness, distribution of effort, division of labor, position and alignment, relaxation and efficiency, timing, variability, comfort and individually customized). I especially love his section on relaxation and efficiency as I believe this to be a huge factor for the men and women I treat experiencing chronic pelvic pain. So often, these people end up in states of chronically over-activating musculature to perform tasks, and I believe changing this can make a big difference for them. “Efficient movement requires skill in relaxation… thus developing movement skill is often more about learning to inhibit the spread of neural excitement rather than extending it.”

Next, he goes on to explain the process for learning better movements diving in to the motor control system, and then explains how the brain maps the body and the ways in which those maps can change over time. “The current organization of [a person's] sensory maps already reflects a lifetime of effort to organize them in an optimal way to perform functional goals.” He uses a great analogy here of a skier going down a hill. The first trip down, the person has endless options on the path to take down…but after going again, and again, deep grooves in the snow are formed and it can be difficult to take alternate paths.

Lastly in this section, he discusses motor development and primal movement patterns and the importance of training foundational movements with large carryover into a variety of functional tasks.

Part two, the science of feeling better goes into our favorite topic–pain science. Hargrove does a fantastic job of explaining pain and gives a plethora of examples and analogies to help the reader understand very advanced topics. Two of my faves from this section are, “Although nociception is one of the most important inputs contributing to pain, it is neither necessary nor sufficient for pain to exist,” and, “Pain is an action signal, not a damage meter.” This section also explores different options for moving past pain and discusses how the central nervous system responds with threat in order to protect the body. The last chapter in this section looks at movement and emotion and explains the way we now understand the mind to relate to the body. (Hint: the mind and the body are ONE).

The last section of this book, the practice of moving better and feeling better discusses strategies for improving movement and key components of training movement variety. Hargrove summarizes his thoughts on this in the following way, “Move playfully, experimentally and curiously, with full attention on what you are doing and what you are trying to accomplish. Focus on movements that are the foundation for your movement health, and have a lot of carryover to many activities, as opposed to movements that are specific and don't have carryover. Move as much as you can without injury, pain or excess threat, wait for the body to adapt, and then move more next time.”

Hargrove ends the book by providing 25 lessons to help improve movement. These are based on the Feldenkrais Method (which I liked as I currently use some of these principles and movements within my clinical practice.). Each lesson offers options for progressing and provides guidance for attention and variations.
So, in summary…. I loved this book. I have already recommended it to clients, and plan to use some of the movement lessons within my practice. I hope you love it too!

Have you read any other great books recently? I’m looking for my next one to read!

~ Jessica

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**Mindfulness, Meditation and Pain**

Posted on December 22, 2015 | 11 comments

“If you get the inside right, the outside will fall into place. Primary reality is within; secondary reality without.” ~ Eckhart Tolle, *The Power of Now: A Guide to Spiritual Enlightenment*

Within many traditional clinical practices, mindfulness-based or meditation-based exercises are considered alternative, eastern, touchy-feely or even “voo-doo.” It is often seen as a complementary treatment that may be helpful…but really isn't going to “treat” the client. I've had many clinicians I respect significantly tell me that they don’t use guided meditation within their practice for this exact reason. Respectfully, I have to disagree with that sentiment. I recommend mindfulness-based relaxation or guided meditation to my patients on almost a daily basis, and I believe strongly that there are so many benefits in this practice for a person struggling with persistent pain.

**Pain Neuroscience**

To understand why meditation is helpful in overcoming persistent pain, it is crucial to understand what pain is, and to truly grasp the role of the brain in pain (Summary: No brain, no pain). If you are new to this blog, or new to pain science in general, you have a few prerequisites before you move forward:

- Watch this TedX talk by Lorimer Moseley:
My book review on *Why Pelvic Pain Hurts*

“The Pain Illusion” from *Body in Mind* (as well as literally every other blog post and article on this site…I’m not kidding, if you’ve never heard of them, take a few minutes…err…hours…days… and go read their stuff. They’re super super smart.)

“Neuroception and the Hierarchy of Needs” as well as “Awareness as an Agent of Change” by my friend/colleague, Seth Oberst (He guest-blogged for us a few weeks ago, [here](#))

Ok, I could go on and on…but I won’t. So, we’ll move on.

