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# If You Treat Patients - You Treat Pain!

**Welcome to the Spring Edition of Physiotherapy Practice.** As a Clinical Specialist in Pain Science and former Chair of the Pain Science Division, I am grateful that CPA chose the topic of pain for this magazine edition. Pre-COVID, the country was abuzz with The Canadian Pain Task Force's (CPTF) exploration of gaps and management of pain in Canada. The Pandemic has removed society's focus from their findings, and an important piece of work that can improve the quality of life for millions of Canadians is being silenced. 1 in 5 Canadians suffer from pain, yet Ontario's Burden of Chronic Disease report does not include persistent pain in the report. Compare this statistic to 1 in a 500 for Multiple Sclerosis or 1 in 10 for heart disease. (Stats Canada). Societally, we have much more focus on diagnosis and care of MS and heart disease. Hopefully, this magazine will bring this important issue back to the forefront of our profession and inspire you to advocate for better accessible management. I welcome Fiona Campbell (MD), chair of the CPTF to this edition. She will share important insights from the task force and what it means for us as physiotherapists.

It is far too easy to think of our role in the management of pain as limited to musculoskeletal clinics and pain clinics. In busy hospitals with too little time and too few resources, pain management is often left to pharmacological management with no consideration of our important role in identifying the type of pain, advocacy for better management of the individual patient, as well as deliverance of a targeted evidence-based individualized non-pharmaceutical management plan. Targeted plans allow the individual to be discharged with a plan to manage all types of pain. After all, nociceptive, neuropathic, and nociplastic pain is found among acute care patients. Not all pain is nociceptive.

Our profession grew from the traumas of the First World War when there was a need for another profession to bring comfort and healing to a vast array of Canadians in need and assist them back to life. When authors discuss this time, there are many references to rehabilitation from amputations, brain injuries etc. However, there is little discussion of war's traumas and how these affected individuals going forward. Modern research on the impacts of war on combat soldiers and refugees informs us about the impact of these traumas on maintaining pain. With little research at that time, physiotherapy successes with these returning soldiers likely came from forming therapeutic alliances and safe spaces. Clinicians not only mobilized patients but helped them deal with pain as they journeyed to recovery. Managing pain by leading people back to life roles is at the core of our foundation as a profession.

Those who know me personally know that I graduated at a time when we believed that if we just gave a patient exercises, their pain would be improved. If that did not work, we would try modalities such as ultrasound and interferential current. Reflecting on my professional journey, I am deeply aware of how the evidence of the human experience and complexity of pain has evolved so dramatically from my initial training. We now know that pain is a far more complex pathological model which goes far beyond tissue and pain gates. We must consider emotions, beliefs, and present/past experiences, as all of these have the capacity to not only change an individual's pain experience but the actual physiology of the individual with pain. We know treating a patient outside of a biopsychosocial spiritual model of care frequently leads to failure. A biopsychosocial spiritual model of care does not necessarily mean a biopsychosocial spiritual team, but rather all physiotherapy treatment should be informed and provided within the context of that model. Lack of acknowledgement of the complex immune and neurological changes and their impact on the individual can also lead to failure. I reflect on the fact that a great deal of what I was initially taught is no longer accurate. The amount of reflective learning, reading, and updating I have had to do to properly guide my patients to recovery is monumental. However, everything I have learned only points to the fact that physiotherapists are ideally positioned to manage pain based on the contexts of our practice.

*Being truly present with those with severe quality of life impacts, at possibly the lowest point of their life can be hard.*

Treating pain is not sexy. Being truly present with those with severe quality of life impacts, at possibly the lowest point of their life can be hard. There are no big media fundraising campaigns. Well known sports or Hollywood personas do not line up to share their journeys with pain or to fundraise. No one will hand you an award. You likely will never be interviewed. No one will provide letters behind your name as badges of education. But why did you join the profession? I doubt it was to be recognized. Most of us wanted to ease human suffering.

There are great professional rewards when you truly address pain in your practice. It may be a picture in your email of a painting an artist painted to demonstrate their success, or when a grandparent tells you about playing with their grandchildren when they could not do so before, or an email from a young adult stating they ran a half marathon three years after discharge by continuing with their pain management plan. But the greatest satisfaction is to see a smiling patient on discharge who tells you "they've got this" (this being their pain management plan) who started with you downtrodden, fatigued and in tears.

I challenge you to take a moment and truly reflect on your personal views on pain. For far too long, health professionals have let our own biases and faulty lenses stigmatize those with pain and taint our therapeutic alliances. Among those reading this editorial, I know there have been moments when you cringed at what another health professional has said about a patient with pain. They are a wimp, they are making up their pain as it cannot be that bad, etc. These are huge biases, however; many of us have smaller hidden ones that we need to expose and manage. We cannot create safe empathetic spaces for patient recovery in the presence of stigma and bias. Honest hard reflection through the years has led me on an exploration of my own biases, and I have grown to be a much better clinician as a result. Awareness and change of personal biases is hard but so rewarding.

*I hope you will join me in an open examination of what we as a profession and individuals do well and don't do well to manage pain*

I was trained to measure, re-measure, and use valid outcome tools. I have learned that patients with significant pain largely do not care about full range or perfect strength and can even be frustrated with validated functional scales. I can change all these and still have done nothing to satisfy my patient with pain as I have not addressed the real issues. The function on a scale can change, but their pain may be impacting other areas of their personal context. They come to us with impacted life roles and impaired quality of life. It is these issues that lead to suffering. Our role as clinicians is to restore these, and I like to think, help them find joy in their lives once again. In the words of Elie Wiesel

“Human suffering anywhere concerns men and women everywhere” and I like to think it is our profession that steps up to this challenge.

All my thoughts matter little compared to a patient's needs and desires. It is the personal lived experience that contains the qualitative data for us to improve care. This issue will present the viewpoints of two patients about their journey with pain. I would like to thank Keith Meldrum and Adam Meakins for having the courage to share their journey with pain so we can grow as a profession. The viewpoints are from two very different backgrounds and there is much to be learned in each. I suspect these viewpoints may cause some controversy. Controversy is good for our profession. It promotes thought and discussion! If no one says “the Emperor has no clothes” we cannot grow. We need to examine where the warts are to improve care. I hope you will join me in an open examination of what we as a profession and individuals do well and don't do well to manage pain.

In addition, our colleagues from diverse areas of practice will highlight how physiotherapy is playing a large role in the non-pharmaceutical management of pain. They will also identify large gaps that pose opportunities for us to use our clinical expertise for a more sustainable long-term solution to the management of pain in Canada. I look forward to learning from my colleagues. Shall we turn the page together on our professional journey forward towards becoming leaders in the management of pain? 🍷



**Janet Holly (Guest Editor)**

Janet has been working for over 30 years in the public sector having started off her career in acute orthopaedics and moved rather rapidly into the world of complex pain. She graduated from McMaster with her clinical BHSoc PT as well as a Master of Science. In 2012,

she completed her Clinical Specialization in Pain Sciences. Although her practice encompasses all areas of persistent or complex pain, she has a special interest in Complex Regional Pain Syndrome (CRPS). Clinically, she uses virtual reality with CRPS, pain and comorbid concussion and persistent pain with PTSD. She teaches nationally on complex pain and CRPS. She is the past Chair of the Pain Science Division, a member of the Orthopaedic Division/Global Health Divisions and a member of the International Research Consortium for CRPS. Janet was part of the task force that developed the Physiotherapy Alberta College and Association Chronic Pain Toolkit.

[https://www.physiotherapyalberta.ca/xchange/continuing\\_professional\\_development/elearning\\_center/chronic\\_pain\\_management\\_a\\_toolkit\\_for\\_physiotherapists/](https://www.physiotherapyalberta.ca/xchange/continuing_professional_development/elearning_center/chronic_pain_management_a_toolkit_for_physiotherapists/)

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I was 'blessed' with this gift of a lived experience recently when I had an acute episode of back pain when deadlifting a few months ago. This injury caused me weeks of severe pain and disability, but also left anterior leg neuropathic pain, quadriceps weakness, and a loss of sensation in my medial shin indicating I most likely had L4 postero-lateral disc herniation and nerve root irritation.

I happened to capture this injury on film, so I decided to document my thoughts, emotions, and my rehab and recovery journey on social media. This personal experience has undoubtedly been one of the most painful, stressful, and frustrating periods of my life, but also a huge learning experience for several key reasons.

### Experience No 1: Pain Adversely Affects You

Everyone knows pain is unpleasant, but this episode taught me how thoroughly unpleasant persistent neuropathic pain is. It has also shown me just how easy it is for pain to invade your thoughts and feelings and start to worry you about what's causing it, if it's ever going to get better, and what happens if it doesn't.

This experience has shown me that when pain is severe, constant, and unrelenting, it takes control of you and your thoughts. No matter how tough, stoical, optimistic, or resilient you think you are, pain adversely affects you and can make you think the worst.

As an experienced clinician, I thought I was well equipped in my knowledge and experience to reassure calmly, carefully, and compassionately those I saw with back and radicular issues. I thought I could comfort and reassure them once I had taken a full history and performed a thorough and detailed examination that they had nothing to worry about and had a favourable prognosis, but now I'm not so sure.

Because despite my knowledge and years of clinical experience in managing other people's back pain and radicular issues and knowing that the vast majority improve favourably with time,<sup>3,4</sup> this did not stop me from worrying about what I had done or thinking about the worst possible case scenarios. Despite my knowledge and experience in knowing that disc injuries heal and nerve root irritations settle, I didn't care at 3 am whilst crawling around the living floor trying to find a position that eased my pain to get a few hours' sleep.

These raw and painful experiences of weeks of neuropathic pain, gross disability, and the inability to sleep or function normally hammered home to me that if I've struggled to reassure myself at times, just how good am I at reassuring others? It also highlighted to me just how perfectly normal it is to have fears, doubts, and concerns when in pain and to think about the worst possible outcomes.

### Experience No 2: Thinking the Worst is Normal

As clinicians, we are often taught and trained to assess some behaviours people display when in pain as negative or adverse, often labelling them as 'yellow flags'. This, in my opinion, can unintentionally prejudice a lot of people in pain too readily and too quickly as being psychologically weak or affected. This can also label them as having a high risk of failure or chronicity without good reason and possibly in a perverse way complete a self-fulfilling prophecy.

Looking back on this painful episode of mine, I've realised I had many of these so-called adverse yellow flags. For example, catastrophising about worst possible case scenarios, anxiety about my recovery and future prognosis, and even fear avoidance of painful tasks or movements. I had all of these so-called 'yellow flags', yet I had a fast recovery and a good outcome.

This experience has shown me that so-called adverse psychological behaviours or yellow flags are not always adverse and predictive of outcome. So, I think as clinicians, we need to be very careful in labelling and prejudging people in pain when they have these perfectly normal behaviours.

*This personal experience has undoubtedly been one of the most painful, stressful, and frustrating periods of my life, but also a huge learning experience for several key reasons.*



### Experience No 3: Some Physios Lack Empathy

As I was documenting my recovery on social media, I experienced a lot of criticism, ridicule, and even a few personal attacks. Of course, I was expecting some, as I know you cannot post any views and opinions on social media these days without some hateful troll popping up and saying something hurtful or nasty.

But what I did not expect was the amount of nasty and hateful comments from so many so-called kind, caring, and compassionate clinicians who were clearly revelling and rejoicing in my current predicament. Again, I was expecting some as I know I am not everyone's 'cup of tea', but I was not prepared for so many physios being so openly happy to see me in pain or use this as an opportunity to attack me and my reputation.

During this episode, I got accused of being unprofessional, inexperienced, ignorant and a bad physio and the butt of many jokes and jibes in physio social media groups and forums. It seems that some physios out there think physios should never get injured or suffer back pain, and if they do, it somehow means they are less skilled or knowledgeable than others. Perhaps this also means they think doctors should never get sick, surgeons should never need operations, and professional athletes should never get injured either.

Some physios have told me that I deserve my pain and have earned my injury due to my inexperience and terrible deadlifting technique. However, this is my first significant lifting related injury in nearly 30 years of regular lifting and occurred at the end of an intense period of training when lifting close to my maximal weight.

*Some physios have told me that I deserve my pain and have earned my injury due to my inexperience and terrible deadlifting technique.*

### Experience No 4: Some Physios Don't Understand Injury Risk Well

This episode has also shown me that there are still many misinformed physios who think all injuries are preventable or think when injuries do occur it's the fault of the individual rather than a host of other potential reasons. It also appears that there are still many physios who think perfect posture, correct form, and flawless lifting technique is the solution to preventing all back injuries despite no evidence to support this.<sup>5</sup>

These beliefs and attitudes continue to highlight the poor training and education that many physios get about the complex and multifactorial causes of pain, pathology, and injury and demonstrate their ignorance of how complex and variable human movement is.<sup>6</sup> All human activity is a dynamic system that is governed by, but not limited to, the individual, the task, and the environmental factors, with a major key factor being the intensity of a movement, be that its speed or its load.

It is both impossible and inadvisable to use the same movement strategy when the intensity of a task increases. For example, we would not advise someone to jog the same way they sprint as the different intensity of these tasks requires different movement strategies. We should also not expect someone to lift a heavy weight the same way they lift a light weight because the intensity of these tasks also requires different strategies.

Many physios regularly told me that my heavy lifting technique was 'poor', which was why I got injured. In addition, many told me that my lumbar spine went into flexion and that I should have lifted with a neutral spine as they demonstrate when lifting lighter weights.

However, lumbar spinal flexion has been shown to be unavoidable when lifting or exercising, with around 50-80% of maximal lumbar flexion occurring on tasks or exercises like deadlifts, good mornings, or kettlebell swings even when coached and trying to avoid it.<sup>7-9</sup> Heavy lifting has also been seen to be a very uncommon inciting event for disc herniations, with only around 6% being associated with heavy lifting tasks.<sup>10</sup>

Lifting with spinal flexion has also not been shown to be a significant causative factor of increased episodes of back pain or injury.<sup>11</sup> And finally, avoiding spinal flexion when lifting has not been shown to reduce the prevalence or incidence of low back pain.<sup>12</sup>

Yet despite this, many physios continue to blame back pain and disc injuries on spinal flexion during heavy lifting, despite it being unavoidable and not seen to be a causative factor.<sup>13</sup> This again highlights a lack of knowledge and understanding of normal spinal biomechanics, normal variations that occur with different movement intensities, and the multifactorial causes of pain and injury.

### Experience No 5: Some Physios Don't Really Like Self-Management

Finally, the last experience this episode has given me is the insight into just how reluctant and scared some physios are to promote self-management strategies to patients. The number of comments and messages I received during this episode telling me I need to be assessed and treated highlights how afraid some therapists are of being considered not essential or necessary when someone has an episode of back pain.

The fact is many, many people with back and radicular issues choose to or have to self-manage their pains and problems. Not everyone with pain or injury can afford the time or the costs to see a therapist 1, 2 or 3 x week for months for some pain neuromodulation treatment or corrective exercise sessions, nor do they need to.

Many musculoskeletal issues such as back pain follow a very similar path of improvement over time, regardless of what treatment approach they do or don't take.<sup>14</sup> As much as we don't like to admit it, natural history and a patient's social determinants of their health are the most significant factors influencing their recovery, not the type, frequency, or amount of physiotherapy treatment they do or don't receive.<sup>15</sup>

However, this doesn't mean that people in pain or with disability don't need our help or that we are not helpful, far from it. Just that we must start to accept and understand our role is not to fix, cure, or heal people in our isolated clinical settings, but rather to support, reassure and guide people back to where they want to be in more broad and easily accessible ways. 🧩



**Adam Meakins** is a Physiotherapist and Strength & Conditioning Coach working in the NHS and private practice in the UK. He has worked in many roles throughout his career, including professional sport and has been fortunate enough to work with and learn from some of the world's leading experts.

Adam has lectured for Brunel University on their undergraduate physiotherapy program and teaches his own highly acclaimed international workshops across the world. Adam is also actively involved in several clinical research projects and has published papers in numerous peer-reviewed journals, as well as authored a chapter for the latest edition of the best-selling *Brukner & Khan's Clinical Sports Medicine*.

Adam is also one of the most followed clinicians across all social media platforms known for his strong views, opinions and occasionally stronger language.

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# Transactional Healthcare and Persistent Pain

**There is a growing body of work in academia,** research, and healthcare to better understand persistent pain and its impacts. While this work is encouraging, what does it mean for those that live with persistent pain? To best answer this question, we need to understand what persistent pain is and consider it from the perspective of those that live with pain.

The World Health Organizations' 11<sup>th</sup> revision of the International Classifications for Diseases (ICD) defines chronic or persistent pain as "pain that persists or recurs for longer than 3 months. Chronic pain is multifactorial: biological, psychological and social factors contribute to the pain syndrome."<sup>1</sup> To understand the extent of persistent pain in Canada, the Canadian Pain Task Force's October 2020 report estimates that one in four people the age of 15 or older lives with persistent pain; that is approximately 7.6 million Canadians.<sup>2</sup>

While every person's pain experience is different, there are foundational commonalities to most experiences. To best understand the impacts of persistent pain, we must consider the lived experiences of pain.

I am one in four that live with persistent pain.

My experience began in August of 1986 from a single-vehicle, lone occupant near fatal motor vehicle accident in central British Columbia. I was 16, and after a night of alcohol consumption and very little sleep, I got behind the wheel of my 1972 Plymouth Duster to drive

back to town from the remote campsite I was at. I didn't make it; I fell asleep and left the highway while still more than thirty kilometres from town, rolling my car end over end down an elevated bank of the highway. I had only put on the lap belt and didn't attach the separate shoulder restraint. As a result of being asleep, I slipped down in the seat and the significant force of snapping back and forth over the lap belt as the car rolled caused extensive abdominal trauma. Internal organs were torn apart, and I was losing most of my blood volume due to internal bleeding.

My accident was witnessed; otherwise, I would have died at the bottom of that bank, alone, on that August morning as my car could not be seen from the highway. Through a series of fortunate events, I was transported to the hospital, where I underwent seven hours of emergency surgery and spent ten days in the intensive care unit before being moved to the ward. The surgeon told my parents that despite the trauma, I was going to live but that I would have problems later. Little did any of us know what those problems would be.

Over the next few years, I underwent multiple surgeries involving the reversal of the temporary colostomy, multiple surgeries for bowel obstructions, a large abdominal wall hernia repair with mesh, and had ongoing pain. Through all of this and despite all the surgical interventions to address the broken and damaged parts of my body, the pain remained constant.

