

A Monthly Publication by EIM Faculty

THE INSIGHT HUB



MEET THE EXPERT

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What is the best advice you have received in your professional journey?

When I graduated, one of my teachers said: "Well, you are now qualified to learn physiotherapy". This is important for several reasons. The retention rate in our profession is deteriorating and, although there are many reasons for this, the ones that got me into the business were helping people, being paid, and staying interested. We become bored if the learning stops, then it becomes 'work'.

What is one article all therapists should read?

Papers that describe the biopsychosocial approach (e.g. Engels and Romano) are foundational, but we have generally accepted this in MSK pain. We know that pathology and pain often don't relate, neither do dysfunction and pain, but a problem is that we separate them and make neither important. Some people now believe that the physical is unimportant.

The study, [Dynamic imaging of degenerative spondylolisthesis reveals mid-range dynamic lumbar instability not evident on static clinical radiographs](#), challenges this separation and found close relations to pain when pathology and dysfunction coexisted. So, if we introduce a reasoning instrument that assesses these connections in the individual, we can start to understand why people vary, especially who is susceptible to pain and how to construct treatment. I call this a 'likelihood of pain' instrument.

What is one book all therapists should read and why?

I like the Clinical Biology of Aches and Pains by Louis Gifford. It applies the whole array of mechanisms and treatments with reasoning and techniques for diagnosis and treatment, and its theory is accurate. It's not new in terms of the BPS approach, but it does help the clinician find and emphasise mechanisms and treatments from nociception to placebo.

What are you working on right now?

I'm creating advanced neurodynamics courses with new logic, clinical reasoning instruments, and techniques. I'm also studying lumbar radiculopathy: how to reduce force in the nerve root for pain relief without surgery. Matching nerve root testing in cadavers with neurodynamic tests, we have shown that the correct contralateral neurodynamics can reduce nerve root tension and responses. In a pilot study, it was better to add interface nerve root unloading techniques to a 'keep moving and take medication' approach than just moving.

Do you have any advice for early-career therapists?

Learn from the best, clinical outcomes are better in clinicians who are mentored. Find someone who: inspires you, is respected in the profession, has broad experience and philosophy, won't sell you a bunch of..., is furthering the profession, and cares about the youth of today.

BOOK CLUB

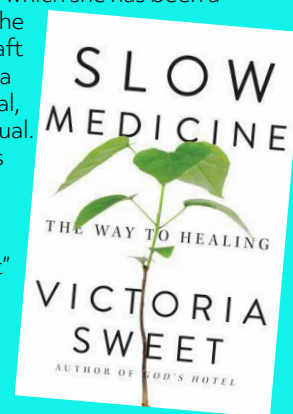
This fascinating book discusses two ends of the spectrum in medicine – fast medicine and slow medicine. The US health system is very good at fast medicine, i.e., heart attacks, trauma, surgery, etc., but interestingly, does very poor when it comes to handling more prolonged disease states and building an efficient system for diabetes, heart disease...and chronic pain. The is a great read showing how we need different systems and approaches for the different needs in medicine. -Adriaan Louw, PT, PhD

About the book:

Over the years that Victoria Sweet has been a physician, "healthcare" has replaced medicine, "providers" look at their laptops more than at their patients, and costs keep soaring, all in the ruthless pursuit of efficiency.

Yet the remedy that economists and policy makers continue to miss is also miraculously simple. Good medicine takes more than amazing technology; it takes time–time to respond to bodies as well as data, time to arrive at the right diagnosis and the right treatment.

Sweet knows this because she has learned and lived it over the course of her career. Here she relates unforgettable stories of the teachers, doctors, nurses, and patients through whom she discovered the practice of Slow Medicine, in which she has been a pioneer. Medicine, she makes us see, is a craft and an art as well as a science. It is relational, personal, even spiritual. To do it well requires a hard-won wisdom that no algorithm can replace—that brings together "fast" and "slow" in a truly effective, efficient, sustainable, and humane way of healing.