**What is Meditation/Mindfulness Training?**

Mindfulness is described here as a “non-elaborative, non-judgmental awareness of present moment experience.” There are a few different types of mindfulness based meditation practices, usually broken into:

- **Focused Attention:** This involves focusing attention on a specific object or sensation (i.e. focusing on breath moving, or focusing on a certain space). If attention is shifted to someone else, the person is then taught to acknowledge it, disengage, and shift the attention back to the object of meditation.

- **Open Monitoring:** This is a non-directed practice of acknowledging any event that occurs in the mind without evaluation or interpretation

- **Variations:** There are multiple variations of these practices, usually trending toward one variety or the other. For example, there are guided relaxation exercises which will shift the focus from one body part to another, meditation exercises based on focusing on a color moving through the body, etc.

**Meditation and the Brain**

The cool thing is meditation has been found to have some pretty profound effects on the brain. [This meta-analysis](#) of fMRI studies aimed to determine how meditation influenced neural activity, and the results were pretty interesting. They found that brain areas from the occipital to frontal lobes were more activated during meditation, specifically areas involved in processing:

- self-relevant information (i.e. precuneus)
- self-regulation, problem-solving, and adaptive behavior (i.e. anterior cingulate cortex)
- interoception and monitoring internal body states (i.e. insula)
- reorienting attention (i.e. angular gyrus)
- “experiential enactive self” (i.e. premotor cortex and superior frontal gyrus)

Basically, the authors state that all of these areas are characterized by “full attention to internal and external experiences as they occur in the present moment.”

For more information on how meditation impacts the brain, check out this great TEDx talk by Catherine Kerr:
Persistent Pain Implications

Now, you may be thinking, why does that matter for a person experiencing persistent pain? Well, it matters because for most people, pain does not solely exist in the present, but rather, is an experience influenced by a complex neural network, integrating 1) what you know about the pain 2) how dangerous you feel it is 3) your history relating to that pain 4) your fears/concerns/worries about the future 5) how this problem relates to your family, job, relationships, home, etc. and 6) so so much more. (including everything helpful and unhelpful your health care providers have told you about your pain.)

Here’s an example. Let’s say you start having some back pain one day after bending over to pick up something off the floor. Happens right? But, what if you used to have back pain years ago and had an MRI that showed degenerative changes in your spine? And what if you have a two year old you have to carry around frequently? What if work has been difficult recently and you’re worried your job is in jeopardy? What if you had a physical therapist tell you that you should never bend down like that or you would “hurt your back?” The amazing thing is that all of these experiences, histories, thoughts, emotions are seamlessly integrated by your brain to determine the immediate “threat level” of your low back, and create an overall pain experience (ultimately, designed to be helpful and protect you against harm). This story is a real one, and actually happened to a patient of mine...by the time she came into my office, she couldn’t bend forward at all, had severe pain, and was very worried about the level of “damage” in her low back. But, the truth was, she had really just moved in a way that her body chose to guard, and nothing was really “damaged” at all. After a quick treatment session, she was back to full motion without any pain. Now, am I magical in “fixing” backs like that? Yes. But that’s besides the point. But really, all I did was remove the threat level by taking her back to the present moment (ie. Your back is not damaged. Bending is totally fine and functional to do. This is going to get better really soon.) and restore movement to a system that was guarding against it.

So, what does this have to do with meditation/mindfulness? Well, at it’s core, meditation is about changing awareness and improving focus to the present moment. This can then change the “pain story” to decrease the threat level for the present moment, and thus help a person move toward recovery.

Does it work?

The best part is that it actually seems to make a significant impact (although, of course, we need better larger studies!) Of course, it is just one piece of the puzzle—but I really believe it can be an important component of a comprehensive program to help someone experiencing persistent pain. And, the research actually is trending toward it being beneficial too. In fact, meditation and mindfulness-based stress reduction has been shown to be helpful in reducing pain and improving quality of life in men and women experiencing chronic headaches, chronic low back pain, and non-specific chronic pain. There have not been many studies looking specifically at chronic pelvic pain, but there was one pilot study I found, and it also seemed to show favorable results in improving quality of life. Will it take you 10 years of channeling your inner guru to see the benefits? Actually, the research seems to indicate that changes happen pretty quickly. This study actually found improvements after just four sessions.