Despite surviving the trauma of a near-fatal car accident, after being released from the hospital I was never offered any follow-up resources, no physical or psychological therapy. I was left on my own.

This was my introduction to a life of persistent pain and the challenges that accompany this. In 35 plus years of living with persistent pain, I have had 20 surgeries, dozens of emergency room visits, multiple hospital admissions, and numerous pain interventions. These resulted in dozens of healthcare system and individual healthcare provider interactions. These interactions have ranged from a few particularly good experiences to many extremely poor experiences; the majority have simply been functional.

To understand the challenges of living with persistent pain, we must understand the complexity of pain. To that end, we return to the ICD definition that notes persistent pain is multifactorial and that biological, psychological, and social factors contribute to pain. It is important to note that biological factors are only part of the pain experience, and I would offer that psychological and social factors play a critically important part in one's pain experience. This is not only my own experience but is something I have heard repeatedly through my advocacy work.

One of the most significant issues in healthcare is the lack of compassion. Healthcare systems are structured to diagnose, treat, and discharge people. Typically, patients, as human beings, are not the focal point of health care provider interactions; only their symptoms are.

Patients' lives are often reduced to the words in their medical charts.

Healthcare is highly transactional, reductionist, and often leaves patients feeling less than who they are. Healthcare is not person-centred.

*To understand the challenges of living with persistent pain, we must understand the complexity of pain.*

One can debate the complexities of healthcare systems as large bureaucracies, but unless we are willing to have open, honest, and difficult conversations, these necessary changes will never occur. This is not new to healthcare; Canadian physician William Osler, who practised in the late 19<sup>th</sup> and early 20<sup>th</sup> centuries, identified this, noting that “it is much more important to know what sort of a patient has a disease than what sort of disease a patient has”<sup>3</sup>. Dr. Osler identified the concept of person-centred care over 100 hundred years ago, yet healthcare continues to struggle with an appropriate person-centred framework. In Dr. Osler's time, the standard doctor-centred model considered doctors at an elevated status as “patients did not expect, nor were they expected, to actively take part in the history-taking process, as their health was totally in the hands of their physician”<sup>4</sup>.

In the last 100 years, little has changed in this regard.

While this applies to healthcare in general, it is very prevalent concerning those that live with persistent pain. As most persistent pain cannot be quantified by a set of lab tests or medical images, this often leads to patients being dismissed or stigmatized.

Recently, I had lunch with Paul Ingraham. Paul is the publisher of [PainScience.com](http://PainScience.com) and is well known internationally for his science-based knowledge and research on pain. In our conversation, he said that “healthcare doesn't do subtle well.”

I would offer that a tenet of effective healthcare is communication, specifically narrative medicine. This emerging field “proposes that patients can be treated correctly only when they can tell the story of their illness”<sup>5</sup>. Patients need space to tell their stories and to be heard.

One of the pivotal moments for those living with persistent pain is the validation of their pain. Through my own experience and my advocacy work, this is the number one act that those living with persistent pain seek, often without knowing it. When I was 19 or 20 years old and still early in my pain journey, after multiple surgeries to repair various biomedical issues, I met with my family physician to explain to him that despite all the surgeries I still had ongoing pain. He told me this was impossible as the surgeons had fixed everything, and it was all in my head.

That statement floored me. Not only was my pain immediately dismissed, but I also left wondering what was so wrong with me to be making this all up. Yet the pain felt real, and it limited me in what I could do. I was confused and angry. I was angry at myself as I thought I wasn't trying hard enough to get better, but I was also angry at the healthcare system for not trying hard enough to fix me. I believed I needed the right surgeon to find what the others had missed, but this conflicted with the anger I had for myself for not being stronger and working harder to get over this.

For years this anger and confusion continued as I searched for different health care providers to provide the right intervention. Meanwhile, I kept pushing harder and harder to do things to prove to myself and others that my car accident was not going to define who I was, that I was more than my pain, and that nothing was going to hold me back. As a result, I kept putting myself into situations that only increased my pain. These situations were both physically and psychologically negative, but I had no understanding of the role that psychology had in my pain.

Other than biomechanical interventions, no one had offered any support. The system was diagnose, treat, and discharge.

Persistent pain is not solely a biological or biomechanical issue as the psychological factors often play a greater role in one's pain, yet this is all too often overlooked or, worse yet, dismissed.

The turning point for me occurred 18 years after my car accident. After multiple paravertebral nerve block injections, which were not very effective and with the last treatment causing a partial left pneumothorax, the physician ended the treatment. Then, in an offhanded way mentioned that I may want to consider "something called spinal cord stimulation." The physician's less than supportive endorsement and the words "spinal cord" did not instill confidence in me. However, after a lot of discussion with my wife, we agreed we needed to try this as nothing else was effective.

During the initial intake process, which is highly rigorous as they need to determine if people are suitable candidates, I was once again reciting my medical history by rote and was rather disengaged in the process. I had done this numerous times. Partway through the history, I realized the doctor had stopped writing and had put his pen down. I cautiously looked over at him thinking that I had already "failed" the intake like I had failed so many other interventions and treatments, and I was steeling myself to be told that this was not going to be an option. Instead, he looked at me for a moment and then said five truly life-changing words.

"It's okay, we believe you."

Finally, validation. I was believed.

Until then, the pain that I lived with every single day, which I learned to carry around with me and push into corners of my mind so I could get through each day and try to be as normal and as productive as others, was validated. That moment was the start of the end of my anger.

Many people living with pain learn to put on a mask of normalcy each day to feel like they are part of regular society. However, this is often a catch 22 because they are told by health care providers that they look fine or that they do not look like they are in pain, so it cannot be that bad. However, if they wear their true expressions, they are often told that, again, it cannot be that bad, they are making it out to be worse than it is, or they are attention or drug-seeking. It is exhausting trying to navigate a healthcare system that is transactional and does not truly consider the person in front of them.

One of the greatest interventions a health care provider can offer a person living with persistent pain is validation. To do this, one needs to consider their patients as human beings while they are trying desperately to live their lives the best they can. 🧩



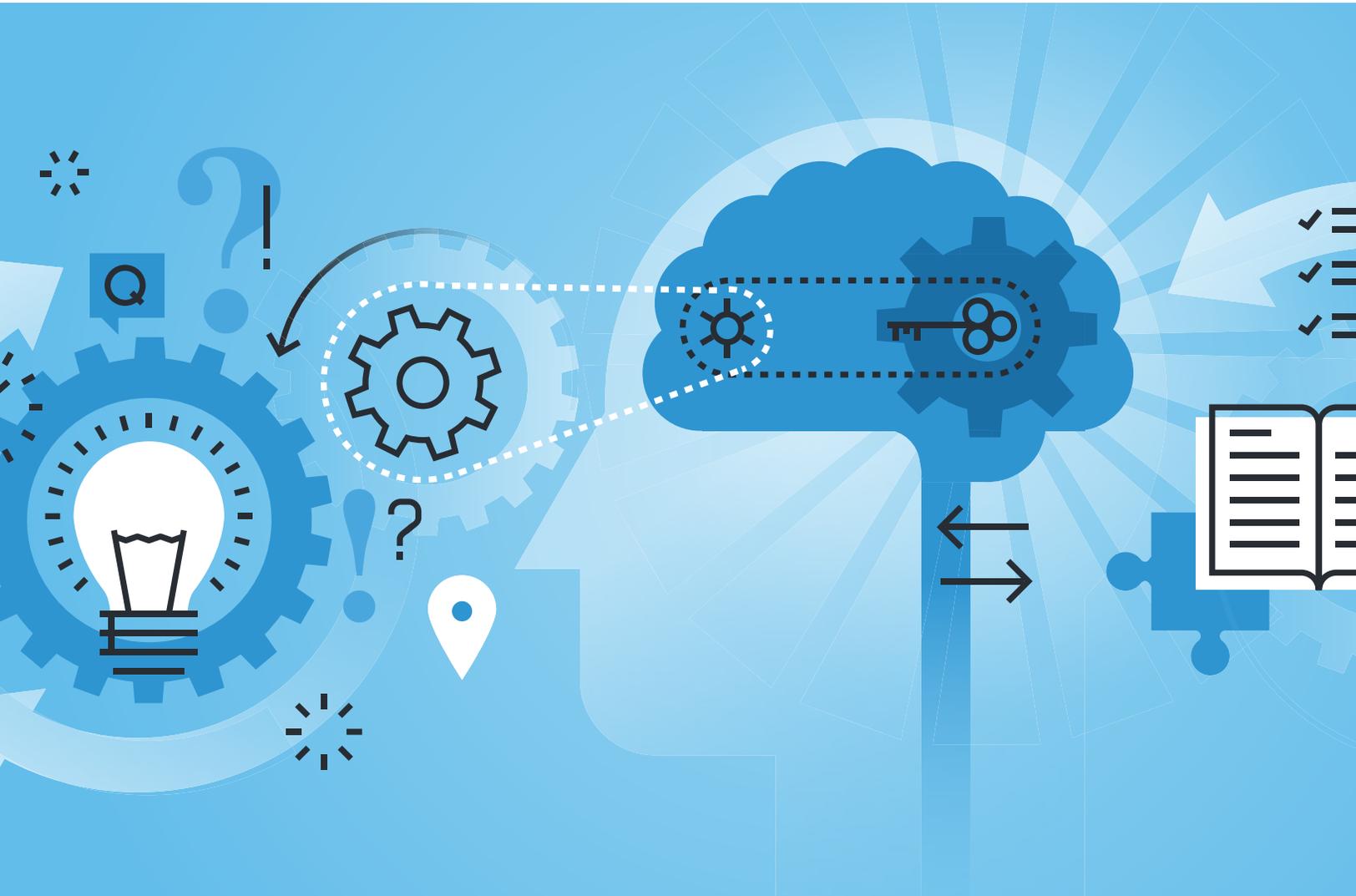
#### Keith Meldrum, ASCT, RTMgr

Keith has lived with persistent neuropathic pain for over 35 years following a near-fatal car accident at the age of 16. He has had multiple surgeries and numerous pain management interventions, most of which were unsuccessful until he received a spinal cord

stimulator in 2005. After experiencing years of dismissiveness, stigmatization, and disbelief by the healthcare system, Keith focused his energy on persistent pain advocacy. Over the last ten years, Keith's advocacy efforts have involved being the Vice-Chair for Pain BC, a founding member of the International Association for the Study of Pain's Global Alliance of Partners for Pain Advocacy, presentations at international pain education conferences, pain education class presentations, guest lectures at universities, and most recently a published researcher. When not focusing on his advocacy efforts, Keith is a civil engineer technologist and vice president of a heavy civil construction company in Kelowna, BC.

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# Chronic Pain Placement Experience from the Perspective of a Student

**This is a personal experience piece** describing my knowledge of chronic pain as a student and how it evolved throughout my placement working with this client/patient population.

As a student, I had the opportunity to do my final placement at The Ottawa Hospital Rehab Centre in the outpatient complex care unit. This unit sees patients with complex chronic pain, burns and CRPS. In school, these topics were all taught to us in terms of etiology, presentation, and treatment; however, I soon realized when starting this placement that we are taught a very linear approach to understanding and treating these patient populations. I quickly became aware that there was a gap in my knowledge around the complexity and diversity of pain production and consequent treatment plans.

When I first heard the term “chronic pain”, I understood it to be when someone was dealing with pain from a previous injury that never completely healed and resulted in reoccurring pain. I associated pain with some form of noxious stimulus or tissue damage. However, upon beginning this placement, I was overwhelmed with new knowledge and research and quickly realized I had to broaden my views of pain production and modulation.

While at this placement, I had the wonderful opportunity to learn from Janet Holly, a clinical specialist in pain science, who taught me that chronic pain could be tied to, traumatic events or stressful periods in a person’s life where no physical damage occurred. Therefore, no matter what manual therapy or exercise techniques are provided or taught to a client/patient, their pain will return because its driving force has not been dealt with. Another population I worked with where pain is not necessarily associated with tissue damage is in clients/patients with CRPS. This population did at some point undergo physical injury that has now healed; however, for a multitude of possible different reasons, the brain has rewired any form of stimulus in the old area of injury to be interpreted as noxious stimulus. The more that neural connection is strengthened, the lesser the stimulus is required to be to set off that pain signal in the brain, and therefore this population deals with severe pain even though there is no damage or injury causing it. Working with both populations gave me the much-needed opportunity to better understand pain production and learn and practice treatment techniques that are unique to them.

Looking back on my experience, I realized that the area of chronic pain and related diagnoses is unfortunately undertaught in school yet, is something that we, as physiotherapists, frequently come across in practice whether we realize it or not. Therefore, in schools, more focus should be placed on the brain’s interpretation and connection to pain rather than the pain and injury connection we may have ingrained in our minds. The fuller a physiotherapist’s understanding of chronic pain and treatment is, the better we can change the approach and mindset to its treatment. Not only do we as physiotherapists need to widen our knowledge on this topic to treat these populations better, but we also need to aid in disseminating all the aspects of pain production. The more other healthcare professionals understand that pain is not necessarily connected to a physical injury, the better this population will be treated. The better the public’s understanding of what can drive pain, the better they will be able to manage their symptoms and conditions and will not feel as hopeless, unheard, or dismissed.

My biggest takeaway from this experience was the extent to which mental health could affect physical health, and it is something I have brought with me into starting my physiotherapy career. 🧩

*My biggest takeaway from this experience was the extent to which mental health could affect physical health, and it is something I have brought with me into starting my physiotherapy career.*

Since this placement, I have been starting discussions with my fellow colleagues in order to shift perspectives in treating chronic pain in hopes that these discussions continue to grow an understanding of the gap in our field and promote further research and focus in schools.



**Chloe Paradiso, Physiotherapy Resident**  
BSc Kin, MSc PT, CPA member since 2019

Hello, my name is Chloe Paradiso, I am from Victoria, BC and completed my undergraduate degree in Kinesiology at the University of Victoria. I am a recent graduate from the

University of Ottawa Masters of Physiotherapy Program, and I am currently a physiotherapy resident at The Ottawa Hospital – Civic Campus. In my free time I enjoy hiking, camping, running, ballet, and baking.

# Working Together to Advance Pain Education in Physiotherapy, from the Perspective of Graduate Students



## Have you ever treated someone living with chronic pain?

If so, you probably have felt that it can be quite challenging to make sense of complex pain and that it can be tricky to provide adequate treatment. You are not alone in this, many physiotherapists (PTs) report similar concerns when seeing people living with pain. Research shows how entry-level training can play a big role in knowing how to support people living with pain. In this article, we share with you how our team is working to improve pain management training across Canadian physiotherapy (PT) programs so that future PTs are fully prepared to help people living with pain.

## Introducing the PEP project

The Pain Education in Physiotherapy (PEP) project is a national initiative that aims to improve how PT students learn about pain management across Canada. This project is fueled by the ongoing engagement from members of different stakeholder groups, including people living with pain, pain educators, and recent PT graduates. Over

the last eight years, the PEP project has formed the PEP Curriculum Initiative to promote and facilitate a community of support for pain educators in entry-level PT programs in Canada and help identify and implement priorities for advancing entry-level pain education for PTs across the country.

More recently, the PEP project has surveyed Canadian PT programs, which shows discrepancies in how much and how well students are trained to manage pain. Overall, it looks like we could improve the time and resources dedicated to teaching students about pain management. By doing so, graduating PTs will be better prepared to manage pain and people living with pain will be able to access high-quality pain management more efficiently. We are Emilie and Nathan, two graduate students working on this initiative, and we would like to share our work with the PEP team towards the goal of improving how PT students learn to manage pain across Canada. Our experiences as graduate students will give you an insider view of some of the exciting projects we are working on!

### **Nathan's experience**

#### *Creating a guide for pain management education*

In clinic, building a treatment plan usually involves deciding on a SMART goal with your patient (let's say, to go for a 2km walk at an easy pace in 6 weeks). Similarly, to resolve the differences in how PT students learn to manage pain across Canada (i.e., our treatment plan), we would need to have a clear goal in terms of pain management education to know what we are working towards. Therefore, as part of my doctoral research, I have been working with the PEP team to define what PTs should be able to do, regarding pain management, upon completing their degree (i.e., our SMART goal).

With that in mind, we have developed a document that summarizes the competencies that we consider essential to manage pain – the PEP competency profile – and we went through a voting process to ensure that university-based and clinical pain educators in Canada were satisfied with it. This profile describes 15 competencies that key stakeholders in the field endorse– you can read the full study in the Canadian Journal of Pain. Based on that work, we now have a clear idea of what we want PT students to be able to do by the end of their degree (in terms of pain management). Having specific pain management competencies will also make it easier to include them in entry-level PT programs across Canada and help resolve discrepancies in how PTs are trained to manage pain.

#### *Understanding where we stand*

Now that we have a specific and measurable goal, it is important to know how far we are from achieving it. Having a good understanding of where we stand is essential to building an effective plan to achieve our goal. If we take the clinic analogy further, you would probably like to know how far a patient can walk before deciding the best way to build towards their SMART goal (walking 2km at an easy pace in 6 weeks). You could also use this baseline assessment to get a sense of how long it might take or how much work is required to get there.

The same idea applies here, so we are conducting a national survey to understand how each entry-level PT program in Canada is doing in relation to the PEP competency profile. In addition, we are asking university-based pain educators to share what content they teach for each competency and the strategies they use to teach and evaluate it. On top of that, we are looking at how well they think this content prepares students to manage pain when they graduate.

Once we have completed this project, we will have a clear “baseline assessment,” highlighting the areas that we need to work on to improve how PT students learn to manage pain. And this feedback will be tailored for each program, as we know that there are differences in how PT students learn about pain management across the country. As a result, it will be much easier to design individualized interventions to improve the quality and consistency

of pain management education.

#### *Removing barriers to change*

Once you have a SMART goal and a baseline assessment, the next step would usually involve looking at what would help or prevent your patient from reaching their goal. (Is it pain? Is it a lack of strength? Is it that they have to stand for 4 hours at work?) We plan to use the same process by asking pain educators and directors from Canadian PT programs what factors they think would help or slow down the integration of the PEP competency profile in their program. If we understand these factors, we can consider them and start thinking about the best ways to address them. This step aims to help speed things up and make it easier for everyone involved in this project. Our goal is also to make the integration of the PEP competency profile more likely to succeed, which would mean that PT students will be better equipped to manage pain when they graduate and that patients will be able to access high-quality pain management anywhere in Canada.