HEALTH CORNER: DRINKING WATER

Adriaan Louw PT, PhD, Vice President of Faculty for Evidence in Motion

Lubricates the joints: Cartilage in joints and spinal discs contains around 80% water. Long-term dehydration can reduce the joints' shock-absorbing ability, leading to joint pain.

Forms saliva and mucus: Saliva helps digest food and keeps the mouth, nose, and eyes moist, preventing friction and damage. Drinking water also keeps the mouth clean and can reduce tooth decay when consumed instead of sweetened beverages.

Delivers oxygen throughout the body: Blood is more than 90% water, and blood carries oxygen to different parts of the body.

Boosts skin health: Adequate water intake is associated with improved skin barrier function. Dehydration can make the skin more vulnerable to skin disorders.

Cushions the brain, spinal cord, and other sensitive tissues: Dehydration can affect brain structure and function and is involved in the production of hormones and neurotransmitters.

Regulates body temperature: Water stored in the middle layers of the skin comes to the surface as sweat when the body heats up. As it evaporates, it cools the body.

Supports the digestive system: The bowel needs water to work properly. Dehydration can lead to digestive problems, constipation, and an overly acidic stomach, increasing the risk of heartburn and stomach ulcers.

Flushes body waste: Water is essential for the processes of sweating and the removal of urine and feces.

Helps maintain blood pressure: Dehydration can cause blood to become thicker, which is associated with decreased blood pressure.

Makes minerals and nutrients accessible: These dissolve in water, making it possible for them to reach different parts of the body.

Tips to increase water intake (especially as we approach the warmer months)

Carry a water bottle: Keep a reusable water bottle with you at all times. This makes it easy to sip throughout the day.

Set reminders: Use your phone or a smartwatch to set regular reminders to drink water.

Infuse your water: Add slices of fruits like lemon, cucumber, or berries to make your water more flavorful.

Drink a glass before meals: Make it a habit to drink a glass of water before each meal.

Track your intake: Use apps or a journal to keep track of how much water you drink daily.

Start your day with water: Drink a glass of water first thing in the morning to kickstart your hydration.

Eat water-rich foods: Include foods like watermelon, oranges, and cucumbers in your diet.

Make it a routine: Associate drinking water with certain activities, like after brushing your teeth or during breaks at work.

Popkin, B.M., D'Anci, K.E. and Rosenberg, I.H. Water, hydration, and health. Nutrition Reviews, Volume 68, Issue 8, 1 August 2010, Pages 439–458

Jéquier E, Constant F. Water as an essential nutrient: the physiological basis of hydration. Eur J Clin Nutr. 2010 Feb;64(2):115-23. doi: 10.1038/ejcn.2009.111. Epub 2009 Sep 2.

RESEARCH CORNER



Pain Neuroscience Education for Elementary School Students in Belize: An Exploratory Study



Adriaan Louw, Jennifer Doster, Dylcia Link, Claire Otto, Ally Wade, Jay Dahlke, Jessica Rosenau, Tori Salaba, Mel Castillo, Calli Carson, Jeff Hartman

Increasing school students' knowledge and beliefs regarding pain yield positive behavior changes including decreased medication use and school absenteeism, as well as increased participation in physical activity.

One hundred and fourteen Belize elementary school students attended a 30-minute PNE lecture. Prior to and immediately following the lecture measurements regarding pain knowledge and pain beliefs were completed. Pain knowledge was measured using the revised Neurophysiology of Pain Questionnaire (rNPQ) and pain beliefs were measured using the adapted Health Care Provider's Pain and Impairment Relationship Scale (HC-PAIRS).

Immediately following the lecture, overall pain knowledge improved significantly ($p < 0.001$) from 28.6% to 35.4%. Eight of the statements in the rNPQ shifted significantly following PNE. All pain beliefs shifted positive, with two reaching significance - "You can control how much pain you feel" ($p = 0.02$) and "Your brain decides if you feel pain, not your tissues" ($p = 0.003$).