Getting Started

If you are experiencing persistent pain, or are a human who happens to have a brain, you would likely benefit from using meditation as part of your daily exercise program (Yes, I consider meditation exercise!) There are so many fabulous resources out there to get started in practicing mindfulness/meditation. Here are a few of my favorites:

Books that are helpful in understanding meditation:
The Power of Now, by Eckhart Tolle- $10 on Amazon

Peace is Every Step, by Tich Naht Han- $8 on Amazon

Free Guided Meditation Exercises ONLINE/APPS- Note, I find different people tend to enjoy different guided meditations/programs. Try a few different ones here, or even go on to youtube and do a little search. You may find some you love and some you hate, and that really is ok. Try to find what works best for you!

Relax Lite with Andrew Johnson- available free on itunes and as an app!

Breathe to Relax- available free on itunes and as an app!

Headspace- available free on itunes and as an app!

Insight Timer- available free on itunes and as an app!

Sattva Meditation Tracker & Timer- available free on itunes and as an app!

Guided Meditation for Pelvic Pain- by Dustienne Miller, PT, available free on her website.

Tara Brach- Great resources with meditations, lectures, and more!

I hope this is helpful for you! What other resources do you enjoy for relaxation/mindfulness/meditation? Please feel free to share in the comments below!

Wishing you a very merry Christmas and a happy new year!!

~Jessica

Why get Pelvic PT first? And, join me for a webinar Thursday 12/10!

Posted on December 8, 2015 | Leave a comment

If you didn’t know, December 1st was a day that all PTs came together to share with the public all of the benefits of seeking PT! My colleague, Stephanie Prendergast, founder of the Pelvic Health and Rehabilitation Center in California, wrote an amazing blog post on why someone should get pelvic PT first. I thought it was great (as you know…I post lots of Stephanie's stuff), and Stephanie gave me permission to re-blog it here. So, I really hope you enjoy it. If
you aren't familiar with Stephanie's blog, please check it out [here](#). You won't regret it.

On another note, I will be teaching a live webinar Thursday 12/10 on Pelvic Floor Dysfunction in the Adult Athlete. I really hope to see some blog followers there! Register for it [here](#).

Now… enjoy this great post by Stephanie. ~ Jessica

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**Why get PT 1st? Here are the Facts. By Stephanie Prendergast**


When a person develops these symptoms, physical therapy is not the first avenue of treatment they turn to for help. In fact, physical therapists are not even considered at all. This week, we'll discuss why this old way of thinking needs to CHANGE. Additionally, we'll explain how the “Get PT 1st” campaign is leading the way in this movement.

We've heard it before. You didn't know we existed, right? Throughout the years, patients continue to inform me the reason they never sought a physical therapist for treatment first, was because they were unaware pelvic physical therapists existed, and are actually qualified to help them.

Many individuals do not realize that physical therapists hold advanced degrees in musculoskeletal and neurologic health, and are treating a wide range of disorders beyond the commonly thought of sports or surgical rehabilitation.

On December 1st, physical therapists came together on social media to raise awareness about our profession and how we serve the community. The campaign is titled “GetPT1st”. The team at PHRC supports this campaign and this week we will tell you that you can and should get PT first if you are suffering from a pelvic floor disorder.

Did you know that a majority of people with pelvic pain have “tight” pelvic floor muscles that are associated with their symptoms?

*Physical therapy is first-line treatment that can help women eliminate vulvar pain*

Chronic vulvar pain affects approximately 8% of the female population under 40 years old in the USA, with prevalence increasing to 18% across the lifespan. (Ruby H. N. Nguyen, Rachael M. Turner, Jared Sieling, David A. Williams, James S. Hodges, Bernard L. Harlow, Feasibility of Collecting Vulvar Pain Variability and its Correlates Using Prospective Collection with Smartphones 2014)

*Physical therapy is first-line treatment that can help men and women with Interstitial Cystitis*

Over 1 million people are affected by IC in the United States alone [Hanno, 2002;Jones and Nyberg, 1997], in fact; an office survey indicated that 575 in every 100,000 women have IC [Rosenberg and Hazzard, 2005]. Another study on self-reported adult IC cases in an urban community estimated its prevalence to be approximately 4% [Ibrahim et al. 2007]. Children and adolescents can also have IC [Shear and Mayer, 2006]; patients with IC have had 10 times higher prevalence of bladder problems as children than the general population [Hanno, 2007].