#### *Overall experience*

My experience working as part of the PEP team has been very positive. As soon as I started my PhD, I was integrated within existing projects to get acquainted with the different stakeholders and team members. Over time, I have been working more closely with some of the team members and started taking the lead in several projects. Perhaps my biggest takeaway from being part of the PEP team would be the value of working with end-users (e.g., people living with pain or pain educators) from an early stage in the research process. It can be quite challenging and time-consuming to navigate the dynamics of working with different groups of end-users. But, by doing so, we end up with research that makes sense and findings that are directly applicable to the end-users. I think it is worth the added effort, and it can be very motivating to see people from different backgrounds and profiles working together to achieve the same goal!

### **Emilie's experience**

#### *Patient partnership in curriculum design*

I am a graduate student at McGill University, and I am so excited to join the PEP project, as I will be exploring how to involve people living with pain in PT pain education in Canada. We aim to include people living with pain in education, to help PT students gain a deeper understanding of what it is like to live with chronic pain. In partnership with people living with pain and pain educators from PT programs across the country, we will design and test an educational intervention that teaches students about the lived experience of pain to prepare them to work with people with chronic pain.

Unfortunately, people living with pain often feel that their pain is invalidated by people around them, including their health professionals. This makes it difficult for health professionals to build a strong relationship with

*The Pain Education in Physiotherapy (PEP) project is actively working on improving how PT students learn to manage pain, so that graduating PTs are fully prepared to manage pain and can hit the (clinical) ground running.*

their patients and provide successful treatment. We can link this invalidation to the fact that pain is invisible and impossible for others to fully understand how one experiences pain. We aim to combat this issue by involving people living with pain in the education of future health-care providers, as they understand their pain better than anyone else and can help teach students what it is like to live with pain. This intervention will feature people living with pain describing their experience of pain and will also allow students to have a conversation with a person living with pain, during which they will practice strategies that are crucial for working with patients, such as showing empathy, effective listening and communication, and building a therapeutic alliance.

The project is in the early stages, and planning has been very educational and exciting. The first steps involved researching and reading what is already known about the lived experience of pain and having conversations with our stakeholders about what this project will look like. To create an educational intervention, we first need to ask, “What about living with pain is important to teach PT students?”. We plan to answer this question through small group discussions and rounds of voting by a diverse group of Canadians living with pain. Then, we need to determine how to structure and design the teaching intervention by asking, “How will we teach them about living with pain?” and “How will we integrate skill development so they can become better clinicians?”. We will answer these questions, and others, through meetings and discussions with PT educators, who will provide expertise on teaching and educational curriculum, as well as people living with pain, who will help determine how to best integrate patient partners into the intervention. After these questions have been answered, we will create the educational intervention and implement it in a few PT programs in Canada.

After this project, we expect to see that PT students will have a deeper understanding of the lived experience of pain. In addition, this educational intervention will allow them to more easily empathize, build a therapeutic alliance with clients and provide high-quality care to people living with pain. I cannot wait to see how this project evolves and changes throughout its development and how all the team members involved, with

varying backgrounds and perspectives, contribute to this ground-breaking project.

We know that managing pain and teaching about pain management can be quite tricky. The PEP project is actively working on improving how PT students learn to manage pain, so that graduating PTs are fully prepared to manage pain and can hit the (clinical) ground running. So far, we have designed a “SMART goal” by establishing what pain management competencies are essential for PT students. We also recently started our “baseline assessment” of PT programs to understand the areas that require our input. The next steps involve uncovering the different factors likely to influence the integration of the PEP competency profile and exploring strategies to help teach students about pain management, such as involving people living with pain. We expect this project to result in having more accessible, high-quality pain management for people living with pain. If this work resonates with you, feel free to keep an eye out for upcoming projects from the PEP group! 📌



**Nathan Augeard** is a physiotherapist in Quebec and a PhD student in Rehabilitation Sciences at McGill University. Prior to undertaking his PhD, Nathan earned an MSc in Advanced Practice and a BSc (Hons) in Physiotherapy from Glasgow Caledonian University (Scotland). He is also the founder of Physio Connection, a Canadian network aiming to connect people living with pain with qualified physiotherapists. Nathan’s research focuses on improving how physiotherapy students learn to manage pain across Canadian universities.



**Emilie Houston** is a Master’s student in Rehabilitation Science at McGill University. She holds a BSc. in Biomedical Science from the University of Guelph, where she researched assessment during distance learning. Emilie is part of the scholarship of pain education project with PEP, with a research focus on how to involve people living with pain in physiotherapy education. She is passionate about education, and also tutors high school-level mathematics and sciences.



# Maximizing Endogenous Modulation of Pain Through Conservative Treatment

**Musculoskeletal (MSK) pain-related disorders** are global leaders in years lived with disability and are a primary driver of noncommunicable disease-related disability burden.<sup>1</sup> These facts are more alarming, considering that the reported numbers are known to be underestimated.<sup>2</sup> Yet despite this evidence, prioritizing comprehensive strategies to manage the burden of MSK pain-related disorders continues to be overlooked by healthcare systems. There has been progress in recent years in the recognition of the magnitude of the burden of MSK disorders both globally and nationally, due in part to evidence from the Global Burden of Disease Studies,<sup>3</sup> the inclusion of chronic pain in the International Classification of Disease (ICD-11),<sup>4</sup> and the tireless efforts of the Canadian Pain Task Force to improve the quality of care and quality of life for the 8 million Canadians impacted by chronic pain.<sup>5</sup> Pain and its associated disability is the main sequelae for most MSK conditions and the reason that many of our patients seek care from a physiotherapist. However, for many living with an MSK condition, the complexity of pain and current options for conservative management offer limited relief.<sup>6-8</sup> As primary care providers and experts in MSK pain, physiotherapists are well positioned and well equipped to be part of the solution. Knowing that our management strategies may not afford relief for all, it is of utmost importance that we address the complexity of an individual's pain by approaching it from all available angles, meaning identifying and targeting top-down and bottom-up inputs to maximize

effectiveness. This commentary is not meant to debate the value of minimizing pain over maximizing function in people living with chronic MSK pain and will focus on strategies to address improving assessment and management of chronic pain.

It has been well established that pain is multidimensional, shaped by biological, psychological, environmental, and social factors.<sup>9</sup> In speaking with colleagues who teach entry-level pain content in physiotherapy programs across Canada, this multidimensionality is commonly framed within the biopsychosocial model of health<sup>10</sup> and our current theoretical understanding of pain supported by Melzack's Neuromatrix theory.<sup>9</sup> Melzack's theory includes components known as cognitive-evaluative, sensory-discriminatory and motivational-affective traversing the peripheral and central nervous systems. As clinicians, it may be helpful to further think of these components as those providing bottom-up i.e., sensory input from the peripheral (PNS) or central nervous system (CNS) (think biological/environmental) and top-down i.e., attentional/emotional modification (think psychological, social, environmental, and spiritual). However, evidence indicates that as clinicians, we are still more comfortable with the 'bio' and less so with the 'psychosocial',<sup>11,12</sup> despite our best efforts to provide entry level students with tools to address all aspects. Two Canadian pain educators, Dr. Yannick Tousignant Laflamme from the Université de Sherbrooke and Dr. Dave Walton from Western University, have published models [here](#) and [here \(link to Dr. Wal-](#)

## Exercise therapies are considered the first line of care for chronic musculoskeletal pain

[ton's lab for an introductory video](#)) which provide tools for clinicians to assist in the identification of an individual's factors or drivers, contributing to their pain. Importantly, both models recommend and require the use of multiple assessment tools that include top-down and bottom-up mechanisms, having the potential to influence an individual's pain. Collectively they are used to generate an accurate clinical profile of a person's pain. Using either Dr. Tousignant Laflamme's Pain and Disability Driver Management model for low back pain<sup>13</sup> or Dr. Walton's pattern recognition approach for people in pain,<sup>14</sup> clinicians are provided with a broad clinical picture of multidimensional pain-related factors and can then plan and prioritize an individual's treatment accordingly.

Assessment of bottom-up drivers predominantly includes nociceptive input that is commonly mechanical or inflammatory in nature; nervous system dysfunction such as neuropathy or radiculopathy, and sensitization at the level of the PNS or CNS; the presence of widespread pain or multiple painful MSK disorders. Top-down drivers to be considered are maladaptive cognitions manifesting as negative pain-related beliefs such as catastrophizing, fear, poor self-efficacy, and coping skills. Emotional drivers also exert a top-down influence and are often related to negative moods such as anxiodepressive symptoms or other psychopathologies. When distinguishing between cognitive and emotional factors, it is important for the physiotherapist to recognize limitations in their scope of practice. Physiotherapists can appropriately address negative thoughts and beliefs using behavioural approaches to modify them (see below); however, addressing emotional or psychopathology issues is not in our scope of practice and is best treated by mental health professionals. Our role is to screen for significant emotional drivers and refer on as necessary. Other top-down drivers include environmental factors such as a person's social context encompassing family or support networks, culture, gender, early life adversity, health care access, and employment. For cognitive and emotional drivers, there are several well validated patient reported tools that clinicians can use to inform a global picture of an individual's pain (e.g. Pain Catastrophizing Scale, Tampa Scale of Kinesiophobia, Hospital Anxiety and Depression Scale, Pain Self-efficacy Scale). However, there are relatively fewer when it comes to shaping a socioenvironmental profile. This is where skills in motivational interviewing are valuable to gain an understanding of each person's particular context and how their specific issues may be contributing to their pain. Motivational interviewing also helps build therapeutic

alliance which has been shown to be an important factor in the therapeutic encounter.<sup>15</sup> These bottom-up and top-down inputs are not an exhaustive list but do cover commonly experienced aspects with known associations and influence on pain. Obtaining a comprehensive picture for each patient may take more time than available during the initial visit. Once completed, the physiotherapist's task is to identify which drivers appear to be having the largest impact for that individual and prioritize treatment accordingly. Several strategies are available to address many of the issues listed; however, we are limited in what we can discuss here. Accordingly, we have chosen to focus on a strength in our toolbox, exercise.

Exercise therapies are considered the first line of care for chronic musculoskeletal pain.<sup>16,17</sup> In healthy populations, exercise often leads to exercise-induced hypoalgesia (EIH).<sup>18,19</sup> There is also some evidence to suggest that exercises with greater duration and intensity are more likely to produce greater EIH.<sup>19</sup> However, the literature is scarce for persons with chronic pain, with some evidence suggesting that the response to both acute and chronic exercise is variable. Acute exercise can often instigate painful episodes, called exercise-induced pain (hyperalgesia).<sup>18,19</sup> In fact, pain exacerbation with exercise has been reported as a significant barrier to uptake or adherence to physical activity and has been associated with deconditioning, fear of movement and pain catastrophizing.<sup>20,21</sup> Nevertheless, there is some evidence to suggest that in persons with chronic pain, acute exercises with lower intensity generate better EIH<sup>22</sup> and that the cumulative effect of exercise (chronic exercise) leads to EIH and less pain response to acute exercise, likely through widespread adaptations in the central nervous system, resulting from bottom-up modulation such as decreased pain sensitivity.<sup>18,23,24</sup>

Graded activity is a form of exercise therapy that is most commonly used to manage chronic musculoskeletal pain. Graded activity was developed within the biopsychosocial model<sup>25</sup> and integrates concepts of modern pain theory, such as the importance of top-down modulation.<sup>26</sup> A primary goal of the program is to increase activity tolerance by performing individualized and submaximal exercises<sup>27</sup> in addition to addressing psychosocial factors associated with the pain. Cognitive-behavioural principles are used to address individual modifiable psychosocial factors such as self-efficacy, pain-related fear, and kinesiophobia.<sup>28-30</sup> The activities in the program are progressed in a time-contingent manner (despite pain)<sup>29,31,32</sup> and patients receive daily quotas and

are instructed to only perform the agreed amount, not less or more, even when they feel they are capable of doing more.<sup>33</sup> The balanced process of progressing physical function while using cognitive and behavioural therapy principles, is suggested to modulate both bottom-up and top-down inputs. For instance, submaximal exercise has been found to generate better EIH observed through an increase in pain pressure threshold.<sup>19,34</sup> In addition, the use of quotas and pacing allows patients to maintain a level of physical activity that is unlikely to lead to a flare, which should ultimately lead to improved confidence through a positive experience. In fact, in the early stages of graded activity, the goal of the intervention is for the patient to achieve this positive experience, which has been found to be a significant factor associated with EIH.<sup>18,19</sup> As the intervention progresses over time, and activities are slowly progressed, it is important that patients continue to develop a sense of achievement with positive reinforcement. Through a gradual increase in physical activity and subsequent development of endurance, strength and tolerance, participants can become more active while at the same time avoiding pain exacerbations.

Psychosocial factors have long been recognized to contribute to the experience of pain and can affect EIH. Pain catastrophizing, kinesiophobia, and mood disturbances have been found to negatively influence EIH leading to an increase in perceived pain during exercise.<sup>18,35</sup> It has been reported that people who perceive exercise as potentially harmful and have fear of movement might respond differently to exercise. Therefore, the use of graded activity with controlled exposures has the potential to allow persons with chronic pain to reappraise the threat value that they associate with pain and movement.<sup>36</sup> In fact, psychological factors such as pain catastrophizing and pain self-efficacy have been found to mediate the effects of chronic pain interventions such as exercise, meaning improvements in pain and function are linked to changes in psychosocial factors.<sup>37,38</sup> Thus, it is important that physiotherapist's properly address psychosocial factors while treating patients with chronic pain. Psychosocial factors associated with pain are highly intertwined and function together.<sup>39</sup> According to Linton et al,<sup>39</sup> there are four main factors associated with the psychological pain process:

- Attention (i.e., rumination)
- Cognition (i.e., catastrophizing, negative thoughts, and beliefs)
- Emotions and emotion regulation (i.e., fear of movement, anxiety, and depression)
- Overt behaviour (i.e., avoidance behaviour)

Each of these factors can be addressed using specific treatment strategies such as distraction techniques, pain neuroscience education, graded activity, and graded exposure. In particular, graded activity incorporates important features such as pain neuroscience education, positive reinforcement, and controlled exposure to address psychological factors leading to improved function.

There is also growing evidence for the use of self-management for the long-term management of chronic MSK pain.<sup>40</sup> Self-management refers to the ability of an individual to actively monitor their health and act on the behavioural, cognitive, and emotional factors required to maintain their health. To self-manage, a patient needs to reflect on their pain and their lived experience and identify their individual strategies that can be used to manage their pain. For example, patients are encouraged to identify triggers of pain and or flares, learn to anticipate them, and use strategies within their toolbox to prevent or manage it. Further, mindfulness has been identified as an effective strategy to manage chronic pain<sup>41</sup>, where individuals learn to replace the focus on pain by noticing intrusive thoughts and paying attention to bodily sensations. Pain is known to trigger the sympathetic nervous system, resulting in wide-ranging effects including increased muscle tension, heart rate, and pain sensitivity to name a few.<sup>42</sup> However, using mindfulness, people can alter negative thoughts and encourage activation of the parasympathetic nervous system to counteract the impact of pain. Focusing on what we can do rather than what we can't, using deep, controlled breathing, relaxing tense muscles through body scanning, and engaging in gentle movement practices like yoga or tai chi can help do just that. With these approaches we decrease the attention to pain, learn to accept uncomfortable sensations, and help reset our nervous system response to be less reactive. With practice this can lead to lower levels of pain and greater functional capacity. Like many of our techniques, these strategies will not be effective for all, but will be helpful for many. The key is making sure you take the time to gain a comprehensive understanding of your patient's pain drivers from the bottom-up and top-down. 🧘

*Through a gradual increase in physical activity and subsequent development of endurance, strength and tolerance, participants can become more active while at the same time avoiding pain exacerbations*

**Lisa Carlesso, PT, PhD, CPA member since 1990, Luciana Macedo, PT, PhD, CPA member since 2016**



Lisa Carlesso is an assistant professor in the School of Rehabilitation Science at McMaster University with training as a clinical epidemiologist and a physical therapist. Her research program is broadly focussed on understanding the mechanisms and

consequences of musculoskeletal pain with a particular focus on osteoarthritis joint pain. Her research strives to optimize outcomes for people with chronic musculoskeletal disorders by understanding the complex mechanisms of acute and persistent pain through pain phenotyping to improve prognosis and treatment; using the understanding of endogenous modulation of pain to enhance conservative treatment options, and improving the clinical measurement of pain.



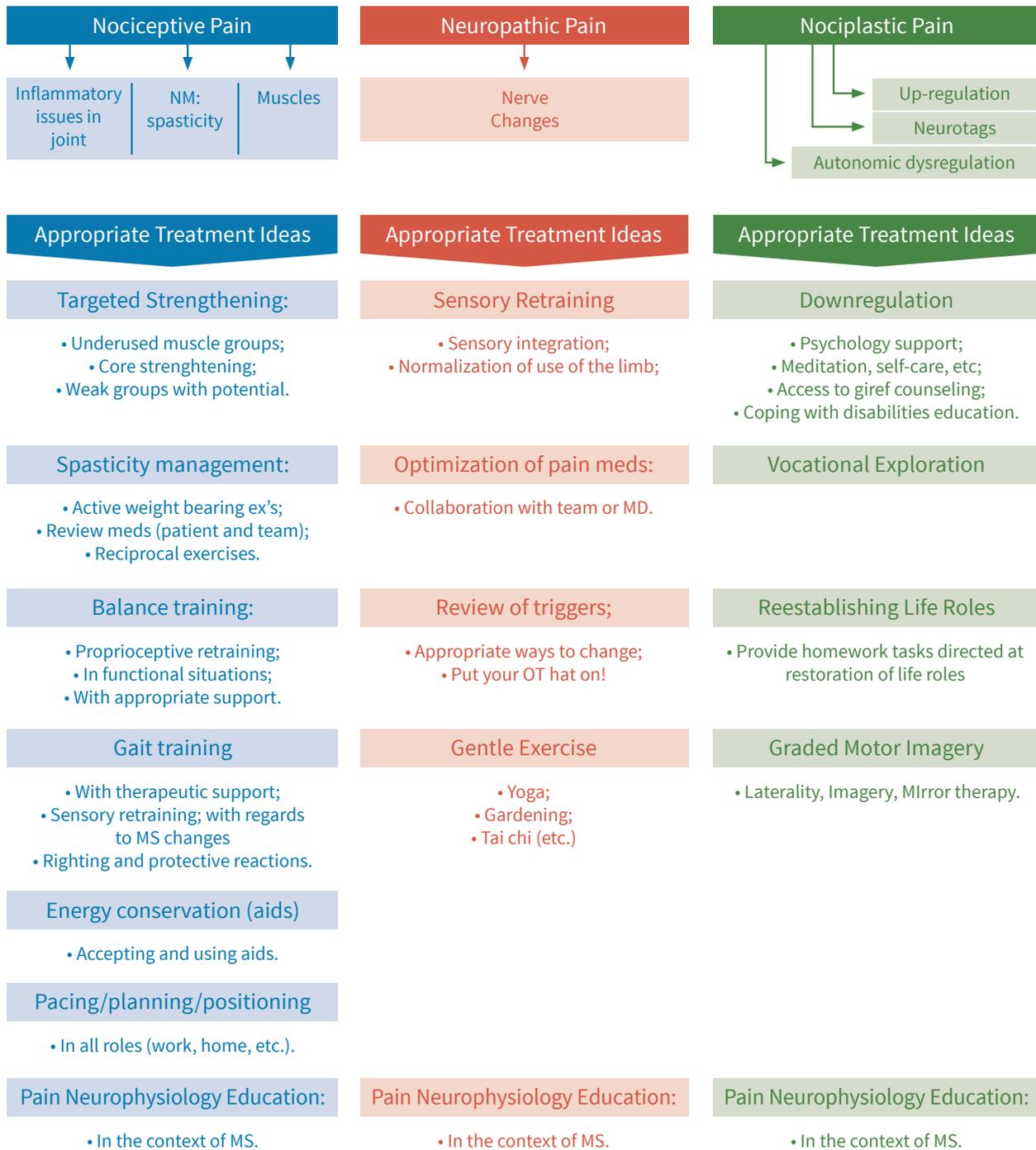
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her to conduct studies on the impact exercise therapists have on improving back pain, how different treatment strategies work for different patient subgroups with back pain, and the underlying mechanisms of pain and spinal disorders.