A one-time PNE lecture to elementary school students in Belize positively shifts pain knowledge and beliefs. The shift in pain knowledge, albeit significant, was less compared to previously US studies and with similar pre-PNE baseline scores indicate a need to further investigate and explore a PNE program specific to students in Belize to better match their ethnic and cultural needs.



Dose-response relationship between evening exercise and sleep



Josh Leota, David M. Presby, Flora Le, Mark É. Czeisler, Luis Mascaro, Emily R. Capodilupo, Joshua F. Wiley, Sean P. A. Drummond, Shantha M. W. Rajaratnam, Elise R. Facer-Childs

Public health guidelines recommend exercise as a key lifestyle intervention for promoting and maintaining healthy sleep function and reducing disease risk. However, strenuous evening exercise may disrupt sleep due to heightened sympathetic arousal. This study examines the association between strenuous evening exercise and objective sleep, using data

from 14,689 physically active individuals who wore a biometric device during a one-year study interval (4,084,354 person-nights). Here we show that later exercise timing and higher exercise strain are associated with delayed sleep onset, shorter sleep duration, lower sleep quality, higher nocturnal resting heart rate, and lower nocturnal heart rate variability. Regardless of strain, exercise bouts ending ≥ 4 hours before sleep onset are not associated with changes in sleep. Our results suggest evening exercise—particularly involving high exercise strain—may disrupt subsequent sleep and nocturnal autonomic function. Individuals aiming to improve sleep health may benefit from concluding exercise at least 4 hours before sleep onset or electing lighter strain exercises within this window.



Imaging Findings Associated With Osteoarthritis Are Common in Dancers, and Are Rarely Symptomatic: A Systematic Review With Meta-Analysis

Melanie Fuller, Joshua Hanel, Susan Mayes, Tracy Bruce, Ebonie Rio

Four electronic databases were searched (PubMed, Scopus, CINAHL, SPORTDiscus) from inception to September 2023. Included studies reported joint imaging findings in dancers. We considered all study designs that investigated populations with regular participation in any form of dance, at any stage of career.

Data were pooled for meta-analysis if at least 3 studies reported on the same intra-articular imaging findings, at the same joint, in a similar dance genre.