*Physical Therapy is first-line treatment that can help men suffering from Chronic Nonbacterial Prostatitis/Male Pelvic Pain*

Chronic prostatitis (CP) or chronic pelvic pain syndrome (CPPS) affects 2%-14% of the male population, and chronic prostatitis is the most common urologic diagnosis in men aged <50 years.

The definition of CP/CPPS states urinary symptoms are present in the absence of a prostate infection. (Pontari et al. New developments in the diagnosis and treatment of CP/CPPS. Current Opinion, November 2013).

71% of women in a survey of 205 educated postpartum women were unaware of the impact of pregnancy on the pelvic floor muscles.

21% of nulliparous women in a 269 women study presented with Levator Ani avulsion following a vaginal delivery (Deft. relationship between postpartum levator ani muscle avulsion and signs and symptoms of pelvic floor dysfunction. BJOG 2014 Feb 121: 1164 -1172).

64.3% of women reported sexual dysfunction in the first year following childbirth. (Khajehi M. Prevalence and risk factors of sexual dysfunction in...
24% of postpartum women still experienced pain with intercourse at 18 months postpartum (McDonald et al. Dyspareunia and childbirth: a prospective cohort study. BJOG 2015)

85% of women stated that given verbal instruction alone did not help them to properly perform a Kegel. “Dunbar A. understanding vaginal childbirth: what do women understand about the consequences of vaginal childbirth.J Wo Health PT 2011 May/August 35 (2) 51 – 56)

Did you know that pelvic floor physical therapy is mandatory for postpartum women in many other countries such as France, Australia, and England? This is because pelvic floor physical therapy can help prepartum women prepare for birth and postpartum moms restore their musculoskeletal health, eliminate incontinence, prevent pelvic organ prolapse, and return to pain-free sex.

Did you know that weak or ‘low tone’ pelvic floor muscles are associated with urinary and fecal incontinence, erectile dysfunction, and pelvic organ prolapse?

Physical Therapy can help with Stress Urinary Incontinence

Did you know that weak or ‘low tone’ pelvic floor muscles are associated with urinary and fecal incontinence, erectile dysfunction, and pelvic organ prolapse? 80% of women by the age of 50 experience Stress Urinary Incontinence. Pelvic floor muscle training was associated with a cure of stress urinary incontinence. (Dumoulin C et al. Neurourol Urodyn. Nov 2014)

30 – 85 % of men develop stress urinary incontinence following a radical prostatectomy. Early pelvic floor muscle training hastened the recovery of continence and reduced the severity at 1, 3 and 6 months postoperatively. (Ribeiro LH et al. J Urol. Sept 2014; 184 (3):1034 -9).

Physical Therapy can help with Erectile Dysfunction

Several studies have looked at the prevalence of ED. At age 40, approximately 40% of men are affected. The rate increases to nearly 70% in men aged 70 years. The prevalence of complete ED increases from 5% to 15% as age increases from 40 to 70 years.

Physical Therapy can help with Pelvic Organ Prolapse

In the 16,616 women with a uterus, the rate of uterine prolapse was 14.2%; the rate of cystocele was 34.3%; and the rate of rectocele was 18.6%. For the 10,727 women who had undergone a hysterectomy, the prevalence of cystocele was 32.9% and of rectocele was 18.3%. (Susan L. Hendrix, DO,Pelvic organ prolapse in the Women's Health Initiative: Gravity and gravidity. Am J Obstet Gynecol 2002;186:1160-6.)

Pelvic floor physical therapy can help optimize musculoskeletal health, reducing the symptoms of prolapse, help prepare the body for surgery if necessary, and speed post-operative recovery.

Did you know….

In many states a person can go directly to a physical therapist without a referral from a physician? (For more information about your state: https://www.apta.org/uploadedFiles/APTAorg/Advocacy/State/Issues/Direct_Access/DirectAccessbyState.pdf)

You need to know….


Pelvic floor physical therapy can help prepare women for birth and postpartum moms restore their musculoskeletal health, eliminate incontinence, prevent pelvic organ prolapse, and return to pain-free sex: http://www.pelvicpainrehab.com/pregnancy/540/pelvic-floor-rehab-its-time-to-treat-new-moms-right/


A study from the University of the West in the U.K. found that pelvic exercises helped 40 percent of men with ED regain normal erectile function. They also helped an additional 33.5 percent significantly improve erectile function. Additional research suggests pelvic muscle training may be
helpful for treating ED as well as other pelvic health issues. (link blog: http://www.pelvicpainrehab.com/male-pelvic-pain/2322/men-kegels/)

....that you can and should find a pelvic floor physical therapist and Get PT 1st.