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# Is Your Pain Treatment Approach with MS Patients Broad Enough?



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## Practising Through a Trauma-Informed Lens: A Perspective from a Physiotherapist Who Works in Persistent Pelvic Pain

**When I came across the listing** for a physiotherapy position at the interdisciplinary “Centre for Pelvic Pain & Endometriosis (CPP)” program at BC Women’s Hospital & Health Centre in 2011, I had to pinch myself. All the things I was passionate about were combined into this one position: pain science, pelvic health, and interdisciplinary care. I was so grateful to be the successful applicant and believed my many years working as a physiotherapist in the areas of pelvic health and pain had prepared me for this role. However, I soon realized I was not adequately prepared to work with people who had been impacted by trauma.

### **Trauma and ACEs**

Trauma is subjectively defined and can occur when someone experiences a distressing event that involves a sense of loss of choice and control.<sup>2</sup> Traumatic events could include disrespect, disempowerment, unrelenting pain, power differential, fear for their safety or the safety of a loved one.

Trauma activates the nervous system into fight/flight or freeze- protective responses designed to help deal with a threat, leading to a heightened state of stress, anxiety, and fear. Symptoms of trauma may be unclear; flashes of images, feelings of panic can be difficult to conceptualize the experience. People can be triggered by sounds, memories, being asked to recall details of their trauma or when experiencing disrespect, pain, fear for their safety or a power differential.<sup>20</sup>

When someone is triggered, it can lead to feelings of overwhelm, anxiety and panic. People may respond in different ways to escape these feelings; aggressive behaviour (fight), avoidance/dissociation (flight) or becoming non-responsive, passive, unable to move (freeze). Similar patients' responses may arise during interactions with their physiotherapists.

Adverse Childhood Events (ACEs)<sup>6</sup> are defined as potentially traumatic events that occur in childhood (0-17 years). They may include violence, abuse, or neglect, witnessing violence, substance abuse, mental health problems and instability in the home or community, or having a family member attempt or die by suicide (CDC). Statistics worldwide show most people have experienced at least one ACE, for example, 61.5 % of Canadians<sup>12</sup> and 89.7% of Americans,<sup>13</sup> respectively. Exposure to trauma has neurological, biological, psychological, and social effects<sup>7</sup> and can have lasting detrimental effects on functioning and wellbeing. Exposure to ACEs is associated with an increased risk of multiple health issues emerging later in life, including cancer, cardiac issues, diabetes, mental health concerns and persistent pain.<sup>5,8</sup>

There are several examples in the literature that illustrate a link between trauma and pelvic pain. Krantz<sup>15</sup> found gynaecology patients with pelvic pain had a greater than 3-fold odds of having a history of childhood abuse or witnessing domestic violence during childhood when compared with controls. These patients had increased numbers of ACEs, and 53% had four or more ACEs, which has been found to predict poorer health outcomes. ACEs have also been linked to urologic chronic pelvic pain syndrome (UCPPS), being associated with more widespread pain, presence of comorbidities, perceived reduced well-being, as well as higher levels of depression, anxiety, perceived stress, and catastrophizing.<sup>18</sup> Piontek<sup>17</sup> found in their cross-sectional study that emotional maltreatment was highly prevalent in patients with chronic pelvic pain.

At the CPP clinic, our patients reported varied types of traumas, from physical assault and emotional maltreatment to experiencing or witnessing physical accidents. Many had experienced unstable housing, poverty, destructive relationships, and/or difficult childhoods. Some disclosed sexual assault, but they were not the majority. Overall, the theme was that the majority had felt unsafe a number of times in the past, with many still experiencing a lack of physical or emotional safety in the present.

I was shocked by some of the stories I heard in physiotherapy sessions and struggled as to how to move the discussion away from trauma. I didn't want my patients to feel unheard, but at the same time, I knew I was not a trained trauma therapist and that my skills as a physiotherapist were not being utilized to their full extent. I was feeling drained, helpless, and vicariously traumatised by some of the tragic stories I was hearing, which I have since learned is a common challenge that pelvic physiotherapists encounter.

### Medical Trauma

People may experience trauma in the medical environment; birth, surgery, procedures, and other healthcare interactions can be perceived by some as traumatic. Pelvic pain affects up to 15-20% of people who experience pain in the pelvic region, including lower abdominal, urogenital, and rectal/anal areas.<sup>1,10</sup> These areas are tied to extremely personal functions, and when problems emerge impacting bladder, bowel and/or sexual function, it can be incredibly disturbing and distressing to the patient.

Patients with pelvic pain often share a past distressing medical exam, such as a PAP or ultrasound exam, with some expressing they have been traumatised by these. In most of these experiences, they felt they had no choice, had no control, and that it was incredibly painful. Often past trauma resurfaces with this lack of control. What we found in practice at the CPP clinic, is that even small changes can help someone gain a sense of choice and control over their experience. For example, offering the option to self-insert a vaginal ultrasound wand or speculum into their vagina can be preferable to having a physician do so. Another suggestion is to be fully transparent in advance as to what the procedure/treatment entails. And finally, it can be helpful to slow down and match your patient's pace when they are ready to proceed.

Physiotherapists working in the area of Pelvic (or working in Pelvic Health) often use internal vaginal and rectal exams as part of their assessment and treatment. Greher<sup>7</sup> mentions several ways that we can inadvertently activate or trigger patients with a medical trauma history. The list of potential triggering events includes a loss of/lack of privacy (disrobing); asking questions deemed too personal; invasive procedures; physical touch; vulnerable physical position; and relationship dynamics between patient and provider (power, gender). Any physiotherapist performing pelvic floor exams will know that if we are not practising sensitively, a patient could feel very vulnerable and potentially be triggered or traumatized by the experience.

*I knew I was not a trained trauma therapist and that my skills as a physiotherapist were not being utilized to their full extent.*

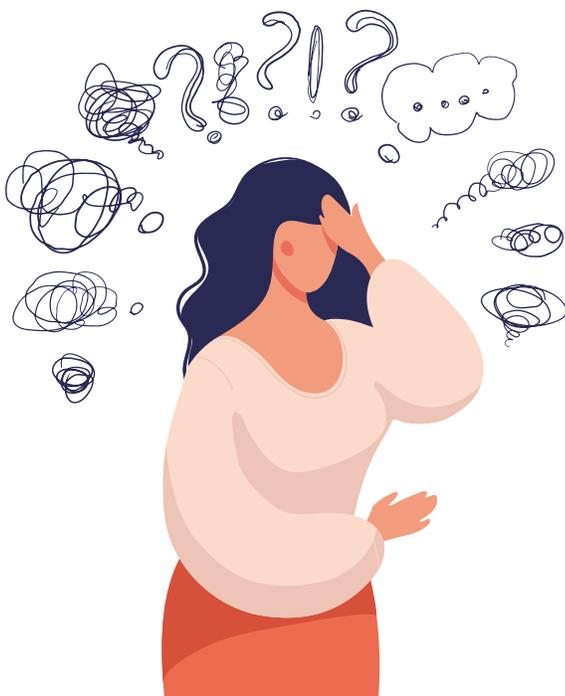
### Are We Prepared to Work with Patients with Trauma?

What we do know is that all physiotherapists in any area of practice will undoubtedly work with people who have experienced trauma and that most of the time, this trauma will not be disclosed. We will not know anyone's past experiences unless they share them with us, or they choose to disclose trauma through screening. Physiotherapists, as well as most other health professionals, do not receive trauma education in our basic training, which mostly focuses on the biomedical perspective, rather than on a holistic, whole-person approach. Thus, we are often unaware of how to incorporate trauma awareness into our practice unless we have taken additional education.

More and more physiotherapists are being trained in pelvic floor assessment for pelvic pain, which is good news for patients who have trouble accessing a trained practitioner. However, it is not clear how many physiotherapists complete training in trauma-informed care, and indeed this was the case for me when I joined the CPP clinic. Using a trauma-informed lens as we work ensures that patients receive the best care possible and reduces the chance of unintentionally triggering them and is also best for the clinician.

Many of us also may feel unprepared as to how to support our clients who disclose past trauma, or who we suspect may have experienced trauma. "What if my patient discloses something really horrifying?" "I am not sure I want to hear details about my patient's trauma." "How do I know if something I am doing in physiotherapy treatment is triggering my patient?"

Thankfully, there are now many excellent courses about trauma for physiotherapists and other health professionals to help us learn the necessary skills to support our patients with trauma. There are also existing courses on trauma-informed care in the context of gender, culture, and race. I would recommend all physiotherapists take a trauma course.



### Ways to Integrate a Trauma-Informed Lens into Clinical Practice.

I had the opportunity to work with our incredible CPP team clinical counsellor, Holly Yager, for eight years and learned valuable trauma-informed tools. These tools allowed me to validate and support my patients and enabled the physiotherapy sessions to still be clinically helpful. I am sharing some helpful tips for working with people who have experienced trauma.

1. Follow the 6 principles of trauma-informed care: safety; trustworthiness and transparency; empowerment-voice and choice; collaboration and mutuality- working together; cultural, historical and gender issues; and peer support.<sup>19</sup>
2. Consider screening for trauma. There are many recommendations in the literature for general and speciality providers to screen for ACEs and trauma. Identifying trauma may allow for appropriate referrals for mental health support. Completing a questionnaire may help patients conceptualize their experience, so they can get validation and access therapy and support if they would like this. It is recommended that professionals receive trauma-informed training before administering screening tools.<sup>8,17</sup>
3. Make forms and handouts culturally sensitive, gender-neutral, and inclusive.<sup>14</sup>
4. When obtaining informed consent, integrate safety, transparency, and voice and choice. Explain that consent can be revoked by the patient at any time.
5. Give your patient space to speak uninterrupted, then clarify details as needed. Repeat back what you have heard to help your patient feel heard and validated, and to ensure you have understood your patients' concerns.
6. If someone discloses trauma, offer support and validation, for example, "I am so sorry that has happened. Thank you for sharing that with me, that must have been difficult for you." This helps to externalize and contain, which is important for the patient's safety. Then it is important to redirect with transparency. For example, "You have shared a lot today. Let's press pause and talk a bit about our physiotherapy assessment and treatment. What might be potentially difficult for you? What could be helpful?" Patients often know what triggers them and what helps them. Knowing this fact is helpful as you move through the physiotherapist session together.
7. Do not ask for more details about any disclosed trauma. Doing so may re-traumatize the patient and may contribute to secondary trauma for you. Trauma therapists spend multiple sessions working on building a therapeutic relationship, coping strategies, and creating a sense of safety<sup>9</sup> before exploring details of someone's trauma experience. Some trauma therapies recommend that patients never verbalize details of the trauma experience (e.g., EMDR) to avoid re-traumatiza-

tion. Physiotherapists can still help their patients without knowing the details of their trauma. Focus instead on the patient's sense of safety and their preferred coping strategies

8. Trauma and persistent pain act on the nervous system in very similar ways,<sup>16,20</sup> leading to an increased sense of threat, protection, and sensitivity. We can provide psychoeducation by discussing with our patients how trauma impacts the nervous system. We can teach similar nervous system calming strategies for someone with trauma that we commonly use with people with persistent pain. These techniques can include validation, support, education, novel movement, exercise, and mindfulness strategies such as breathing techniques, body scans, and grounding exercises. Whatever interventions we consider adding to our plan, ensure that it is for the patient's benefit (not ours) and fits within basic principles of trauma-informed care.<sup>14</sup> Treatment should be inclusive and collaborative, with the patient being actively involved and feeling a sense of control. Give your patients options: "What works best for you right now?"
9. Referral to a mental health practitioner is an option for a patient who has disclosed trauma. Have a list of trauma therapists (public and private pay options) in your area so you can readily refer them if someone would like this.
10. Self-care for the clinician. Look after yourself, access counselling as needed, and feed your soul. It takes energy and a sense of grounding to be there for our patients. If you experience signs of secondary trauma or burnout, be sure to seek help. Continue to work on trauma-informed care to ensure professional competency. A selection of guidebooks is found in the list of references (e.g., those by BCCEWH, Haskell, Klinic, and SAMHSA among others).

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#### Susannah Britnell PT

Susannah works in private practice at Urban Healing in Vancouver, BC, working collaboratively with clients of all ages and genders in the areas of pregnancy and postpartum, orthopedics, pelvic health and persistent pain, including genital pain and bladder, bowel and sexual pain concerns.

Susannah worked for years at BC Women's and the interdisciplinary team at the Centre for Pelvic Pain, gaining invaluable experience working with people with perinatal concerns and persistent pelvic pain.

Susannah has presented both internationally and locally, to professionals and patients. She is an adjunct professor in the UBC Masters of Physiotherapy program and an instructor for Rost Therapy and Pelvic Health Solutions. She has co-authored several papers with the Centre of Pelvic Pain & Endometriosis. Susannah has been a mentor for the Pain Science Mentorship program and has served on the CPA Women's Health Division and Pain Science Division Committees.



## Harmonizing worldviews – Resolving Pain in Collaboration with Indigenous Healing Paradigms

*Pain is a familiar teacher in the lives of many Indigenous peoples and other marginalized populations*

**In my first clinical rotation in PT training,** I was eager to work in the local Mohawk hospital to experience practice in a community setting. I recall my clinical supervisor describing to me that her clients do not experience pain the same way, making a blanket statement that “First Nations people are stoic, they don’t feel pain the same way.” I remember feeling my chest tighten and blood pressure rise from receiving that microaggression. With a puzzled look on my face, I wondered how she had come to this conclusion? Do Indigenous people conceal or suppress pain more than their non-Indigenous counterparts? Why would Indigenous peoples be reluctant to express pain to a health professional? My supervisor failed to explain to her first year PT (Indigenous) student that deep-rooted and systemically based reasons are at the heart of her observation. Perhaps her patients may have been reluctant to express their experiences of pain to a white therapist in a lab coat. Conversely, perhaps this therapist may have been biased in detecting such nuances or alternative impressions of her clients. The jury is still out.

Pain is a familiar teacher in the lives of many Indigenous peoples and other marginalized populations (i.e. people of colour, recent immigrants, refugees, LGBTQ2S), who experience a higher prevalence of painful medical conditions relative to nonmarginalized people. Because their pain is more likely to be misunderstood or minimized, these folks are more likely to experience barriers to pain management services.<sup>1</sup> Furthermore, Indigenous peoples experience a higher incidence of pain and pain-related disabilities of all types (e.g., musculoskeletal, throat, ear, and dental conditions).<sup>2</sup> According to the First Nations Health Survey (2020), nearly 59.8% of First Nations adults, 33.2% of First Nations youth, and 28.5% of First Nations children reported having one or more chronic health conditions, with diabetes, arthritis, high blood pressure, allergies and chronic back pain as the most commonly reported conditions.<sup>2</sup> According to a US-based study by Jiminez et al. (2011), American Indians have a higher prevalence of painful conditions and pain symptoms than the general population. As a result, they are more likely to use alternative modalities to manage their pain. Additionally, Jiminez and colleagues noted more issues reported with provider-patient interactions that ultimately impact pain assessments.<sup>3</sup>

We all experience and express pain differently. Observing behavioural, physiological, and self-reported, do not capture the complexities of pain through Indigenous understandings, often resulting in persistent pain for the individual (Latimer et al., 2014). There may be potential cultural differences in pain expression; however, it seems more relevant to understand how a lack of culturally relevant and reliable pain assessment tools hinder how we practice with culturally diverse clients, specifically Indigenous folks. Our standardized pain scales are based on Western ways of interpreting pain. Standardized pain assessments using numerical scores, or abstract scales may not be appropriate for Indigenous clients.<sup>3</sup>

As health care providers and practitioners, it behooves us to understand alternative paradigms to support the health and well-being of our clients. It is a necessity in our practice to contextualize how historical and contemporary socio-cultural-political factors continue to negatively impact the well-being and safety of generations of Indigenous peoples. A shortlist includes but is not limited to: the violence of Indian Residential Schools and Indian Hospitals, forced removal/relocation from traditional territories, chronic underfunding in communities from health, education to housing and beyond, low standards of health care for Indigenous clients and communities, as well as violations of individual integrity and autonomy. When we examine so-called Canada's own history of health services for Indigenous peoples, we can perhaps understand the Sisyphean burden of pain that Indigenous communities experience. There is an ongoing failure to address needs expressed by communities and a lack of support to respect and uphold Indigenous self-determination, especially in the Canadian health care system.

