CaseReport

Yoga Therapy for an Individual with Persistent Pain

By Shelly Prosko

eter* is a 56-year-old male with a diagnosis of longstanding persistent low-back pain that was complicated by a recent lumbar vertebral fusion (L4-5) surgery. His orthopedic surgeon recommended physical therapy rehabilitation to commence 4 weeks after his operation. Peter chose my services because he wanted to try adding yoga to his physical therapy rehabilitation and he knew that I'm a physical therapist and Professional Yoga Therapist1 who integrates medical therapeutic yoga1 into my physical therapy sessions. He also knew I specialized in the area of chronic pain. The initial subjective interview took approximately 45 minutes. I included open-ended questions with mindful listening and an empathetic and motivational interview approach² that helped to expose aspects of Peter's life that have been influenced by his persistent pain and also helped to reveal factors that may be influencing his pain experience. I also included questions to determine Peter's level of readiness to change.3

History of Present Complaint

Peter currently complains of constant, persistent neck and lower-back pain that is generalized across both sides but varies in location and intensity. He states he is never free from pain and cannot remember being free from pain for over 20 years. Constant numbness is present on the left dorsum of foot and first digit as well as intermittent paraesthesia to right anterior thigh. He complains of feeling weak "all over," particularly in his legs, with low energy throughout the day.

Aggravating Factors:

- maintaining a position for more than 5 minutes (mostly sitting or standing)
- · walking
- * In order to adhere to patient confidentiality and Health Insurance Portability and Accountability Act laws, the client's name was changed to "Peter." Some details of this case report have been intentionally omitted to avoid client identification. The client gave verbal consent to disclose all documented information included in this case example.

- · transferring to and from chair
- · moving around in bed
- · activities of daily living requiring forward bending or twisting
- · difficulty sleeping due to pain, waking at least every 2 hours, and achieving less than an average total of 5 hours of sleep per night
- pain exacerbated when stressful situations arise: particularly related to financial burdens and the inability to contribute to household physical work because of his "disability" (his term)

He states his pain controls him. He does not have any strategies to help reduce his pain other than the medication that is occasionally, minimally, and temporarily effective.

SF-36 Health Survey⁴: Physical Component Summary (PCS) = 21.7, Mental Component Summary (MCS) = 26.3 (0 = total disability; 100 = no disability; scores <45 are below average for general population.)

Stage of Change³ = Contemplation

Past Medical History and Interventions

Co-occurring chronic neck and back pain for over 20 years without any specific mechanism of injury noted. Four partial or full discectomy/fusion surgeries over the last 7 years. Medications are Tramacet, Lyrica, Indomethacin.

Past Interventions consisted of physical therapy for approximately 12-16 weeks following the first three surgeries, including enrollment in specialty pain and occupational rehabilitation programs, and regular sessions with a psychologist in 2010 and 2012 (1-2x/month) for approximately 1 year for mild depression and anxiety surrounding unmanaged pain.

Peter states that his past physical therapy and psychology interventions were valuable and beneficial. He has had some pain science education in the past when attending the pain clinic and occupational rehabilitation programs. He currently is not undergoing any other treatments and he does not feel the need for additional interventions at this time.

Occupational, Psychosocialspiritual, and Nutritional History

Peter holds a manager position that primarily consists of sitting at a computer. He has been off work collecting a nominal amount of disability insurance for almost 1 year. He reports that although his job can be stressful, he still enjoys it and has been feeling his life lacks purpose and productivity since being off work. He also misses the camaraderie of his staff and coworkers. He realized during our interview that he was feeling somewhat isolated from his friends since he has been off work and unable to participate in his usual recreational activities such as fishing, golfing, and hunting. He is not affiliated with any religion, but states he is spiritual and feels most connected to spirit when he spends time in nature. He also feels the financial strain from not acquiring his usual income and expresses motivation to return to work on a part-time basis. He has a supportive wife and two adult children that have recently moved away from home. He reports his memory has declined and his brain has become "foggy" over the past few years.

Peter states he is a "meat and potatoes" person who also enjoys locally grown fresh seasonal vegetables and berries. He is a nonsmoker and rarely drinks alcohol anymore because he says "it does not mix well with my pain medications." He typically eats three meals per day, but says his chronic pain has reduced his appetite and joy for food over the past year, particularly since his recent surgery.