To find a pelvic floor physical therapist:

American Physical Therapy Association, Section on Women’s Health:

http://www.womenshealthapta.org/pt-locator/

International Pelvic Pain Society: http://pelvicpain.org/patients/find-a-medical-provider.aspx

Best,

Stephanie Prendergast, MPT

Stephanie grew up in South Jersey, and currently sees patients at Pelvic Health and Rehabilitation Center in their Los Angeles office. She received her bachelor’s degree in exercise physiology from Rutgers University, and her master’s in physical therapy at the Medical College of Pennsylvania and Hahnemann University in Philadelphia. For balance, Steph turns to yoga, music, and her calm and loving King Charles Cavalier Spaniel, Abbie. For adventure, she gets her fix from scuba diving and global travel.

Guest Post: Rib cage position, breathing and your pelvic floor

Posted on December 5, 2015 | 1 comment

I am thrilled today to have my colleague and friend, Seth Oberst, PT, DPT, SCS, CSCS (that’s a lot of letters, right?!), guest blogging for me. I have known Seth for a few years, and have consistently been impressed with his expansive knowledge and passion for treating a wide range of patient populations (from men and women with chronic pain, to postpartum moms, and even to high level olympic athletes!) Recently, Seth started working with me at One on One in Vinings/Smyrna, which is super awesome because now we get to collaborate regularly in patient care! Since Seth started with us, we have been co-treating several of my clients with pelvic pain, diastasis rectus, and even post-surgical problems, and Seth has a unique background and skill set which has been extremely valuable to my population (and in all reality, to me too!). If you live in the Atlanta area, I strongly recommend seeing Seth for any orthopedic or chronic pain problems you are having–he rocks! So, I asked Seth to guest blog for us today…and he'll be talking about your diaphragm, rib cage position, and the impact of this on both the pelvis and the rest of the body! I hope you enjoy his post! ~ Jessica

The muscles of the pelvic floor and the diaphragm (our primary muscle of breathing) are mirror images of each other. What one does so does the other. Hodges found that the pelvic floor has both postural and respiratory influences and there's certainly a relationship between breathing difficulty and pelvic floor dysfunction. (JR note: We've chatted about this before, so if you need a refresher, check out this post) So one of the best ways we can improve pelvic floor dysfunction is improving the way we breathe and the position of our ribcage. Often times, we learn to breathe only in certain mechanical positions and over time and repetition (after all we breathe around 20,000 times per day), this becomes the “normal” breathing posture.

Clinically, the breathing posture I see most commonly is a flared ribcage position in which the ribs are protruding forward. This puts the diaphragm in a position where it cannot adequately descend during inhalation so instead it pulls the ribs forward upon breathing in. The pelvis mirrors this position such that it is tipped forward, causing the muscles of the pelvic floor to increase their tension. (JR note: We see this happen all the time in men and women with pelvic pain!) Normal human behavior involves alternating cycles of on and off, up and down, without thinking about it. However, with stress and injury we lose this harmony causing the ribs to stay flared and the pelvis to stay tilted. Ultimately this disrupts the synchrony of contraction and relaxation of the diaphragm and pelvic floor, particularly when there is an asymmetry between the right and left sides (which there often is).
Jessica has written extensively on a myriad of pelvic floor issues (this IS a pelvic health blog, after all) that can be caused by the altered control and position of the rib cage and pelvis that I described above. But, these same altered positions can cause trouble up and down the body. Here are a few ways:

1. **Shoulder problems**: The ribcage is the resting place for the scapulae by forming a convex surface for the concave blades. With a flared, overextended spine and ribs the shoulder blades do not sit securely on their foundation. This is a main culprit for scapular winging (something you will often see at the local gym) because the muscles that control the scapulae are not positioned effectively. And a poorly positioned scapula leads to excessive forces on the shoulder joint itself often causing pain when lifting overhead.

2. **Back pain**: When stuck in a constant state of extension (ribs flared), muscles of the back and hips are not in a strong position to control the spine subjecting the back to higher than normal forces repeatedly over time. This often begins to manifest with tight, toned-up backs that you can’t seem to loosen with traditional “stretches”.