There are many reasons to empathize with Indigenous peoples and a general and direct lack of trust in the Canadian medical system. I personally know several elders in my community who recall traumatic adolescent experiences such as teeth extractions without anaesthesia, while others are presently denied pain medication or even accused of drug-seeking. As a result of these violent and nihilistic behaviours of health professionals (in the past and present), Indigenous people often deal with their pain being minimized or fully ignored by their health care providers. This can result in a delay in seeking care or treatment, consequently resulting in complex or chronic pain and even fatal conditions.<sup>4</sup> Knowing and acknowledging the colonizing history of Indigenous people in Canada, such as the IRS system and the impact on current-day health and the role of healing of the entire community, family, and/or individual, is a first step to address the ongoing inequities within the healthcare system. This knowledge of historical trauma is essential for care planning and support in the health context environment.<sup>4</sup>

### Spirit-Based Medicine

In hopes to better understand pain and how to describe these perspectives to my respected colleagues in physiotherapy, I turned to two of my elders, Andre Halfday and Matuah George Frank. Both are traditional healers and seasoned practitioners hailing from two distinct First Nations communities on opposite sides of Turtle Island. These individuals continue to teach me on my path and have helped me immensely in my own healing journey of complex trauma and physical pain.

They explain that pain is an energy that impacts our whole being or *vessel*, which is deeply connected to our spirit and our emotions. Halfday, a holistic healer from Chippewas of the Thames shared that we experience pain because of trauma and stored emotions, “there is a spiritual aspect to all of it – we can understand our triggers, relearn our spiritual understanding of life and work with spirit-based medicine to release the pain” (oral communication, December 2021).

*Indigenous people often deal with their pain being minimized or fully ignored by their health care providers. This can result in a delay in seeking care or treatment, consequently resulting in complex or chronic pain and even fatal conditions*

In conversations with *Matuah* George Frank, Uutukyuu or traditional practitioner from the Ahousaht First Nation, he shared that chronic pain is constant energy but can be removed through a combination of hands-on healing, prayer, traditional medicines, and transferring the pain energy (December 2021).

I asked Matuah and Halfday, “How do we heal (chronic pain)?”. Halfday explains how he works with chronic pain and trauma when asked to support an individual’s healing journey. Halfday applies *spirit-based medicine*, which involves a ceremonial approach that draws on a combination of healing modalities. However, these modalities come from the natural world to re-establish and harmonize the individual on an elemental level. These modalities may combine the healing vibrations of prayer, songs, chants, and eagle-bone whistles. They may also draw upon stones, plant medicines, water, and the practitioner’s own energy. These tools are used in connection with the person’s dreams, visions, life experiences and are often witnessed by their family and human and non-human relatives.

Halfday shares how he draws on a simpler ceremony, but powerful practice of working with the spirit of water to draw out pain.

*“Water has memory, when we pray for water, it changes the energy and composition [of the water] – same as our blood, which is made of water, has memory. We can use a water ceremony to remove pain and put it in the water, this is holistic wellness”*

Halfday also highlights the important teaching of responsibility when he asks the person seeking help, “Do you actually want to take care of it and let it go?”, speaking to the role the person in pain has in taking responsibility to do the work mentally, emotionally, spiritually, and physically.

Ma’tuah is a herbalist and Nuu Chah Nulth sacred knowledge keeper who was taught by his grandparents. Ma’tuah is part of the *Kwiisahéh* – someone gifted with hands on healing. He shares how he is able to transfer or remove pain through a process of prayer, chanting, touch, and use of feathers. Ma’tuah describes his ritual of making traditional medicines for pain to me and that it starts in prayer, even before he leaves to collect water from the mountain or gather medicines, he cleanses himself and prays for the person or people in need of healing. When Ma’tuah is on the land and harvesting the sacred plant medicines, he prays and calls upon the ancestors to provide protection. He sings a prayer chant and asks the Creator to bless the medicines with healing powers. When he is making the medicines, he is praying and giving thanks while intuitively experimenting to create salves, sprays, teas, and tinctures. When he offers the medicine to the individual in need, Ma’tuah provides another ceremony using prayer, chanting, and hands on healing to remove the pain (oral communication, December 2021).



*Halfday applies spirit-based medicine, which involves a ceremonial approach that draws on a combination of healing modalities*

Thus, Indigenous methods of healing and spirit-based medicine provides a holistic foundation for managing and resolving pain, including the power of prayer, sound healing through song, drums, chants, movement-based practices including traditional dance, rites of passage and ceremony including fasting and contemplative practices, integration of traditional foods, plant medicines, and communal and familial connection including feasting, sharing circles and land-based gatherings.

To achieve health, Indigenous people strive for balance of mental, spiritual, emotional, and physical wellness, yet the scope of these four dimensions is not typically considered in the Western-based health system. Indigenous people experience ongoing pain and hurt in all these dimensions as a result of a colonial legacy that persists in current-day policy and care contexts. So what are we doing to mitigate that pain? How can we honor the healing traditions that have been established for millennia?

*UNDRIP article 24.1*

*Indigenous peoples have the right to their traditional medicines and to maintain their health practices, including the conservation of their vital medicinal plants, animals, and minerals. Indigenous individuals also have the right to access, without any discrimination, to all social and health services.*

The UN Declaration of the Rights of Indigenous Peoples<sup>5</sup> outlines the minimum standards for the survival, dignity, and well-being of Indigenous peoples. This includes the Indigenous right to health meaning that Indigenous peoples should have full access to health care services in ways that reflect and are responsive to Indigenous worldviews and conceptions of health, without discrimination.

### Holistic recommendations for harmonized care:

As a follow-up question to Ma'tuah and Halfday, I ask “what would you like western trained therapists and health care professionals to know about healing Indigenous pain? Their response involves our practitioners to shake hands with each others’ medicine with the intention of improving the care and goals of Indigenous peoples experiencing pain. Ma'tuah also recommends working alongside traditional practitioners in hospital and clinical settings for best outcomes.

- Expand on your understanding of ‘healing’ and approach with humility and curiosity to learn about Indigenous ideologies of pain, wellness, as well as Indigenous knowledge and health care systems<sup>6</sup>
- The first encounter – focus on establishing a positive therapeutic relationship and nurturing trust. Take interest in the Indigenous clients’ story
- Be committed to being anti-racist and dedicated to a path of culturally safe, trauma-informed care for all patients, in particular, indigenous clients<sup>7</sup>
- Collaborate with the Indigenous client and their network of healing and wellness supports, resources, and practices
- Recognize the importance of family and relationships
- Confront biases in practice and explore culturally-relevant approaches to pain assessment
- Consider how a history of trauma and trauma responses may be impacting their sense of wellness, mobility, and daily activities.
- Offer sliding scale payment options for Indigenous and other marginalized clients who may not be covered to receive health care
- Implement TRC Calls to Action in your practice, team-based care, and clinic to address violence, interpersonal and systemic racism, and gross inequities in health care and remove structural barriers

### Glossary:

**Profiling** is creating or promoting a pre-set idea of the values, beliefs, and actions of a group in society and treating individuals who are members of that cohort as if they fit a pre-set notion, often causing them to receive different and discriminatory treatment

**Indigenous-specific racism** refers to the unique nature of stereotyping, bias and prejudice about Indigenous peoples in Canada that is rooted in the history of settler colonialism. It is the ongoing race-based discrimination, negative stereotyping and injustice experienced by Indigenous peoples that perpetuates power imbalances, systemic discrimination and inequitable outcomes stemming from the colonial policies and practices.

**Trauma and violence informed care** builds on trauma-informed care to take into account how violence may be ongoing in a person’s life, including structural forms, such as policy created and enforced poverty, disproportionate criminalization, or systemic discrimination. 🌟



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# Indigenous Wellness Clinic: Chronic Pain Program



**Disparities exist in the Canadian healthcare system for Indigenous Peoples** that underscores the complexities of equity. The rates of low healthcare utilization of Indigenous Peoples are cultural and social preferences and the result of negative experiences within the healthcare system.<sup>1</sup> Providing services in a culturally secure setting encourages accessible, appropriate, and timely healthcare for Indigenous patients. Within this context, the Indigenous Wellness Clinic (IWC) is a primary care clinic in Alberta Health Services (AHS) that provides healthcare services to Indigenous clientele within Edmonton, northern Alberta, Northwest Territories and Nunavut.

The mandate of the provincial Indigenous Wellness Core (IWCORE) is to facilitate the development and delivery of essential health services to meet the needs of the diverse Indigenous populations. An integral component is partnerships developed with Indigenous Peoples and organizations to offer high-quality, accessible, culturally appropriate health services for First Nations, Metis, and Inuit. The IWC is embedded within IWCORE and has more than 25 years of working with chronic disease management in relation to Diabetes Education for Indigenous adults. The IWC more recently transitioned to a general primary care clinic offering family medicine, women's health, palliative supports, paediatric services, and traditional wellness. The multidisciplinary team is

comprised of physicians, nurses, dietitians, physiotherapists, an Indigenous Health Coordinator, Mental Health and Addictions Cultural Helpers and Indigenous Cultural Helpers. Culturally informed services are offered by providing choice, aiding with decisions, and advocating. Many of our IWC health professionals are members from surrounding Indigenous communities who can provide informal linkages to surrounding communities.

On average, the IWC sees approximately 400 clients per month and offers several programs in response to the perceived needs of clientele. A chronic pain program is a program that was developed around five years ago.

Disability, depression, anxiety, sleep disturbances, poor quality of life and well-being, and increased healthcare costs are all associated with chronic pain. Individuals with chronic pain often have experienced severe past emotional trauma and/or violence in their life.<sup>3</sup> Although chronic pain has been defined as a chronic disease in which pain lasts more than 12 weeks and often persists for years, chronic pain may be underdiagnosed, mismanaged and poorly treated with Indigenous Peoples when using Western-based pain assessments.<sup>1</sup> Pain is a universal experience that all people share, yet it is unique in the way that it is expressed. The assessment of pain requires a culturally sensitive lens to properly assess chronic pain within Indigenous populations.<sup>2</sup>

The Chronic Pain Self-Management Program<sup>4</sup> is offered to the general population within AHS and consists of a 1 to 2.5hr lecture per week over six weeks by a trained person. A goal of the program is self-management so that people can manage their chronic pain (e.g., musculoskeletal, neuropathic, pelvic, or headache pain). The premise is to develop confidence and motivation of managing chronic pain on a daily basis.

Informal feedback from clients at the IWC who had taken the standard chronic pain program within AHS felt it was not culturally safe. There was also a significant number of IWC clients with pain caused by arthritis, degenerative disc disease, mental health disorders, and chronic musculoskeletal conditions that failed to resolve. Upon input from clients at the IWC and consultation from our Cultural Helpers and health professionals, we created a culturally safe self-management program for Indigenous patients with chronic pain. The program's primary aim is to provide self-management skills in coping with chronic pain. That is, for clients to actively manage their condition in terms of function, emotions, and interpersonal relationships.<sup>5</sup>

In keeping with Indigenous teachings, the IWC chronic pain program itself includes the medicine wheel's physical, mental, emotional, and spiritual components in dealing with chronic pain. Because of travel barriers for some clients, we provided ten sessions consisting of an afternoon meeting once per month at the IWC. Clients were able to self-refer, or an IWC health professional could refer the person to the program. The small physical space of the clinic required a cap of ten clients; however, the number of attendees ranged from two to seven. Because many people could not attend consistently due to other commitments, each session was "self-contained" and was not dependent upon attending earlier sessions. This approach allowed flexibility throughout the program and provided a welcoming approach. Each session consisted of a 30-minute pre-session activity such as gardening, snack, nutritional activity, craft activity, yoga, relaxation or meditating. This pre-session activity allowed people to become active and interact with others upon arriving at the clinic. When all people arrived, our Indigenous Cultural Helper offered an opening prayer and smudge. The format of each 60-minute session was activity-based, with an educational session followed by an interactive activity that reinforced the topic of that specific session. Session topics included acknowledging pain, Personal Action Wellness Wheel, problem-solving, fitness and mobility, coping, nutrition, emotional and mental health, and medications/alternative medicine. At the end of each session, a post-activity was planned, whether an activity building upon the pre-activity or a visit with the clinic physicians or physiotherapist. The last session of the program consisted of a closing circle.

Flexibility based on the group dynamics was a characteristic that encouraged a successful program. Another feature we found that helped with group dynamics was encouraging interaction with all attendees, sharing

stories, working together on projects. For example, gardening was an activity that was particularly successful in that people prepared the garden and were responsible for it during the growing season (e.g. watering and weeding). Other activities that brought people together were harvesting vegetables that could then be given to participants at the end of the summer and preparing a soup with the garden vegetables in the clinic kitchen that everyone could share in a meal. Not all clients felt comfortable with traditional approaches such as smudging; however, program's flexibility offered choices to participants. Encouraging a safe and culturally relevant program with familiar faces also encouraged people to attend and enjoy the program. Group interaction was an integral component of this program; however, due to COVID-19 restrictions, all programs have been paused with the intent they will resume as restrictions and case counts are reduced.

Within this program framework, we are constantly evolving to offer culturally informed services to meet the needs and wishes of the clients and families. Clients, families and the community are integral to the program, and various ways of involvement are continually explored. ❧

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## Management of Cancer –Related Pain:



Alex Grant, Chair of the Oncology Division, CPA. Picture courtesy of the Alberta Cancer Foundation, Leap Magazine.

# An Entry to Practice Competency for Physiotherapists

**Nearly 1 out of 2 Canadians will be diagnosed with cancer during their lifetime.** However, improved treatments and survivorship have resulted in greater than 60% of these patients living with chronic disease and considerable pain. A meta-analysis of 160 articles on the prevalence of pain in cancer patients over the last 40 years has shown that the time course of cancer is associated with 66.4% in patients with advanced disease, 55% pain during treatment, and 39.3% living with long term pain following treatment completion.<sup>1</sup>

The myth which persists is that this pain is unique and intractable with management protocols focussed upon medical, palliative, and pharmacological interventions. Furthermore, many physiotherapists have been taught that our role is supportive at best and that traditional modalities of treatment are contraindicat-

ed. The reality is that many cancer pain syndromes are closely related to conditions that we treat daily in clinical practice, including chronic pain, orthopaedic, neurological, metabolic, and inflammatory disorders. The sole difference is the source of these disorders. Evidence-based modalities of treatment within our scope of practice can be used to treat paraneoplastic inflammatory disorders, muscular atrophy, abnormal tissue function following extensive surgery, post-radiation fibrosis, chronic sensory neuropathies, chemotherapy-induced cardiovascular dysfunction, bone pain, and treatment-induced skeletal fragility (osteoporosis). The clinical practitioner simply needs to be armed with a basic knowledge of the disease process, stages of disease, effects of cancer treatment, red flags, precautions, and true contraindications.



**Figure 1** K-Taping and wrap-  
ping for pain and swelling  
related to the development of  
lymphedema in breast cancer  
survivors.

The oncology community of caretakers recognizes that the current model of care for cancer-related pain must evolve to become less opioid-based and more multidisciplinary in scope.<sup>2</sup> The KEY to successful treatment is to determine the SOURCE of pain. Only thirty-four percent (34%) of pain has been found to be of visceral origin and beyond our scope of practice. The majority of pain experienced by patients with cancer include 71% of somatic origin, including prolonged bone and joint discomfort and 39% of nociceptive sources.<sup>3</sup> As members of the multidisciplinary team, our contribution is our expertise in assessing the potential mechanical and soft tissue origins of pain and improving function and quality of life. Self-management on a daily basis is also an essential principle of treatment to ensure that patients retain a locus of control and reduce the degree of medications needed. Therefore, the global objective of this paper is to provide examples of physiotherapy (PT) pain interventions that can be used in the majority of cancer populations and shed light on the role we must evolve to play in relieving this pain.

### Post-Surgical Pain

The types of surgery used to treat many cancers are as variable as the locations of the disease itself. Surgical resection remains the mainstay of treatment for breast, prostate, lung, soft tissue sarcoma, gastrointestinal, and head & neck cancers. Given the invasive nature of the disease, reconstruction may also be necessary. Suffice it to note that in resecting space-occupying solid tumours, a margin of healthy tissue remains the gold standard whenever possible. These margins combined with the tissue infiltration common to cancer may result in changes to regional blood supply, nerve supply, fascial envelopes, and muscle integrity. Post-surgical pain is common and can persist for years given the complexity of many

surgeries.<sup>4,5</sup> Consequently, the involvement of the rehabilitation team in collaboration with the surgical team is essential.

Examples of the nature and source of cancer-related pain are those associated with breast and prostate cancers. Post radical prostatectomy (RP) symptom clusters include pain, fatigue, and depression.<sup>6</sup> More specifically, reductions in physical functioning commonly include low back pain, abdominal discomfort, and chronic perineal pain precipitated by lifting.<sup>7</sup> A major source of this pain and dysfunction has been found to be due to neural damage (30%) to pelvic floor musculature at the time of surgery.<sup>8</sup> The vicious cycle precipitated by chronic pain experienced by prostate cancer survivors bears great resemblance to the significant loss of quality of life associated with low back pain of mechanical origin. It has been shown to persist for years following the surgical procedure (RP) and impact capacity to return to work.<sup>7</sup> Programs that target exercise interventions with emphasis on pelvic floor muscle training, biofeedback, core abdominal strengthening, upper and lower limb resistance training, and work-specific rehabilitation programs can significantly improve disability-related symptoms.<sup>9,10</sup>

Similarly, the post-surgical pain related to breast cancer is unique and significantly impacts the quality of life.<sup>11,12</sup> The nature of the pain is a dull, burning, aching sensation in the chest, axilla, and ipsilateral upper limb. Some of the intrinsic risk factors identified include younger age patients, higher-grade tumours, tumour inflammatory factors, and psychological status including anxiety, depression, and pain catastrophizing.<sup>5</sup> Pre-existent shoulder or neck pain is also a significant risk factor and can be aggravated by the time course of post-surgical tissue healing, protective postural changes, shoulder protraction, and movement limitations. Intraoperative risk factors include axillary lymph node dissection, damage



**Figure 2:** Nerve damage related to different chemotherapy agents<sup>18-21</sup>

**Platinum products:** accumulate in the DRG

**Cisplatin:** disrupts microtubule growth which is essential to axonal transport

**Taxanes & vinca-alcaloids:** disrupts axonal transport via microtubule damage

**Thalidomide:** neuronal degeneration with severe motor and sensory consequences

to the intercostal brachial nerve, brachial plexopathy, and the development of lymphedema.<sup>13</sup>

Physiotherapy interventions are highly recommended for breast cancer patients and cannot be replaced by pamphlets on exercise, which have become the standard of treatment in many outpatient settings.<sup>14</sup> Despite breast-conserving surgeries, patients have great difficulty self-mobilizing if the pain is prominent due to tissue scarring or nerve damage and remain uncertain of activities permitted.<sup>15</sup> Recommended PT treatments focus on maintaining and restoring posture, tissue mobility, normalizing scapulo-thoracic patterns of movement, shoulder range of motion, and targeted upper quadrant strengthening programs to minimize long term pain.<sup>16</sup> To prevent long term disability, early intervention post-surgery, exercise and education on recognizing lymphedema are mainstays of treatment. This should be prioritized as an outpatient service in both public and private physiotherapy clinical settings.<sup>17</sup>

However, a basic background in oncology for breast cancer treatment is essential for the safe implementation of physiotherapy. The stage of disease at diagnosis, hormone receptivity of the cancer, and genetic mutations if present are prognostic indicators and may contribute to the degree of pain and inflammation associated with short term recovery. The location of the tumour in relation to the chest wall, proximity to the axilla, and the number of lymph nodes resected may predispose breast cancer patients to the development of a frozen shoulder,

axillary web syndrome, or lymphedema. Bone metastasis to the ribs and spine can occur within a short time course following cancer treatment depending upon the stage of disease at the time of diagnosis. Working with sufficient information and recognition of these red flags fall within the realm of our professional responsibility.