Physical Observations

Some of the specific assessment techniques that I use as a physical therapist (such as a specialized biomechanic evaluation, neurological clearance tests, and screening for differential diagnoses) are not within the scope of practice for a yoga therapist, so these will not be discussed in this report. It is a good idea to communicate with the surgeon and work closely with a physical therapist to ensure adherence to any specific precautions or contraindications and promote continuity of care. Physical observations that are within scope of practice for the yoga therapist, such as the quality and patterns of breath and movement, positions and movements of ease and discomfort, and balance capabilities, are outlined as follows:

- · All general mobility, including gait and transitions, are performed with exaggerated guarding, muscle tension, and protective motor patterns with reduced body awareness and proprioception.
- · Performance of movements elicits an extremely protective posture with reduced mobility throughout entire spine and pelvis.
- · Abdomen is continuously held rigid and sucked in because he reports he has been taught to "protect his spine" by using his core.
- Breath pattern is shallow and rapid at 18 breaths/minute with reduced thoraco-diaphragmatic and costal expansion, reduced length of exhalation phase, and excessive use of accessory muscles of respiration on inspiration.
- · Frequent breath holding and jaw clenching exhibited when performing most movements, particularly during gait, transitioning from one position to another, and when attempting to balance on one leg.
- · Unable to perform one-leg standing without upper-extremity support and exhibits poor balance reaction strategies due to overall rigidity and lack of movement in the trunk, pelvis, and ankles.
- Unable to lie unsupported in any position without aggravation of symptoms; however, he briefly tolerates (less than 5 minutes) being in prone position with folded blanket under the hips and shins, a supine position with hips at 90° and legs supported by a chair, and supported balasana (child's pose) with bolster.
- Standing tolerance is approximately 2 minutes before needing to change positions secondary to increased back pain and lower extremity symptoms.

Peter's Goals

Peter was interested in this therapeutic yoga approach integrated into physical therapy instead of traditional physical therapy because he wanted a more mind-body approach to his rehabilitation and he had heard yoga was good for overall health. He wanted to learn how to meditate because he had heard it might help his pain. His goals were as follows:

- Reduce and successfully manage his back pain and leg symptoms.
- · Reduce or eliminate pain medications.
- · Improve overall body strength and endurance.
- · Improve and restore level and quality of function including activities of daily living such as being able to bend over to put on his socks and shoes independently, get in and out of bed with ease, tolerate prolonged walking and sitting for at least one hour each, return to part-time work, fish, hunt, golf, perform yardwork, and engage in sexual activities.
- Incorporate a regular home voga practice into his lifestyle to sustain gains made in therapy and help prevent future surger-

Peter's Treatment Plan

Breath and Body Awareness Practices

The first step to changing the nervous systems is awareness. We first must introduce practicing breath and body awareness techniques before introducing movement progressions that challenge the nervous systems.

Breath and body awareness practices that helped calm the nervous systems were completed in supported and tolerable positions with adequate props for optimal comfort to ensure Peter felt safe so that the threat to the nervous systems was minimized. The positions varied depending on Peter's level of comfort each session, but were primarily supported supta baddha konasana (reclined cobbler), savasana (corpse), makarasana (crocodile), or a supported/modified virasana (hero). Peter's breath awareness practices included abdominal diaphragmatic or belly breathing while I observed the quality of his breath, including temperature, texture, rate, depth, length of inhale versus exhale, and how the breath moved the body. I also used guided body-scan meditations, visualization techniques, yoga nidra, and progressive muscle-relaxation methods to heighten interoceptive awareness.

Breath-Control Practices

The next step after breath awareness was to implement breath-control practices. Some of the methods we used that Peter found beneficial were 1:2 ratio of inhale:exhale, nadi shodana (alternate nostril), transversus abdominus-assisted thoracodiaphragmatic 5,6 breath with *ujayii* (victorious), and *dirga* (three-part) pranayama. Breath visualizations such as imagining the breath entering and exiting various parts of the nostrils and incorporating a longer, smoother, and softer pattern also appeared to be valuable for reducing Peter's pain and muscle tension and promoting generalized calming effects.