3. **Hip impingement**: With the pelvis tilted forward, the femurs run into the pelvis more easily when squatting, running, etc. By changing the way we control the pelvis (and by association the rib cage), we can create more space for the hip in the socket decreasing the symptoms of hip impingement (pinching, grinding sensation in groin/anterior hip). For more on finding the proper squat stance to reduce impingement, read this.

4. **Knee problems**: An inability to effectively control the rib cage and pelvis together causes increased shearing forces to the knee joint as evidenced in this study. Furthermore, when we only learn to breathe in certain positions, it reduces our ability to adapt to the environment and move variably increasing our risk for injury.

5. **Foot/ankle**: The foot and pelvis share some real estate in the brain and we typically see a connection between foot control and pelvic control. So if the pelvis is stuck in one position and cannot rotate to adapt, the foot/ankle complex is also negatively affected.
So, what can we do about this? One of the most important things we can do is learn to expand the ribcage in all directions instead of just in the front of the chest. This allows better alignment by keeping the ribs down instead of sacrificing position with every breath in. Here are few ideas to help bring the rib cage down over the pelvis and improve expansion. These are by no means complete:

**JR Note: These are great movements, but may not be appropriate for every person, especially if a person has pelvic pain and is at an early stage of treatment (or hasn't been treated yet in physical therapy). For most clients, these exercises are ones that people can be progressed toward, however, make sure to consult with your physical therapist to help determine which movements will be most helpful for you! If you begin a movement, and it feels threatening/harmful to you or causes you to guard your muscles, it may not be the best movement for you at the time.

[JR Note: This squat exercise is very similar to one we use for men and women with pelvic pain to facilitate a better resting state of the pelvic floor. It's wonderful—but it does lead to a maximally lengthened pelvic floor, which can be uncomfortable sometimes for men and women who may have significant tenderness/dysfunction in the pelvic floor (like occurs in men and women with pelvic pain in the earliest stages of treatment).]

Here's another one I use often from Quinn Henoch, DPT:
Our ability to maintain a synchronous relationship between the rib cage and pelvis, predominantly thru breathing and postural control, will help regulate the neuromuscular system and ultimately distribute forces throughout the system. And a balanced system is a resilient and efficient one.

Dr. Seth Oberst, DPT is a colleague of Jessica’s at One on One Physical Therapy in Atlanta, GA. He works with a diverse population of clients from those with chronic pain and fatigue to competitive amateur, CrossFit, professional, and Olympic athletes. Dr. Oberst specializes in optimizing movement and behavior to reduce dysfunction and improve resiliency, adaptability, and self-regulation.

For more from Seth check out his website and follow him on Twitter at @SethOberstDPT

Painful scars? Yes, you can do something about it!

I can’t help it. Every time I think scar, I think… Scar (and yes, I used to have a much better picture of Scar from The Lion King for you…but I had to remove it in my attempt to make sure I’m not violating anyone’s copyright laws!) I was going to try to think of some funny way to explain why scars and Scar are the same… but I can’t… I relate it to the 50,000 times I have watched The Lion King… so I’ll leave it at that.

Scars can be a big pain though– literally! I have treated women who even after several years cannot tolerate pressure on a c-section scar. Men who have nice huge abdominal scars that ultimately contribute to problems with constipation. And moms who have discomfort near their perineal tears every time they have sexual intercourse. The truth is that scar tissue is often something skilled physical therapists will evaluate and treat as part of a comprehensive program in men and women with pelvic floor dysfunction(and really, with any type of problem!). And the best part– treating scar tissue can make HUGE differences!
So, what is a scar?

When there is an initial injury (and yes, a surgical incision is an “injury”), the body goes through three phases of healing: Inflammation, Proliferation and Remodeling. Through this process, the body creates scarring to close up the initial injury. Scars are composed of a fibrous protein (collagen) which is the same type of tissue that is in the tissue the body is repairing (i.e. skin, etc). The difference, however, is that scars are not quite organized the same way as the tissues they replace, and they don’t really do the job quite as well. (i.e. scars are much more permeable to UV rays than skin is). Scars can form in all tissues of the body— even the heart forms scar tissue after someone has a heart attack (myocardial infarction).

How do scars lead to problems?