**Chemotherapy-Induced Pain**

Many commonly used chemotherapy agents are cytotoxic and the peripheral nerves of the hands and feet as well as the dorsal root of the spinal cord are particularly impacted.<sup>18</sup> The neurotoxic drugs include taxanes, vinca alkaloids, and platinum products. (fig 1) These chemotherapy agents are believed to affect mitochondrial function and in particular the sodium-potassium pump of peripheral nerve axons and dorsal root ganglion which are outside the blood-brain barrier. Unmyelinated sensory nerves are more susceptible than myelinated due to these cell bodies being highly vascularized and more predisposed to toxic impact. Reversibility is dependent upon the types of drugs, the intensity and duration of treatment, as well as the individual's predisposition to the development of a neuropathy.<sup>19</sup> Predisposing factors include diabetes, previous treatment with neurological symptoms, viral infection (post-polio syndrome, post-COVID, Guillen-Barre), alcohol abuse, cervical or lumbar radiculopathy. Most important to note is that 39% of patients on chemotherapy experience peripheral neuropathy (CIPN) and it remains the most common cause of long term pain and disability.<sup>20,21</sup>

Bearing in mind that chemotherapy agents more commonly impact sensory nerves and that dosage parameters, including the types or combinations of chemotherapy agents and frequency of infusion, play a significant role, pain can range from slight discomfort to moderate impact to severe disability related to activities of daily living. Asymmetrical stocking-glove distribution is characteristic of CIPN as well as increased articular pain and loss of proprioception. The symptoms begin with numbness and tingling and can progress to hypersensitivity and sharp, shock-like pain (Allodynia), increasing the risk of falls.<sup>22</sup> The onset of this cytotoxic peripheral neuropathy can limit life-saving cancer treatments. However, in partnership with the oncology medical team, physiotherapists can be trained to help recognize this complication and alert the medical team before permanent damage to the nerves occurs. Moreover, if interventions are implemented early in the time course of development, many of our professional skills and interventions can help reverse or compensate for this complication.

It has been found that most nerve conduction tests lag behind the development of symptoms related to chemotherapy, and these test results do not typically reflect the degree of disability. Hence, PT's can assist in clinically profiling the motor, and sensory distributions of CIPN and, more importantly, provide a profile of functional impact. Outcome measures that can be used to map the level of neurotoxicity include the following: FACT taxane questionnaire, Patient Neurotoxicity Questionnaires (PNQ), Single limb stance test, Timed up and go, the Berg balance test, and activity-specific balance confidence tests.<sup>23</sup> Based upon these results, interventions used are designed to increase sensory input to gait the noxious stimuli, educate patients on injury prevention, maintain balance and prevent falls. Progressive task training with modification or elimination of visual cues and increased proprioceptive input are mainstays of treatment. Equally essential, discomfort and pain need to be controlled early in the time course of development to prevent this pain from becoming chronic.<sup>24</sup>

Exercise interventions have been used to both prevent the onset and severity of CIPN as well as reduce pain. The mechanisms underlying the role of exercise in neuroprotection have been speculated to include increases in endoneurial blood flow and nitric acid synthesis and reductions in the levels of inflammatory cytokines, which play a significant role in neuropathic pain secondary to nerve injury.<sup>25</sup> A recently published meta-analysis of RCT's on the effects of aerobic and resistance exercise interventions on pain in adults with a variety of cancers concluded that pain intensity and subscales improved ( $p=.005$ ) with mixed exercise.<sup>26</sup> More specifically, a study on resistance exercise has shown to improve the symptoms associated with CIPN.<sup>25</sup> The RCT with three arms included a cohort of breast cancer patients and found that both resistance exercise at 70-80% max and sensorimotor training could preserve balance and reduce symptom development compared to a control group without exer-

cise intervention. This echoes the results of studies on supervised exercise training in diabetics with peripheral neuropathy, which have consistently shown that neuropathic pain can be attenuated significantly in conjunction with balance and gait improvements.<sup>27</sup> However, exercise intervention studies for CIPN are just emerging, and future research in this field is recommended to shed light upon the benefits of specific training protocols as well as the duration and relative effectiveness related to the variety of chemotherapy agents commonly used.

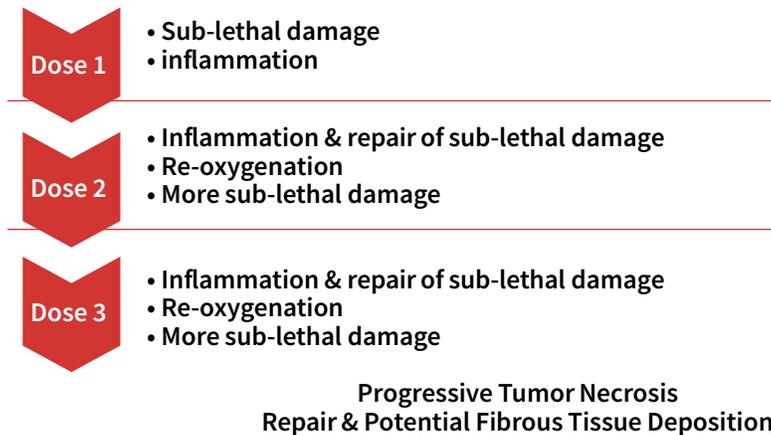
Additional interventions for CIPN include TENS electrical stimulation, neuro biofeedback, and, more recently, scrambler therapy. Traditional TENS, which is readily available in many clinical settings, has shown promise but has not been found to be consistently effective to date. The variety of stimulation parameters used in these studies combined with the timing of application related to chemotherapy treatments and the development of neuropathic pain symptoms have confounded results. Scrambler therapy is a more recently studied cutaneous neuro-stimulatory treatment with five pairs of electrodes designed to replace endogenous pain signals with stimulation parameters designed to mimic non-pain or normal sensory signals.<sup>28</sup> Several trials have concluded that scrambler therapy can reduce the pain associated with CIPN by 50%. A recently published study conducted at the Mayo Clinic comparing conventional TENS with scrambler therapy showed that at least twice as many patients treated with this modality had a 50% improvement in numbness, tingling and pain.<sup>29</sup> Positive differences in the EORTC QOL measures were also significant. Future research is highly recommended.

### Radiation Fibrosis

Fibrous tissue deposition can occur due to radiation exposure which is another mainstay of cancer treatment. The goal of progressive tumour necrosis is achieved by repeated exposure to sub-lethal doses of radiation which causes inflammation in the field of radiation followed by tissue repair and re-oxygenation. (Fig 1) However, the repair process can be associated with fibrous tissue deposition dependent upon dosage parameters used, including radiation intensity (Gauss) or duration over time, as well as the susceptibility of tissues in the radiation field.<sup>30</sup>

*Discomfort and pain need to be controlled early in the time course of development to prevent this pain from becoming chronic*

## DAILY TREATMENTS



**Fig 3** Radiation fibrosis (Level 2 Module 6). BIA formation and KCS on line course: Strategies for Rehabilitation of Cancer Patients. Mary-Ann Dalzell Instructor.

More precise robotic applications and more precise dosimetry calculations can be used to minimize fibrous complications. Nonetheless, radiation fibrosis remains common and is characteristically subclinical and delayed by 6-8months following treatment. This results in residual tissue inflammation and loss of mobility, which frequently go undetected until pain and/or disability develops. In addition, the degree of reversibility following fibrous tissue deposition has been questioned but educating patients to report early signs and symptoms and implementing physiotherapy treatment has been shown to reduce the severity of symptoms.<sup>31</sup>

Dependent upon the radiation field location, depth of tissues being treated, and method of application, radiotherapy can result in severe brachial or lumbosacral plexopathies or impact the spinal cord resulting in delayed myelopathy.<sup>32</sup> Irradiated muscles are prone to spasm, weakness, and greater fatigability, while tendons, ligaments and fascia lose their elasticity and shorten. Lung fibrosis and stenosis of the gastrointestinal or genitourinary tract tissues can also occur. Common examples of potential subclinical radiation fibrosis which may present in outpatient clinical practices are shoulder pain & dysfunction in patients with breast cancer<sup>33</sup>; facial, TMJ dysfunction and neck pain in patients with head & neck cancers<sup>31</sup>; or low back pain and radiculopathy following treatment for colon or prostate cancers<sup>34</sup>. Multimodal treatment interventions recommended include continuous passive motion, myofascial release, massage, active manual mobilizations, targeted exercise, as well as orthotics, braces, and splints if necessary. The timing of application is critical to the potential of reversibility.<sup>31</sup>

In a study conducted by this author (Co-PI) and a multidisciplinary team including a radiation oncologist (Co-PI), medical oncologists, physiotherapist (key coordinator), exercise consultants, and epidemiologists from the Adolescent and Young Adult (AYA) Clinic at the Segal Cancer Center, we set out to determine if programmed exercise could reduce the effects of long term shoulder pain and disability in young adults with breast cancer.<sup>35</sup>

These young adults receive an additional boost of radiation following the completion of treatment to improve survivorship. Dosage parameters and location of radiation were carefully recorded, and inflammatory markers were measured at various time points. Outcomes on the development of pain and loss of movement over time (T1-T6) with or without specific exercise interventions introduced three weeks after the completion of radiation therapy (T2) showed that early intervention could attenuate pain and loss of range, but both gradually recur (70%) over time once the targeted exercise program (12 weeks) is completed. These results provide some evidence of the need for long term follow-up given the delayed nature of tissue fibrosis.

### Future Directions

A summary of the best evidence supporting the use of traditional clinical rehabilitation interventions for chronic cancer-related pain was recently published using RCT's in breast and mixed cancer pathologies in both adult and pediatric populations.<sup>26</sup> For breast cancer, benefits of pain reduction ( $p < .05$ ) have consistently been reported for massage and manual therapy. For mixed cancer populations, massage alone had a significant effect and in 79% of studies in patients with metastatic cancers. Five categories of interventions for pain management were recommended based upon the RCT's reviewed, namely: patient education, specific exercise, manual therapy, general exercise, and mind-body therapies. The review does not cover all potential interventions but nonetheless provides a foundation to support evidence-based practice.

This brief overview has shown that physiotherapy interventions have the capacity to relieve pain related to cancer and that clinicians must become more engaged in cancer rehabilitation. The education, clinical skills, and apprenticeships for entry to PT practice is medically oriented and generally provides an excellent foundation for understanding the disease and its treatment impact. Be that as it may, it has not been considered a core competency for physiotherapists nor featured as an educational

priority despite the prevalence of cancer in society. Given the growing population of cancer survivors living with chronic pain and long-term dysfunction, we must transition our clinical skills to help these patients and grow our physiotherapy workforce and the research needed to further support evidence-based practice to respond to this need. By becoming a member of the Oncology Division, you benefit from advocacy for cancer rehabilitation service development, access to educational resources, and mentorship in your clinical practice. To quote a recent editorial in Rehabilitation Oncology, Journal of the Academy of Oncologic Physical Therapy, APTA written by two members of our Oncology Division, CPA:<sup>36</sup>

*“The way forward is likely through progressive cancer-specific courses and encouraging postgraduate specialist education while ALSO raising the standards of cancer-specific education in the physical therapy entry to practice curriculum”* 📖



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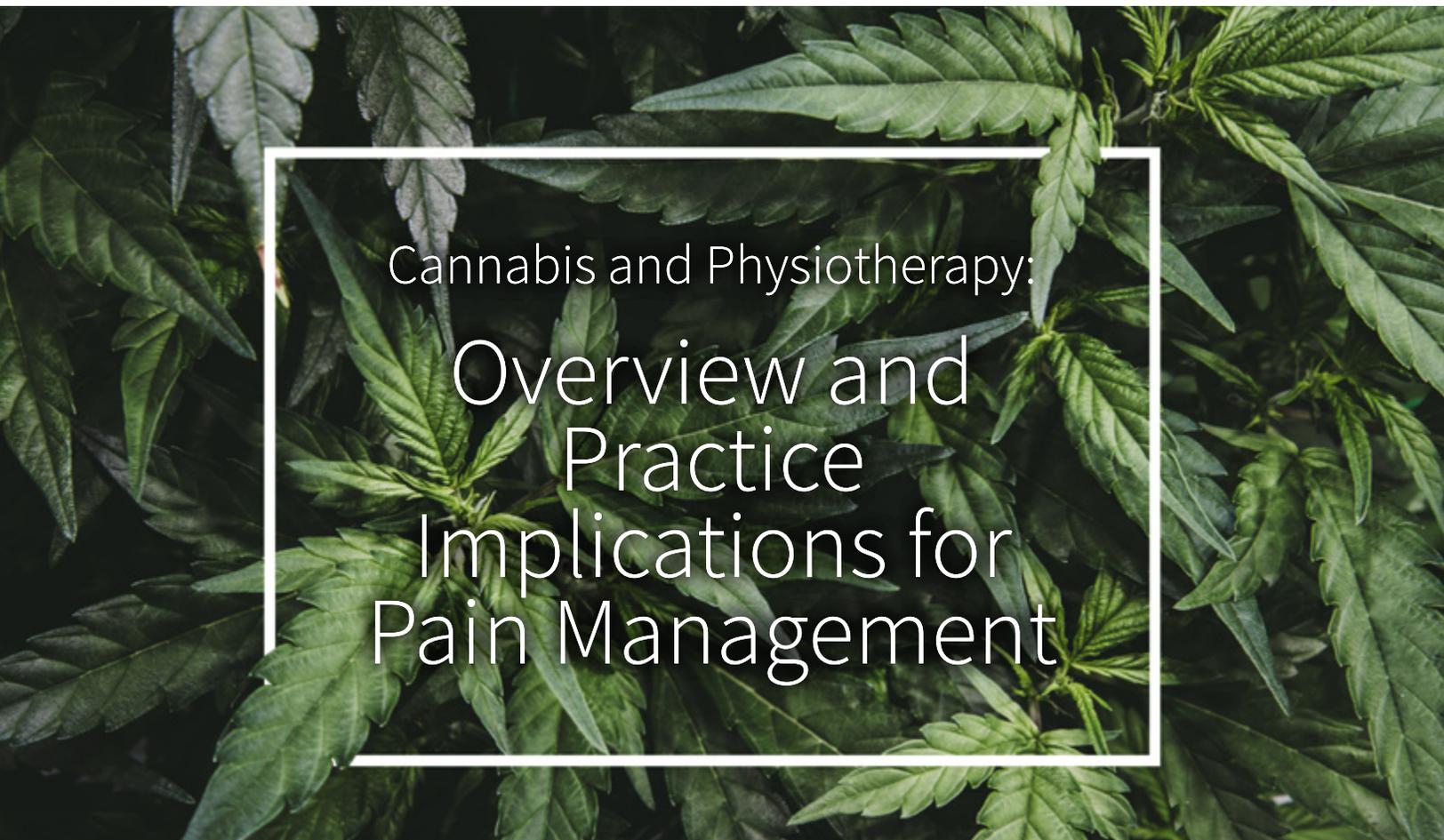
She is co-founder of the McGill Cancer Nutrition- Rehabilitation Program and past Clinical Director of the Rehabilitation & Exercise Oncology Program, Hope & Cope, Segal Cancer Center, Montreal.

As a clinician with 30 years of experience in the management of complex orthopedic problems, Executive Director of the Esprit Sport Rehabilitation Centers, and Faculty Lecturer in the School of Physical and Occupational Therapy, she has coordinated and taught specialized courses in Orthopedics, Sports Medicine, Biophysical Modalities and has taught Cancer rehabilitation Courses across Canada for the CPA, Oncology Division. She is presently teaching a progressive series of on line Cancer Rehabilitation Courses for BIA formation, Quebec and Key Clinical Skills, Ontario.

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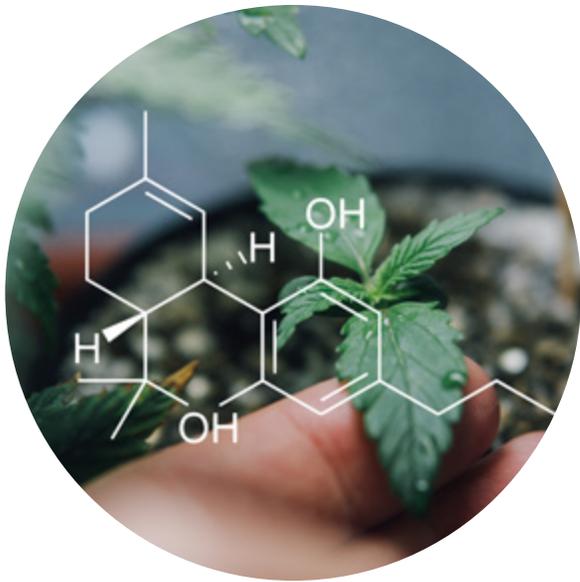
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# Cannabis and Physiotherapy: Overview and Practice Implications for Pain Management

**Physiotherapists in Canada** are likely treating a significant number of clients who are using cannabis. In 2020, nearly 6.2 million or 20% of Canadians aged 15 or older reported using cannabis in the past three months.<sup>1</sup> This is a significant increase from 2018, before the legalization of recreational cannabis, when only 14% of Canadians were reported to be using cannabis.<sup>1</sup> Understanding cannabis and its impact on physiotherapy practice is relevant because cannabis can be used to improve the symptoms and conditions commonly encountered by physiotherapists, such as pain, inflammation, and spasticity.<sup>2-4</sup> On the other hand, cannabis use can have side effects impacting cognition and day-to-day function, thereby affecting a patient's performance and safety when undergoing rehabilitation.<sup>5</sup> Although physiotherapists are not authorized to prescribe or recommend cannabis, we need to tailor our assessments, treatments and interactions with clients using cannabis to consider its effects. Patients may also have questions about the use of cannabis, and physiotherapists can refer to education and resources or refer clients to other health care providers when appropriate. Generally, there is a lack of education surrounding cannabis within the physiotherapy community despite its relevance.<sup>3</sup> A survey of Alberta physiotherapists showed a significant need related to medication education - specifically, on how to identify and recognize the clinical presentation of medication-related effects.<sup>6</sup> To address this gap, the University of Alberta Faculty of Rehabilitation Medicine and the Faculty of Pharmacy and Pharmaceutical Sciences developed educational content for Physiotherapy Alberta regarding function and medication effects. One of these modules was to better understand cannabis, including its effects, access, options of products available, safety considerations and implications on physiotherapy practice.<sup>7</sup>

This article reflects the module's components and reviews the basics of cannabis use, including strain and product type, modes of administration, therapeutic use and safety profile. As pain is the most commonly reported indication for medical cannabis consumption<sup>8</sup>, it will be discussed more in-depth in this article. The goal is to equip physiotherapists with the necessary basic knowledge and understanding of cannabis and its effects to provide better care to patients who may be using cannabis.