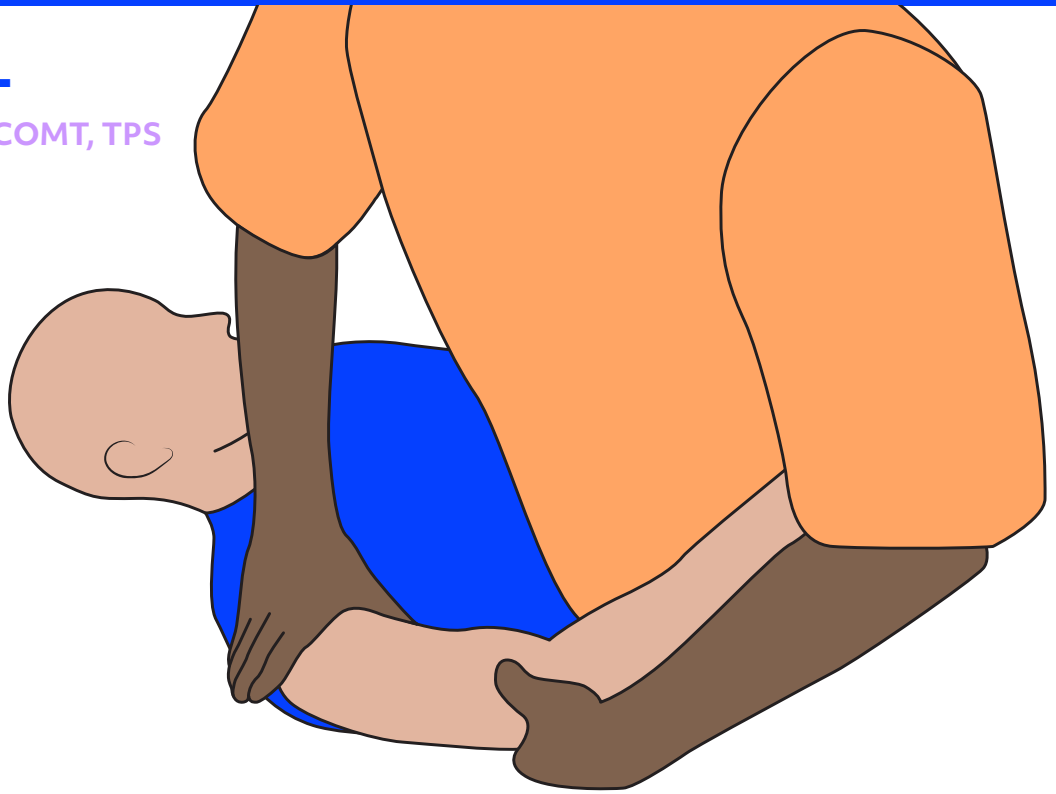
Thirty-two studies were included. Meta-analysis was performed for the prevalence of hip, ankle, and first metatarsophalangeal joint OA, and ankle effusion. The first metatarsophalangeal joint had the highest prevalence of radiographic OA (59%). The prevalence of symptomatic OA was low (3%). The ankle (radiographic OA 41%) and then the hip (radiographic OA 19%) joint were the next most common regions to report imaging findings, with a lower prevalence of symptomatic OA seen at the ankle (2%) to pool 2 studies and hip (8%) to pool 4 studies.

There was very low certainty evidence of the first metatarsophalangeal joint having the highest prevalence of imaging findings in dancers, followed by the ankle and hip joints. A lower prevalence of symptomatic OA was seen at all 3 joints.

CLINICAL PEARL

Belinda McDonald, PT, DPT, COMT, TPS
and EIM Pain Fellow

Back to the basics... PA glides, Grade II and Test, Re-Test



In clinical practice, I often find staff tending towards trying the latest and greatest technique, or a patient comes in and has seen on TikTok a stretch or a nerve glide that is the “only” thing that will fix them. I may be old school, but I keep reminding the younger PT, the old techniques worked, don't forget about them.

Case in point, one of the younger PTs asked me to assess his patient's shoulder. This is common in my clinic, if they are faltering with a patient's treatment and they need collaboration to make some changes.

I realized I knew the patient quite well, I did a quick ROM assessment, and a verbal screen of their most painful movements. And then reverted to a basic glenohumeral posterior-anterior glide, grade II. I could see the young PT not sure of what I was doing, or even if I was doing anything at all. And then the good old trusted test-retest: ROM improved and pain reduced. So now strengthening would be more effective, and the PT finished off the session. After the treatment, we talked it through, and the PT was still

not convinced. So, we ran through the biomechanics, we analyzed the interaction with the patient, and our conclusion...whether it was the strong therapeutic alliance or the mechanics of the gentle glide on the shoulder calming the severely osteoarthritic shoulder, or the gentle tug on the neural structures to calm the neural signal to the brain, or even just the gentle touch on the shoulder.

The proof is in the pudding ... never forget the old tried and trusted techniques!

1. Maitland, G. D. (1986). Vertebral manipulation. Elsevier Health Sciences.
2. Zimney, K. J., Puenteadura, E., Kolber, M. J., & Louw, A. (2024). The relationship between trust and outcomes during physical therapy care for chronic low back pain. *Physiotherapy Theory and Practice*, 40(6), 1164-1171.
3. Shacklock, M. (2005). *Clinical neurodynamics: a new system of neuromusculoskeletal treatment*. Elsevier Health Sciences.

“You treat a disease: you win, you lose. You treat a person, I guarantee you, you'll win, no matter what the outcome.”

- Patch Adams