After the inflammation and proliferation stage of healing, comes the remodeling. This stage can take months to years! During this time, the body is slowly adapting and changing the scar to the stresses on the tissue. Have you ever noticed that some scars initially are pink and raised and then over time become light/white and flat? That's remodeling. Ultimately, there are a few major reasons why a person might develop pain from a scar:

- **Adhesions:** Scars are not super selective when it comes to tissues they adhere to. So, sometimes, scars will adhere to lots of tissues around them and this pull can lead to discomfort.
- **Sensitivity:** Scars can become very sensitive for a variety of reasons. Sometimes, small nerves can be pulled on by the scar which can lead to irritation. Other times, people themselves will have a significant amount of fear related to the scar. This fear, can often make people avoid touching the scar, and that, along with what we know about how our brain processes fear and pain (See [this post](#), [this one](#) and [this one](#)), can lead to a brain that is veerrrrrry sensitive to the scar. Along with this, muscles near scars can become tender and sensitive. This can occur due to the scar pulling on the muscle or due to the sensitive nerves in the area.
- **Weakness/Poor Muscle firing:** So, we know that when our tissues are cut, the muscles around the tissues are inhibited (have you ever seen someone after a knee replacement? It can be quite a bit of work to get those muscles to fire immediately after surgery). That's why it's important to get the right muscles firing and moving once a person is safely healed. Moving the right muscles improves blood flow too which promotes healing.
- **Changing Movement:** Painful scarring can lead to altered movement. We can especially see this with postural changes after c-sections or other abdominal surgeries, but movement patterns can change with scars all around the body. We also know that abnormal movement patterns over time can lead to dysfunction and pain.

What can we do about it?

There are several ways physical therapists can help decrease pain from scars. Can we actually break-up/melt/eliminate scar tissue? I don't really think so– honestly, scars are made from strong material and truly breaking up the scar is typically something that has to be done surgically– but most of the time, that is not necessary. We can decrease pain from scars by:

- **Improving the mobility of the scar:** Gentle techniques to massage the scar and the tissues around the scar can facilitate blood flow to the area and decrease some of the pulling on the tissues around it. There is a thought as well that scar tissue massage can disrupt the fibrotic tissue and improve pliability of the scar (basically, help the scar organize itself a little better, and ultimately move better), and help to promote decreased adhesions of the scar to the tissues around it. Unfortunately, there really is not a lot of great research out there about scar tissue massage. However, [this review published in 2012](#) found that 90% of people with post-surgical scars who were treated by scar massage saw an improvement in either the appearance of the scar or their overall function—which is very promising!
- **Desensitizing the scar and the nervous system:** This is where I think we can make huge changes—both by improving someone’s worries/fears about the scar (calming the nervous system) and by slowly desensitizing the scar and the skin around the scar to touch. This is a slow process, but over time, many people who initially can barely tolerate pressure on the scar can be able to easily touch and move the scar without discomfort.
- **Promoting movement:** So, we talked about how muscles can become inhibited or tender after a surgery? Part of improving scar tissue related pain is helping the muscles around the scar move well and learn to fire again. This can include some soft tissue treatment to the muscles to reduce the tenderness of the muscles, but ultimately leads to learning to use the muscles again in a variety of movement patterns. Movement is amazing for the body and can not only improve blood flow, but decrease pain too!

Wanna learn more?
Several of my colleagues have written wonderful information about scar tissue! Check out this great article and free handout by Kathe Wallace, PT on abdominal scar massage! My colleagues at the Pelvic Health and Rehabilitation Center have also written a few blogs on scars, which you can find here and here.

Have a great rest of your week!

~ Jessica
Y'all, I'm published in Sexual Medicine Reviews!

Interview with "The Vagina Whisperer" on Pregnancy & Postpartum Health, Advocacy, Being a Mom, and Everything in Between!
February 2015
January 2015

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- Your First Visit to See a Pelvic PT
- Y'all, I'm published in Sexual Medicine Reviews!
- Interview with “The Vagina Whisperer” on Pregnancy & Postpartum Health, Advocacy, Being a Mom, and Everything in Between!

ARCHIVES

- April 2019
- March 2019
- January 2019
- December 2018
- November 2018
- October 2018
- August 2018
- July 2018
- April 2018
- March 2018
- January 2018
- November 2017
- July 2017
- June 2017
- May 2017
- April 2017
- March 2017
- February 2017
- January 2017
- September 2016
- August 2016