*Cannabis plants contain compounds called cannabinoids which are the active substances that produce the effects.*

### What is Cannabis and How Does it Work?

Cannabis (also known as “marijuana”, “weed”, “pot”) refers to the cannabis plant and its preparations.<sup>9,10</sup> Cannabis plants contain compounds called **cannabinoids** which are the active substances that produce the effects. Although there are over 140 different cannabinoids, only two have been scientifically studied - **delta-9-tetrahydrocannabinol (THC)** and **cannabidiol (CBD)**.<sup>11</sup> These two cannabinoids are documented on cannabis product labels with their respective concentrations, which can guide patients regarding the possible effects of the product.

THC is responsible for the main psychotropic effects of cannabis, causing the “high” or intoxication.<sup>12,13</sup> Other psychoactive effects include paranoia, anxiety and drowsiness.<sup>13</sup> THC also has therapeutic effects, including analgesic, relaxant, antiemetic (anti-vomiting), and appetite-stimulating effects.<sup>14</sup> CBD, on the other hand, does not have appreciable psychotropic effects.<sup>12</sup> Evidence suggests that it helps attenuate some adverse psychotropic side effects such as paranoia and anxiety that THC causes.<sup>12</sup> Like THC, CBD also has several therapeutic properties such as being anxiolytic, anti-inflammatory, anticonvulsant and neuroprotective.<sup>13</sup>

It is possible to predict the effects of a particular cannabis product based on THC and CBD concentrations. For example, if a patient is experiencing paranoia or anxiety from cannabis, lower THC or higher CBD content may mitigate these side effects.<sup>5</sup> In addition to THC and CBD, the cannabis plant contains many other cannabinoids that although are understudied, can also contribute to the effects that individuals experience. Together, cannabinoids have been shown to be medically useful for several conditions, including chronic pain, chemotherapy-induced nausea and vomiting, spasticity, seizures and cachexia (wasting syndrome).<sup>13</sup> The evidence for these medical uses remains limited.<sup>13</sup>

### Accessing Cannabis Products in Canada

There are three main categories of cannabis products available in Canada: medical cannabis, recreational cannabis, and pharmaceutical cannabinoids.

**Medical cannabis** is available to patients through a prescription (known as a “medical document”) from authorized healthcare practitioners (physicians or nurse practitioners).<sup>15</sup> Patients can use the medical document to obtain cannabis by:

1. Purchasing cannabis from a federally licensed producer.
2. Producing/growing cannabis for their own medical purposes after registering with Health Canada.
3. Designating someone to produce it for them.<sup>15</sup>

Available medical cannabis products are dried cannabis plants, capsules, or oils.

**Recreational cannabis** is available from licensed retailers (in-store or online). In addition to the dried plant, capsules and oils, cannabis sold through the non-medical suppliers extends to topical preparations, food and beverages, and cannabis concentrates.

**Pharmaceutical cannabis** is available as cannabinoid products. Only two products currently have undergone safety and effectiveness testing by Health Canada - Nabiximols (Sativex®) and Nabilone (Cesamet®). Both products require a prescription and are dispensed at pharmacies. Nabiximols is composed of extracted THC and CBD in approximately equal concentrations and may be used as adjunctive therapy for advanced cancer pain, muscle spasticity, and neuropathic pain in multiple sclerosis.<sup>16</sup> Nabilone, a synthetic THC analogue, is approved for use in severe nausea and vomiting from cancer chemotherapy.<sup>17</sup> Aside from approved uses, both products might also be used as “off-label” for other medical conditions that have not been tested or verified.<sup>12,16,17</sup>

**Table 1.** Different methods of cannabis administration

	Inhalation	Ingestion	Oromucosal/sublingual Use	Topical Use
<b>Product examples</b>	Dried plant, oils, or concentrates that are smoked or vaporized	Plant or oil that is added to food or drink, capsules	Oral sprays or drops placed under the tongue	Transdermal patches, creams, body oils, bath products
<b>Effect onset</b>	2 minutes	45 minutes to 3 hours	1 to 2 hours	For transdermal method: 30 minutes
<b>Effect peak</b>	30 minutes	2 to 4 hours	1 to 8 hours	For transdermal method: sustained effects (no peak)
<b>Effect duration</b>	2 to 4 hours	6 to 8 hours	12 hours	For transdermal method: 4 to 12 hours

**Options of Cannabis Products Available**

There are many different formulations for cannabis products, ranging from dried cannabis plants, food and beverages to topical creams and bath products. These various formulations allow for different methods of use (Table 1), which determines the onset and duration of the effects. Smoking and vaping lead to rapid onset (within minutes) and shorter duration of effects, whereas ingestion (edibles), oromucosal/sublingual and topical routes have a slower onset of effects (up to hours) and longer duration.<sup>12-14</sup> Table 1 compares the different methods of administration.<sup>13,18,19</sup>

Each method of administration has its own safety considerations. Smoking, the most common method, is discouraged due to toxic by-products (including ammonia, carbon monoxide, tar and others) as cannabis is heated at high temperatures.<sup>13</sup> Chronic smoking of cannabis has been associated with the development of respiratory symptoms, including bronchitis, cough, and excessive phlegm.<sup>13</sup> Compared to smoking, vaping creates less toxic by-products as cannabis is heated to lower temperatures; however, there is limited evidence to suggest less respiratory consequences.<sup>13</sup> Oral ingestion is the safest form of administration because it allows for more accurate dosing (oils and capsules) and eliminates the toxic by-products present in smoking or vaping.<sup>13</sup> However, due to the slow onset of effects, risk of acute toxicity can occur when individuals mistakenly do not wait long enough before consuming consecutive doses.

Cannabis products also vary by labelled strain - either *Cannabis Indica*, *Cannabis Sativa* or a hybrid combination of both (most common). Retailers often claim Sativa-dominant strains provide a more stimulating and energizing effect, while Indica-dominant strains are more relaxing and sedating.<sup>20</sup> However, no scientific evidence supports these claims.<sup>20,21</sup> It is more accurate to look at labelled THC and CBD concentrations to predict the effects of cannabis on individuals. To read THC and CBD concentrations on labels, percentages are defined

as milligrams (mg) of the cannabinoid per gram (g) of cannabis. For example, 16.9% THC means 169mg of THC per g of cannabis.

A specific type of cannabis product called cannabis concentrates (also known as “shatter”, “dabs”, “budder”, “resin”) are highly potent in THC content (up to 90%).<sup>22</sup> For comparison, the THC content in dried cannabis typically does not go above 30%.<sup>22</sup> Due to the high THC content, cannabis concentrates can lead to significant adverse effects including cognitive impairment, orthostatic hypotension, and psychosis.<sup>13</sup> As a result, these products are not appropriate for medical use.<sup>13</sup>

**Safety Considerations for Patients Who Use Cannabis**

Acute side effects with cannabis can be very common. Approximately 8-9 patients out of 10 will experience adverse effects from cannabis therapy.<sup>23</sup> Side effects include sensory changes, impairment, and drowsiness,<sup>5,23</sup> which can affect physiotherapy assessments and/or treatments. Cannabis can also lead to changes in heart rate and blood pressure, which can impact endurance such as the ability to perform the six minute walk test.<sup>24</sup> These cardiovascular changes may differ depending on pattern of use. Non-chronic users may experience dose-dependent increases in heart rate and blood pressure, while chronic users may experience decreased heart rate, blood pressure, and orthostatic hypotension.<sup>24</sup> Table 2 presents the side effects of cannabis use.<sup>5,25,26</sup>

Although no fatal overdose has been documented with cannabis, patients can risk acute toxicity when very high doses are taken, especially with high THC concentration products in inexperienced users.<sup>23</sup> Acute toxicity manifests as serious adverse reactions including psychosis, hallucinations, paranoia, severe anxiety or panic, rapid heart rate, chest pain and respiratory depression.<sup>5,23</sup> It is important for patients who are starting cannabis to use a low dose.<sup>27</sup>

Long term effects of chronic cannabis use include impaired cognition and memory, poor concentration, de-

**Table 2.** Cannabis adverse effects

Very common (10-30%)	Common (1-10%)	Rare (less than 1%)
<ul style="list-style-type: none"> <li>• Euphoria</li> <li>• Dysphoria</li> <li>• Changes in heart rate/blood pressure</li> <li>• Heightened sensory experiences</li> <li>• Disconnected thoughts</li> <li>• Difficulty speaking</li> <li>• Muscle twitching</li> <li>• Sleepiness/relaxation</li> </ul>	<ul style="list-style-type: none"> <li>• Confusion</li> <li>• Impaired memory</li> <li>• Dissociation/acute psychosis</li> <li>• Visual hallucination</li> <li>• Problematic cannabis use (difficulty cutting down, continued use despite harms)</li> </ul>	<ul style="list-style-type: none"> <li>• Loss of motivation</li> <li>• Intense/prolonged vomiting</li> </ul>

creased IQ, and mental health problems.<sup>5,28</sup> These effects are more prominent when cannabis use starts in adolescence, with more frequent and longer periods of use.<sup>28,29</sup> Youth and young adults are at greater risk of these harms because brain development continues until about the age of 25.<sup>5,29</sup> These long-term effects of cannabis can last from days to months even after stopping cannabis use and may not be fully reversible.<sup>29</sup>

Due to the short- and long-term adverse effects, Health Canada outlines which populations cannabis use is not recommended for, including patients under the age of 25, pregnant or breastfeeding, have a personal or family history of serious mental disorders, or with history of substance dependence.<sup>30</sup>

**Therapeutic Uses of Cannabis**

The evidence on the therapeutic effects of cannabis is consistently growing and rapidly changing. Currently, cannabis has been investigated for managing several symptoms and conditions such as pain, tremor, anxiety, nausea, and spasticity.<sup>31</sup> As more jurisdictions are legalizing the medical use of cannabis, patients will have more questions on its efficacy and safety, which necessitates more education to be able to recognize adverse effects and direct patients questions to appropriate team members ( pharmacists, physicians). It is also pertinent for practitioners to be able to tailor management plans while taking into consideration cannabis’ effects, interactions, and adversities.

One of the most frequently reported and established indication for cannabis use is pain, which is a common symptom seen in physiotherapy practice.<sup>8</sup> Pain is a global health issue. It is estimated that about 20% of the adult population suffer pain and that 1 of 10 adults are diagnosed with a chronic pain condition each year.<sup>32</sup> In Canada, of the 340,000 authorized users of medical cannabis,<sup>33</sup> 58-84% were using it for chronic pain.<sup>25</sup> These statistics do not include recreational cannabis users who may also be using cannabis for self-management of pain.

**Acute Pain**

The evidence for cannabis in acute pain is very limited. One recent systematic review (SR) from 2017 looked at seven randomized controlled trials (RCTs) for acute pain found that cannabinoids improved pain in one trial, worsened pain in another, and had no effect in the other five<sup>34</sup> This led to the conclusion that cannabinoids have limited benefits in acute pain, especially when the harms from high doses of cannabis used to relieve acute pain may outweigh the benefits<sup>25,34</sup> These studies, however, mainly looked at pain related to surgery and dental operations,<sup>34</sup> and therefore did not evaluate the array of other acute pain conditions seen in physiotherapy, such as pain seen with musculoskeletal conditions. More research is needed in order to understand the effects of cannabis on a variety of acute pain conditions.

**Rheumatologic Pain**

Pain is commonly associated with rheumatic diseases and often imposes treatment challenges, with significant safety concerns and few individuals experiencing clinically-relevant benefits from pharmacologic interventions.<sup>35</sup> As a result, cannabis is gaining interest as a potential therapeutic agent for rheumatologic pain. To date, the available evidence is still lacking. We identified five RCTs examining cannabis-assisted pain management in rheumatologic conditions summarized below.<sup>35-39</sup>

- *Fibromyalgia (FM)*: Two studies used nabilone – one compared to placebo, and another compared to amitriptyline, a standard treatment medication.<sup>35,36</sup> The study comparing nabilone to placebo found that nabilone improved pain and quality of life scores,<sup>35,36</sup> but inclusion of this data in a systematic review (SR) found no statistical difference in pain reduction.<sup>35</sup> In the other study, nabilone was not found to be better than amitriptyline at improving pain or quality of life but did show a slight advantage in improving sleep.<sup>35,36</sup>

- *Rheumatoid arthritis (RA)*: One study used nabiximols compared to placebo and showed that nabiximols improved pain, sleep, and Disease Activity Score (DAS28).<sup>35,36,39</sup>
- *Osteoarthritis (OA)*: One study used a Fatty Acid Amide Hydrolase (FAAH) inhibitor (an agent that mimics the actions of cannabinoids by enhancing the endocannabinoid system) compared to placebo and a standard treatment medication, the NSAID naproxen.<sup>39</sup> The study ran for two weeks and then stopped at interim due to 'futility'.<sup>39</sup> At the two-week mark, the FAAH inhibitor showed no significant pain reduction compared to placebo, unlike naproxen which showed significant pain reduction.<sup>39</sup>
- *Chronic back pain*: One study used nabilone compared to placebo and showed that nabilone reduced present/current/instant pain but not the total pain intensity over the study duration of 4 weeks, nor did it demonstrate significant quality of life improvement.<sup>35</sup>

Although limited evidence shows some benefit to pain, the quality and quantity of evidence seem inadequate to draw solid conclusions.<sup>39</sup> All identified studies are considered to be low quality with a high risk of bias due to several limitations. For example, all studies have a small sample size (30-74 patients) and short duration (2-8 weeks).<sup>35,36,39</sup> Additionally, no studies examined recreational or medical plant products (nutraceuticals) of cannabis limiting the findings to pharmaceutical cannabinoids.<sup>35,39</sup> Weighing the benefits, harms and limitations to these studies, current guidelines still do not recommend the use of cannabis-based medicines for pain associated with rheumatologic conditions.<sup>25</sup>

### Neuropathic Pain

Unlike acute and rheumatologic pain, neuropathic pain has been an area where cannabis-based medicines have been studied more extensively. Multiple SRs evaluated RCTs examining cannabis for neuropathic pain and concluded significant effects on pain relief.<sup>40</sup> For example, an SR done in 2018 looked at 16 RCTs for cannabis-based medicines (including inhaled medical cannabis and pharmaceutical cannabinoids) in a variety of neuropathic pain conditions, including HIV, diabetes, multiple sclerosis, and other peripheral/central aetiologies.<sup>41</sup> This SR found that cannabis-based medicines were superior to placebo for substantial (50% or more) pain relief (based on low-quality evidence) and for moderate (30% or more) pain relief (based on moderate-quality evidence).<sup>41</sup> However, several limitations to the evidence were highlighted, such as the small sample size and low quality of included studies and the limited number of neuropathic conditions investigated.<sup>41</sup>

Within neuropathic pain, multiple sclerosis (MS) was investigated in 14 out of 31 identified studies.<sup>42</sup> A 2020 SR with 11 trials on MS meta-analyzed showed a significant

mean pain reduction of -0.67 on a pain scale from 1 to 10.<sup>42</sup> The authors note that although the effect is small, it may still be considered important as pain response to conventional analgesics is poor in MS, and these trials examined pain separate from muscle spasticity, which can also contribute to pain in these patients.<sup>42</sup>

As a result, two guidelines suggest that clinicians may consider the use of cannabis-based medicines in refractory neuropathic pain; after failure of first- and second-line therapies.<sup>25,40</sup> Most pain studies also use cannabis with concomitant analgesics, and therefore it is recommended that if cannabis-based medicines are used, they are used as adjuncts to other analgesics.<sup>25</sup>

### Palliative Cancer Pain

Some animal studies and a large body of observational human data indicate the potential efficacy of cannabis-based medicines in cancer pain management.<sup>43</sup> However, the data showing efficacy from clinical trials are relatively scarce.<sup>43</sup> The outcomes of three SRs on cannabis-based medicines in cancer pain were deemed inadequate as one reported inconsistent outcomes,<sup>38,44</sup> the other two conducted meta-analyses that did not show statistically significant reduction of pain.<sup>45,46</sup> Despite the infancy of evidence, there are recommendations that clinicians can consider cannabis-based medicines for refractory pain in palliative cancer patients; after the failure of first- and second-line therapies.<sup>25</sup> This recommendation is seconded by the potential small benefits of cannabis for nausea, vomiting and appetite stimulation, the reduced concerns for long-term adverse effects, and faster progression to opioid analgesia in this population.<sup>25</sup>

### Cannabis Products and Pain Management

When considering cannabis for pain management, pharmaceutical cannabinoids (nabiximols or nabilone) are preferred over medical or natural plant (or nutraceutical) cannabis, especially smoked.<sup>25</sup> There are several concerns related to smoked cannabis including the lack of high-quality evidence that supports its use, unknown long-term consequences and that smoked products may have far higher THC and CBD concentrations than those usually investigated in clinical settings.<sup>25</sup> Additionally, medical and natural plant (nutraceutical) cannabis allow for less consistent dosing and smoking can lead to adverse symptoms of increased cough, sputum and chronic bronchitis.<sup>42</sup> As for pharmaceutical cannabinoids, nabiximols has the most evidence;<sup>25,42</sup> however, compared to nabilone, it can be expensive and more difficult to access, as it is only available through specialist prescribing or special authorization in some provinces.<sup>25</sup>

### Interpreting the Evidence

Research on cannabis-assisted pain management has several caveats that should be taken into consideration when interpreting available evidence. First, there is a need for large-scale, better designed (controlled, blind-

ed) trials to draw more solid conclusions. In addition, longer study duration can provide more insight into the long-term benefits and consequences of using cannabis – for example, 27 out of 33 studies in a meta-analysis for cannabis in chronic non-cancer pain had a duration less than 12 weeks, and none were longer than 16 weeks<sup>42</sup>, making it unclear what the long-term analgesic efficacy and safety is for cannabis-based medicines<sup>42</sup>. Despite the evidence of decreased pain in some conditions with cannabis, the effect size is generally small and does not meet the minimal clinically important difference for pain improvement, being a reduction of 2 on a 0 to 10 pain scale or a relative reduction of at least 30%.<sup>42,47,48</sup> These small effect sizes warrant more research to understand the real impact and clinical significance. In addition, the evidence on the rate and severity of adverse events should be interpreted with caution as many studies enrol experienced cannabis users who have reduced risk of adverse events.<sup>38</sup> An example is psychosis which is more common among naïve users.<sup>38</sup> All in all, benefits should always be weighed against potential adverse effects.<sup>25</sup>

Another critical point is that cannabis-assisted pain management should be considered in comparison or adjunct to other standard treatments. Unfortunately, many studies only compare cannabis-based medicines to placebo rather than an active comparator.<sup>42</sup> For example, only 5 out of 38 trials studying cannabis-based medicines in chronic non-cancer pain used standard treatment as an active comparator; the rest were compared to placebo.<sup>42</sup> Furthermore, a meta-analysis of these five trials using an active comparator showed that cannabis-based medicines had no significant analgesic benefit compared to the standard treatment.<sup>42</sup> However, currently approved therapies, such as NSAIDs, opioids, or medications for neuropathic pain, are associated with safety concerns as well; therefore, we emphasize again the importance of weighing benefits against risks when considering various therapeutic options.