Another effective visualization and breath-control technique that Peter used to reduce pain and muscle tension was to bring his awareness to an area of his back that did not hurt and try to keep his focus on that area with a long, smooth, and soft breath pattern while visualizing the breath surrounding that area without letting his attention be drawn to the painful area of the back. Once he was successful at keeping the focus on the non-painful area, he would then gently shift his focus to an area on his back that was painful, continuing with the long, smooth, and soft breath pattern and visualizing the breath massaging that area. This technique can be used with a variety of body parts.

Introducing Movement and Progressions

We know that introducing and progressing movement is essential if we want to help our clients move with more ease and improve function.7 But how do we help our clients move when they are experiencing pain and when most movement causes more pain? There is no simple answer to this. However, current pain science would suggest that we shouldn't use pain as our only guide.7 Solely relying on pain scales, such as a visual analog pain scale from 0-10, to guide clients while they are attempting to move in the face of pain may not be as valuable to use with the persistent-pain population as one would think. Pain-science research confirms that the location, intensity, and severity of pain is not an accurate indication of the state of the tissues or tissue damage.8 Pain neuroscience also tells us that the nervous systems of people who have been suffering from pain over a prolonged period of time, can change in a variety of ways. For example, the signals carried by certain nerve cells from the tissues can become hypervigilant, or "over sensitive," sending danger signals to the spinal cord and brain, resulting in an exaggerated output of the brain that contributes to the pain experience. Inputs to the system, like certain movements or positions, that never used to be considered a threat or to result in a pain response, now do, even when there is no real threat. Therefore, the physical sensations and emotional experiences of pain may no longer be a normally functioning protection mechanism of the individual's system, as it once was. This certainly does not mean we encourage our client to ignore the pain; in fact, it is essential that we guide them to monitor the pain throughout the movements, otherwise the system will try even harder to "turn up" the danger signal.

However, we do not use pain as the only guide, nor do we make blanket statements such as "Stop if you feel pain." We can't improve ease of movement and function if we always stop as soon as we feel pain. What we want to do is help reduce the amount of threatening signals in the system.

As yoga therapists, we have a variety of tools to promote this threat reduction and can use our knowledge and expertise in conjunction with these effective evidence-informed guidelines7 from Life is Now Pain Care⁹ to help our clients move and progress movement safely, with less pain, and more ease:

Mindfully, compassionately, and slowly, encourage the client to move to the edge of pain with these instructions:

- 1. Ask yourself, "Do I feel safe? Will I regret this later?" It is essential that clients feel safe and believe that what they are doing is not doing any harm or that they will pay for it later.
- 2. Keep your breath calm and relaxed.
- 3. Keep your muscle or body tension low.
- 4. Monitor your pain.

As we introduced gentle and slow movements into Peter's sessions, I made sure he followed the four movement

- guidelines as stated above. The movements can vary from person to person, but the four guidelines remain the same. The following are examples of some of the poses and movements included over the course of treatment:
- · Supine: lower-trunk rotation (windshield wipers) with lateral spinal articulation,5,6 reclining knee to chest with hip telescoping,5,6 knee flexion/extension range of motion (ROM) with proprioceptive neuromuscular facilitation methods. bilateral knees to chest, two-foot posture,5,6 modified bridge, reclined modified pigeon alternate with piriformis dynamic stretch, modified happy baby and half happy baby
- · Prone: arm/leg lifts (contralateral); modified locust
- Four-point kneeling: weight shifting all planes, spontaneous/creative movements, cat/cow, arm/leg lifts (contralateral), arm abduction to/from thread needle dynamic flow, extended and supported child's pose, child's pose with diagonal ROM, child's pose with spinal rotation ROM
- Half-kneeling: alternating PNF techniques: psoas to/from hamstrings, spinal rotation (modified revolving extended side angle)
- Standing: mountain; mountain with spontaneous, random, creative movements; mountain to/from fierce pose (dynamic flow); fierce pose with spinal rotation to/from mountain (dynamic flow); warrior 1 and 2 with movement (front knee flexion/extension and bilateral spinal rotation dynamic flow); tree; tree to/from warrior 1 (dynamic flow); crescent lunge to/from warrior 3 (modified); triangle to/from half moon (modified)

Sessions always started with a breath and body awareness meditation and ended with supported savasana (chair or bolsters under thighs and blankets under arms and head).