In summary, there is still inadequate evidence to conclusively determine the role of cannabis-based medicines in pain management. However, the inadequacy of evidence and recommendations does not mean that patients are not using cannabis for their pain. In Canada, 65% of authorized users identified as suffering from “severe arthritis”, which may reflect a high prevalence of use among patients with pain-associated conditions.<sup>35</sup>

*If a patient presents to an appointment intoxicated, clinicians are recommended to refrain from providing treatment, and may report patients to local authorities in case they intend to drive*

### Implications for Physiotherapy Practice

As with other medications, it is important to know whether patients are using cannabis, and to understand the impact on assessment and treatment. Given the variability surrounding cannabis products and use, history taking of cannabis use should include:

1. Type of products.
2. Frequency and duration of use.
3. Any medical reason for use.
4. Any benefits experienced.
5. Any side effects experienced.

If patients are using cannabis, it is recommended to adjust treatment plans to consider the effects of cannabis. Below are examples of treatment plan adjustments:

- Modalities that require intact sensation (such as electrical stimulation or heat) may not be the best options for patients experiencing psychotropic effects of cannabis.
- Physiological effects of cannabis causing increased heart rate/blood pressure and bronchodilation requires greater monitoring and need to potentially decrease intensity of activity.<sup>3,6</sup>
- Cannabis effects on short term memory may affect how well a patient remembers home exercise programs and education sessions.
- Cannabis may cause sedation and decreased ability to engage in any activities. It may also affect balance, coordination, and reaction time, which should be accounted for when choosing the appropriate exercises and programs, and when tailoring the rehabilitation approaches for patients.
- Cannabis may affect mood and lead to confusion, hallucinations, and paranoia, which may take a toll on patients' compliance.

Regulatory colleges have guidelines on cannabis and the responsibilities of physiotherapists. This ranges from documentation, discussing therapeutic options in light of cannabis use, to adapting the management approach.<sup>2,9,49</sup> Regulations emphasize that physiotherapists are not authorized to recommend, sell, or prescribe cannabis. Therefore, it is important for physiotherapists to be aware of cannabis when taking a comprehensive history, examine patients every session for any intoxication signs that reflect an inability to give consent or undertake the treatment, document current or past cannabis use, and refer patients to specialized healthcare providers when needed.<sup>2,9,49</sup> Being familiar with local authority recommendations is also essential for physiotherapists to be able to best-approach clients who use cannabis. For instance, in Alberta, Canada, if a patient presents to an appointment intoxicated, clinicians are recommended to refrain from providing treatment, and may report patients to local authorities in case they intend to drive.<sup>2</sup>

## Currently, neuropathic pain has the most evidence amongst pain conditions for the use of cannabis-based medicines.

### Concluding remarks

Research on the benefits and safety of cannabis is still evolving. Individuals may use cannabis for an array of reasons, including medical purposes. At the same time, side effects can impact patient health and interfere with physiotherapy assessments and interventions. Physiotherapists are responsible for recognising the effects of cannabis use with their clients which includes proper history taking and adjustment of assessment and treatment.

There is a need for high-quality clinical studies to clarify the role of cannabis-based medicines in managing pain. Currently, neuropathic pain has the most evidence amongst pain conditions for the use of cannabis-based medicines. It is one of the few conditions'

cannabis-based medicines can be considered for, along with palliative cancer pain, but only when refractory to standard medical therapies. This evidence, as well as guidelines, are helpful for physiotherapists to consider for patients who may be looking toward cannabis as an option and when working together with prescribers, pharmacists, and other team members to collaboratively address the pain management of our patients.

### Interested in learning more?

To learn more, you can check out the Cannabis 101 webinar for physiotherapists by visiting: [https://www.physiotherapyalberta.ca/xchange/continuing\\_professional\\_development/elearning\\_center/cannabis\\_101/?search\\_term=cannabis](https://www.physiotherapyalberta.ca/xchange/continuing_professional_development/elearning_center/cannabis_101/?search_term=cannabis)



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## Easing the Fire in Burn Pain: How does Hypnosis and 'Fifty Shades of Grey' ease the Agony?

**Hypnosis is a form of pain self-management.** It gives our patients the gift of helping themselves. As with any exercise we prescribe, we are simply the coach, not the athlete. We simply guide the patient; they put in the work. The patient does the hypnosis, not us. Many would say all hypnosis is a form of self-hypnosis, as the patient retains control. The most significant barrier to hypnosis is often the myths surrounding it. People fear being “controlled.” But hypnosis is akin to driving with my partner; he has the steering wheel, and I have the map. However, with the wheel, he has all the control! If he listens to my directions, we will arrive at our destination, but if not, we are lost! The art of hypnosis is getting the patient to focus on your instructions and tune out other thoughts. In fact, many define hypnosis as a state of focused attention.

Hypnosis, at its essence, is essentially a brain exercise, harnessing the amazing power of our brain. Have you ever wondered how *50 Shades of Grey* transforms nociceptive information into pleasure? Think about it. How on earth does something that is normally painful and stimulates nociceptors become pleasurable? *50 Shades* is a fascinating study in the neuroscience of pain. How does pain become pleasure? How do we harness that?

The amazing brain is what *50 Shades of Grey* and hypnosis have in common, as they both use the brain's power to alter the pain experience. Vision can change pain. Colour can change pain, for example, a red painful stimulus is perceived to be more intense than a blue of the same intensity.<sup>1</sup> Context and expectation can also change pain. Anxiety, fear, a sense of control, can all alter the pain experience. Trust changes how one interprets the threat of the pain experience. *50 Shades* utilizes all these variables to make nociception pleasurable. These variables are also part of effective hypnotic techniques.

## *Pain is not just a tissue issue.*



What is the most powerful tool we have? Language and communication. Using language to target our patients' brains, we can target how they process pain. *Target the brain, not the tissue.*

Hypnosis is all about language and communication. It is literally treating the brain with words and creating change with your choice of words. The choice of words is essential.<sup>2</sup> Learning the power of words has transformed my practice, improving each patient interaction.

When I was trained as a physio, I was taught to warn of upcoming pain. Yet, the literature indicates that warning *ahead* of a painful stimulus not only *increases* the pain but also *increases* anxiety. Words are powerful indeed. Your choice of words can increase or decrease muscle strength in clinical situations.<sup>3</sup> Hypnotic 'confusional' techniques take only three sentences yet can decrease the experience of needle pain.<sup>4</sup> In addition to these effects, hypnotic techniques have been shown to reduce procedural costs, benefiting the overall system.<sup>5</sup>

How often do word choices affect our patients? Consider that word choices in MRI reports have the power to *change surgical recommendations*, despite containing the same scientific information.<sup>6</sup> Orthopaedic surgeons, residents and physiotherapists changed their recommendations depending on the wording, not scientific content.<sup>6</sup> So, if not scientific content, might it be the emotion words generate that affect our decisions subconsciously? Just as pain is processed subconsciously?

Whether we realize it or not, words affect our patients, as does non-verbal communication. Learning hypnosis techniques includes intentional rapport building, the foundation of building a therapeutic alliance, one of the most robust predictors of treatment success.<sup>7,8</sup> Rapport is also communication, but much of it is non-verbal. It is this combined learning that can change practice, even if you don't use hypnosis formally.

*Pain is not just a tissue issue.* Pain affects the whole person, so we *treat the whole person*. Hypnosis is ideally suited to treat the whole person. What does that mean? Pain is affected by context, beliefs, emotion, physiology, self-efficacy, etc. In hypnosis, we can target many of the factors that may be driving pain.

One of the key advantages of hypnosis is the ability to find emotion in trance. Why do we want emotion you may ask? How often do we get behaviour change from knowledge alone? If that worked, no one would smoke, and everyone would exercise. And that's not happening! Knowledge alone is not enough, but connecting to emotion is where behaviour change may start. Simple, yet powerful. Often, during a trance, when a patient can experience a time of less pain, they may cry. Tears of joy and relief. Pride in what they have achieved for themselves. It also builds rapport and trust. Deep hypnosis is intensely personal for some reason. And for many of my patients, to follow what I must ask of them (to move their burnt, raw and bleeding limbs,) they must trust me. For to recover from a life-altering burn is a journey in trust.

Why does hypnosis include emotion? Potentially because many of the areas that process the pain experience are affected by hypnosis.<sup>9</sup> Hypnosis has been shown to affect the insula, thalamus, sensory cortices, anterior cingulate cortex and prefrontal cortex.<sup>9</sup> Spinal reflexes can also be affected by trance, and this reflex is beyond conscious control, as is emotion on occasion.<sup>9</sup>

Hypnosis is not simply imagination. It goes beyond that.<sup>10</sup> The brain areas targeted depend on the suggestions and techniques used in trance,<sup>9</sup> which indicates why a significant depth of knowledge regarding pain neuroscience is necessary.



*“You can’t think... the pain is overwhelming... it is like looking into the sun’s blinding light... everything else is lost around you.... Burn pain needs a different term, as it is so far removed from what we understand pain to be.”*

~ David Sereda

David Sereda is an exceptional man, a registered psychologist, and has worked for decades. Unfortunately, he became badly injured and sustained a 30% total body surface burn, requiring significant surgeries. What does it feel like to experience a burn like this? “Until you have had the burn pain experience, you don’t necessarily relate to, or believe the term ‘blinding pain.’ You can’t think, the pain is overwhelming, it is like looking into the sun’s blinding light, everything else is lost around you, and there is nothing else but the burn pain, all-consuming and overwhelming. Burn pain is in its own category. Despite having experienced orthopaedic surgery, nothing even comes close to the burn pain experience. *Burn pain needs a different term*, as it is so far removed from what we understand pain to be.”

Hypnosis is often done by lay clinicians, who label themselves hypnotherapists with no set educational standards. Hypnosis has the potential for abreactions, especially in those with a history of trauma. There are also contra-indications. Hypnosis training should be obtained from a recognized society, such as the Canadian Society of Clinical Hypnosis sections, or experienced individuals who have connections to these societies through registration, to ensure safety. Avoiding learning from those trained by lay institutions avoids issues of educational standards. One can only treat in hypnosis what one is qualified to treat out of hypnosis, to ensure we stay in scope. We are not hypnotherapists, but physiotherapists who use hypnosis as one of our techniques.

The recent American Burn Association’s 2020 Guidelines for Pain Management include the use of hypnosis by *appropriately trained individuals*.<sup>11</sup> They recommend non-pharmacological approaches to burn pain, in addition to medications. Hypnosis, cognitive behaviour therapy, and virtual reality are listed as having the strongest level of evidence. In addition, hypnosis has been shown to be effective for acute and chronic pain.<sup>12,13,14</sup>

I primarily use hypnosis to treat burn pain, acute and chronic, although I have used it for other applications. I started hypnosis 17 years ago and was lucky enough to be mentored by some of the greats (Dr. Dabney Ewin, Dr. Assen Alladin and Dr. Elvira Lang). I’ve taught doctors, dentists, social workers, and psychologists in Canada and the United States. I’ve presented at the Society for Clinical and Experimental Hypnosis in the US with Dr. Lang. But my *best teachers* are my patients!

David was struggling, looking for new options to help control his pain. “I knew psychological or cognitive options were out there, but I did not know how to do them for myself. The pharmacological options were not working, other than making me sick from the side effects.” When asked if he would recommend hypnosis, this is his reply. “Yes, because it was effective, and my other approaches were ineffective. From my experience, there were no negative effects or side effects, and the opioids were doing nothing, just making me sick and tired, that’s why I finally stopped using the patient-controlled analgesia.” (Of note, one must be careful to avoid abreactions in hypnosis, especially with trauma.)

David names trust as an essential component to successful hypnosis. “If I did not trust you completely, I could not have been successful.” “How do you become a trusted source of information for the patient?... Empathy,” for “without relationship building, without core empathy skills, without any connection... why would anyone listen to you?”

“Without rapport you have nothing, and you need to trust the professional to reduce the sense of vigilance, or state of alarm, to be able to go into trance.”

“If you go to see a physiotherapist for a mechanistic intervention, it requires less trust than hypnosis. Hypnosis has a very personal quality to it and requires more personal trust and sense of safety from your physio.” “If patients are too anxious, they default to their reptilian brain, and cannot process what you are asking of them.”



*Hypnosis was a chance to get out my head and go somewhere more pleasant.*

~ Danna Pederson

How can we as healthcare professionals start to integrate more of these non-pharmacological treatments into acute care? David responds “being willing, within the profession, to truly adopt a model of care that is patient centered, acknowledging the fact that patients are *people*, and patients understand themselves the best. No one understands them as well as they do.” David’s comments underscore the importance of rapport, trust, and why developing these, alongside compassion, is so important. Learning the power of language to assist us and being aware of all factors that influence the pain experience is essential to integrate non-pharmacological treatments for pain. Hypnosis is not a panacea, but it can be very effective for some patients.

David is highly educated. Does hypnosis work if you are not? Consider Danna Pederson, a remarkable young woman who sustained an 85% total body surface burn, lost all her fingers and a leg to the burn injury. At the time of Danna’s burn, she had not finished high school. Her burn pain was unimaginable. Danna used hypnosis for her burn pain and for numerous dressing changes. Yet one thing took Danna to a place where she wanted to give up, even if it meant she died. She was to get her NJ tube re-inserted, a tube that extended from her badly burnt nose to the jejunum. She had vomited the tube out, which was her only source of nutrition. Yet, despite numerous attempts, and the maximum dose of opioid medication over several attempts, she was unable to get it re-inserted due to pain. Danna made the decision to leave it out, knowing that meant she would have no nutrition, and could die.

But we had one last option...hypnosis. Here is what Danna had to say “Hypnosis was a chance to get out my head and go somewhere more pleasant. It let me get off the task at hand, and make it a little bit easier, like when I had my NJ put back in.... it didn’t feel very good going down. I had failed a bunch of attempts with all the medications. They had maxed out my medications and I [decided] I didn’t care if I didn’t get food anymore, I just couldn’t do it. It hurt way too bad. *I had finally given up.*”

“But when you offered to use hypnosis to help me get that 4-foot tube down into my intestine it made such a huge difference.” “When you used the hypnosis, I was basically able to get out of my head and be on the beach eating strawberries with my dog Diplo.”

Would Danna recommend it to other people? “Definitely.” ***“Sometimes you can have as many drugs as you need, and as many as you are allowed to have, and it just doesn’t do anything... you have to figure out another way.”***

“You have to figure out another way.” Perhaps we, as a profession, have to figure out another way. One which includes hypnosis, positive expectation, creating rapport, and learning how to harness the power of language, both verbal and non-verbal. Pain is not just a tissue issue, but a brain and whole-person issue. Let’s treat it as such! 🧠



**Alex Chisholm, BSc.PT, PgCpain, F-CFCH**

Alex Chisholm is a physiotherapist with her Post-Graduate Certificate in Multi-disciplinary Pain Management from the University of Alberta, is a Fellow in the Canadian Federation of Clinical Hypnosis (Now ASCH), and a certified Comfort Talk<sup>®</sup> trainer. She is a member of the Alberta Pain Strategy and the Alberta Pain Society. Find her on LinkedIn.

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# The National Action Plan for Pain in Canada;

## History and a Call to Action. Stay Tuned!



**Chronic pain affects nearly eight million Canadians**, including children, and is a burden unevenly shared. People living with chronic pain are stigmatized and suffer significant impacts on their mental health and physical, social and role functioning. Despite having been recognized by the World Health Organization as a disease in its 11<sup>th</sup> iteration of the International Classification of Diseases (ICD-11), chronic pain continues to be poorly understood and inadequately treated; access to chronic pain care is fragmented and inequitably distributed across Canada. Not only is chronic pain common, disabling, and undertreated, but it also exerts an enormous economic toll costing the Canadian economy roughly \$19B in 2019. In 2019, after several earlier attempts by various organizations to get the government to take notice, Health Canada created the Canadian Pain Task Force. This was the first inkling that the government recognized pain as a priority; it was exciting that this concrete step had been taken to ensure that people living with pain are recognized and supported and that pain is understood, prevented, and effectively treated across Canada.

Please stay tuned for a deeper dive into the work of the Canadian Pain Task Force, specifically on its recently published national Action Plan for Pain in Canada, and our call to action for physiotherapists! 🇨🇦



### **Fiona Campbell (Co-chair), Canadian Pain Task Force**

Dr Campbell is a Professor in the Department of Anesthesiology and Pain Medicine at the University of Toronto, Director of the Chronic Pain Program in the Department of Anesthesia & Pain Medicine, and Co-director of the SickKids Pain Centre at the Hospital for Sick Children. As inaugural Co-chair of the Ontario Chronic Pain Network (pediatric section), in partnership with the Ontario Ministry of Health, Dr. Campbell has helped shape a provincial strategy to enhance access to improved pediatric chronic pain services. Fiona is Past-President of the Canadian Pain Society and was Co-chair of Health Canada's Canadian Pain Task Force, which has recently published An Action Plan for Pain in Canada.