Other aspects of treatment:

· Client education (Implemented pain neuroscience education and shared resources: research shows this has positive effects on pain, disability, catastrophization, and physical performance.)10,11

- Client use of yamas and niyamas while moving with pain (ahimsa: interact with pain with compassion; satya: truthfully admit "this does hurt"; asteya: do not allow the pain to steal the peace you want to feel from yoga; brahmacharya: (moderation) do not push too far past pain, but do not avoid it; aparigraha: nonattachment to your pain (stay curious and open to your pain changing); sauca: purity of awareness (be cognizant through which filter you may be practicing awareness); santosha: acceptance of present situation and pain (not right or wrong or good or bad); tapas: dedicated self-discipline to commit to change; svadhyaya: introspection (be aware of thoughts/emotions and if they are in line with your values); ishvara pranidhana: balance fighting/resistance with surrender, letting go, and trusting.
- Discussed importance for Peter of time spent in nature. He started performing some of his home yoga program outdoors and going for short, frequent walks to feel more connected to himself, nature, and therefore spirit.
- Discussed importance of cultivating that social connection he had lost: he contacted a friend to start joining him on his walks.
- Ended each session with five gratitude statements (silently on his own) and he started keeping a daily gratitude journal at home.

Every day, Peter made a Daily Plan9 to promote success each day. He made a sheet for each of these three categories of activity: respite, calming, and challenging. Under each category, he outlined activities that are related to each. Each day, he made a plan, based on how many units of each activity he thought he could tolerate that day.

- · We discussed the importance of nutrition and strategies for healthier eating and not skipping meals.
- · He realized how his inability to control his pain and his feelings of isolation and sense of loss of purpose may be related to his feelings of depression and anxiety and could be contributing to his pain experience. We discussed the possibility of pursuing professional psychological intervention, and he returned to seeing his psychologist regularly during weeks 3-10 of our time together.

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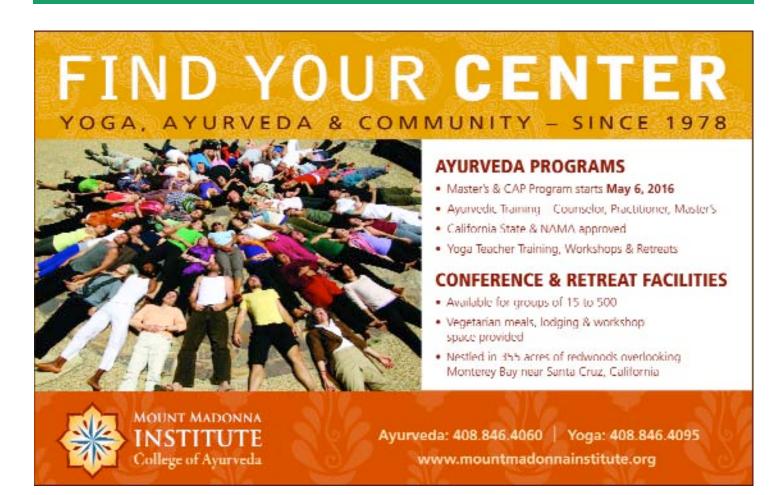
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Nineteen Sessions and 9 Months Later

- SF-36 Score: PCS = 41.2, MCS = 59.3 (significantly improved), MCS is no longer below average range for general population.
- Significant improvement observed in movement patterns, with more natural gait and general mobility patterns with improved pelvis and spinal movements throughout.
- · Able to perform steps, sit to stand, transfers, bed mobility and asana with more fluidity of movement and calmer, more rhythmical, and more natural breath pattern.
- · Holds breath less during movement; still has tendency to retain breath when learning more challenging asanas and transitions.
- · Improved one-leg balance: able to perform tree pose without upper extremity support and with improved breath pattern and less muscle tension. Peter still has habit of using accessory muscles of respiration during balance poses or when practicing a new challenging movement.
- · Significantly improved in body and breath awareness.
- · Able to walk for 1-1.5 hours almost daily; sometimes walks 30 min, 2x/day.
- · Engages in regular sexual activities, but wishes his stamina and overall performance were better.
- · Went fishing a few times, with ease.
- · Has returned to part-time work on modified duties and is happy to be back at work with co-workers and friends.
- · Able to dress self independently and with ease.

- · Appetite and energy levels have improved; prepares three meals per day and focuses on eating unpackaged. whole foods. He and his wife are now enjoying time spent cooking together.
- Sleep quality has improved, with 6–7 hours of uninterrupted sleep most nights. Usually experiences pain when going to sleep, but uses breath and body awareness techniques to help get to sleep.
- Reports feeling more in control of his pain. He now has some techniques he uses to reduce pain, and often times he can get rid of it. However, he still reports times when he cannot control or reduce it as much as he would like, mostly when he is stressed.
- · He no longer is on any prescription pain medication. He takes Extra-Strength Tylenol on occasion (approx. 2x/month).
- · Back and neck still feel "stiff and sore" upon arising, but improve after morning yoga routine.
- · Still has not tried golf, hunting, or heavy yard work.
- Unable to perform any heavy lifting or prolonged sitting for more than one hour.
- He independently and safely practices yoga (which includes meditation) daily at home, following the Pain Care guidelines.7 He does not practice the same sequence daily, rather, he performs one of the movement sequences and meditations that he feels is appropriate for him each day. He also follows one of the Overcome Pain with Gentle Yoga12 video practices about 1-2x/week in place of his individual program.
- Both Peter and the orthopedic surgeon were beyond pleased with his progress and the goals that were attained through a combination of yoga therapy and physical therapy.

What did not work well for Peter: within the first two months, any prolonged positions aggravated his pain and muscle stiffness, so the breath and body-scan awareness practices were less than 3 minutes in length. He worked his way up to approximately 20 minutes very comfortably resting in one position. He also did not do well with sustained active poses, so adding dynamic flows or micro-movements within the active pose, in timing with the breath cycle, helped him tolerate the movement and improve ease of breath and quality of movement tremendously. YTT

Peter's Testimonial:

"What helped me the most was learning how to breathe and paying attention to it more often. I realized I was almost always holding my breath when I moved because I thought that would actually protect me, but it didn't, it actually made my pain worse. Shelly helped me understand this. That was a game changer. The other thing that really helped me was to trust myself and my spine and know that my body wasn't going to break. I used to think I needed to always protect my spine, and so I always tried to keep it straight and was afraid to bend it. Yoga helps me practice letting go and move more freely and I can feel that immediately helps my pain. I never realized how tense I used to be all over. Now I am more aware and know when I'm tense, and I can change it and then my pain changes. It's amazing how much more in tune I am with my body. Shelly (yoga) has taught me how I can help myself, and not just rely on others to fix my pain. I've also learned to be more aware of my boundaries. I know when it's time to stop and when it's time to push now and that has really helped me be able to progress."

Overall, Peter agreed he was more confident in his ability to move and his ability to control his pain. "The pain doesn't control me anymore. I feel like I'm more myself again. It feels really good, and hopeful."

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Yoga Therapy in Practice

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Yoga therapy has much to offer those in chronic pain. Almost 50 percent of Americans report having some type of chronic pain¹⁰—that's almost 160 million people whose lives could potentially be improved with your help! YTT

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When to Refer Clients

If the pain worsens or if clients have not experienced any relief in a couple of weeks, then I would recommend that they see a healthcare provider. There are some injuries to the knee that yoga cannot fix. For example, there are some meniscus tears that may be in the area where there is blood supply and healing can occur, but other meniscus tears may be more severe and/or not in the area that receives blood supply and may require surgical intervention.

When I worked for Dr. James Garrick at the Center for Sports Medicine, he would put all of his patients on a rehabilitation program to strengthen the VM at the very least, whether the patient was a candidate for surgery or not. Sometimes the rehabilitation would work well enough that no surgery was required. If the patient still needed surgery, they would recover faster because the extensor mechanism, in particular the VM, was already strong before surgery. With this in mind, yoga therapists can still play an important role when they work in tandem with other healthcare providers in helping to optimize their clients' health and outcomes even when surgery is necessary.

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