MDT World Press

The McKenzie Institute® International
2014 Vol. 3, No. 4

Feature Commentary

DEFINING CHRONIC PAIN

KRISTI MAGUIRE, PT, DIP. MDT

The natural history of low back pain is quite variable amongst individuals. Because of this variability, it is often difficult to categorize patients by the definitions of acute or chronic pain. Back pain may be episodic and short lived with few or frequent episodes, but with a specific beginning and an end. Often, these episodes worsen over time. On the other hand, some individuals experience one episode from which they never fully recover, followed by another 'acute' episode that begins and gradually lessens, but, again, never fully recovers and the cycle continues in that pattern. Others have one significant episode that never resolves and continues to significantly limit their function and lifestyle. Herein lies the difficulty of determining acute to chronic definitions (McKenzie and May, 2003).

The Quebec Task Force defines the acute phase of an injury as zero to seven days, sub-acute is defined as seven days to seven weeks, and the chronic phase is defined as greater than seven weeks (Cook et al., 2005). When pain persists for months to years, beyond normal tissue healing, other factors must be considered, such as change in the CNS due to persistent nociceptive input from the peripheral nervous system, known as central sensitization. The prevalence of this is unknown at this time (Johnson, 1997). Central sensitization is described by McKenzie and May, 2003, as "Sensitization of neurones in the dorsal horn - a state characterized by reduced thresholds and increased responses to afferent input, such that normal mechanical stimuli is interpreted as pain, as well, there may be heightened responses to repeated stimuli, expansion of receptor fields, and spontaneous generation of neuronal activity" (Johnson, 1997; Siddall and cousins 1997; Dubner, 1991; Cousins, 1994). In other words, normal body sensations are now being misinterpreted (Vlaeyen, 2000).

Chronic pain state of central sensitization not only consists of neurophysiological changes, as described above, but also includes psychosocial factors as well. These psychosocial factors, or 'yellow flags', as described by McKenzie and May, include "depression, anxiety, passive coping and attitudes about pain and are related to pain and disability. Catastrophising, hyper-vigilance about symptoms, and fear-avoidance behavior are attitudes and beliefs that have been highlighted as being particularly significant in this context" (2003). As time passes and pain persists, the actual link to the original tissue damage becomes minimal and now the neurophysiological, psychological and social factors dominate the pain experience (McKenzie and May, 2003, Waddell, 1998; Adams, 1997).

As clinicians who assess and treat individuals with musculoskeletal problems, we play an important role in preventing our acute patients from developing a chronic pain state and identifying those that have already developed chronic pain state. In both cases, it is done by guarding against passive coping strategies that encourage the sick role and the patient becoming dependent on an external locus of control (McKenzie and May, 2003). Therefore, having an in depth understanding of the tissue repair process that follows trauma or onset of musculoskeletal pain is of substantial importance. We must be able to identify the behavior of pain and symptoms during all phases of tissue repair, both chemical and mechanical, in order to understand our patients. This will lead to the most appropriate interventions customized to each individual. Our assessment process is crucial in the identification of 'lesion behavior.' This assessment must be reliable in order for us to make the same conclusions about the patient's type of problem that allows us to place patients in homogenous groups. This conclusion then leads to the proper treatment intervention and, ultimately, improved outcomes. There is preliminary evidence that classification of back pain allows for successful determination of homogenous groups of patients with musculoskeletal pain that leads to improved outcomes (Fritz et al., 2003; Long et al., 2004; Cook et al., 2005; Donelson, 2008).

The McKenzie Method® of Mechanical Diagnosis and Therapy® (MDT) is the only assessment process that has been critically analyzed through multiple research studies in its ability to be inter-rater reliable in detecting different types of low back pain. The McKenzie Method was first described

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in published form in 1981, followed by a second edition in 2003. The MDT assessment identifies how the symptoms and mechanics of the tissue behave when subjected to repeated, end range, spinal movements and positions. Paying special attention to the symptomatic and mechanical affects of movement exposes certain patterns that are characteristic of three syndromes; derangement, dysfunction and posture. Those whose pattern does not fit into one of these three classifications may have patterns that fit into the 'other' group. This 'other' group includes stenosis, chronic pain state, mechanically inconclusive, spondylolisthesis, and non-mechanical pain. When properly administered, the assessment process also assists us in identifying atypical patterns that warrant referral to MD to rule out sinister pathology. To date, the evidence demonstrates that clinicians properly trained in Mechanical Diagnosis and Therapy can reliably classify patients with lumbar and cervical pain (Kilby et al., 1990; Riddle D et al., 1993; Donelson et al., 2000; Razmjou et al., 2000; Kilpikoski et al., 2002; Clare et al., 2005).

One very important sub-group to make note of is the MDT classification of derangement, which is characteristic of the ability "to rapidly reverse the underlying problem and bring about rapid recovery from the current pain while simultaneously identifying how to effectively prevent recurrences" (Donelson, 2008). This sub-group involves the characteristic of centralization that has been shown multiple times to be inter-tester reliable in its identification amongst clinicians (Fritz et al., 2000; Aina et al., 2004; Clare et al., 2004; Cook et al., 2005). The phenomenon of centralization can be defined as pain or symptoms emanating from the spine that are decreased and abolished from a distal to proximal location as a result of repeated end range movements or sustained positions, remaining better as a result (McKenzie and May, 2003). When present, the particular movement or position that was able to induce this centralization response is known in the literature as the patients 'directional preference.' This particular subgroup, only identified with this assessment process, can have a rapid reduction of pain in both location and intensity, as well as a rapid improvement in the ability to move.

The prevalence of this sub-group of patients from the centralization studies is as high as "70-87% of patients with recent onset of LBP, but it is also elicited in 50% or more of patients with chronic LBP" (Donelson, 2008). Long found in 223 patients with chronic low back pain with an average of 8.79 months duration of symptoms, 47% were centralizers as compared to non-centralizers. The centralizers had greater decreases in pain and better return-to-work rates as compared to the non-centralizers (1995). This study is one of the many that consistently demonstrate good to excellent outcomes in individuals who demonstrate ability to centralize. Because the prevalence rate is high we must rule out this sub-group, as well as sinister pathology or pathology that is a significant mechanical lesion that warrants referral to a specialist before classification into the Chronic Pain State category.

According to reviews completed by the Cochrane Collaboration in 2011, there is evidence that exercise is effective in decreasing pain and improving function in the chronic pain population. The reviews regarding passive interventions demonstrate evidence that is either unclear or no better than placebo (The Cochrane Database of Systematic Reviews, 2011). When chronic pain state is the classification, then our interventions are directed towards active intervention in order to reduce fear-avoidance beliefs (Linton, 2002). The literature describes three steps for effective intervention: First, being able to identify this patient population, which is described above using the mechanical assessment of MDT. Second, is the educational component that is directed toward this type of pain being a common condition that is self manageable, and not a serious disease or condition requiring careful protection (Vlaeyen et al., 2000). Moseley also describes education as a very important component so that the patient understands the physiology involved in the chronic pain state of the tissue, which helps to reduce the threat value associated with the pain (2003). Third, is the management of the condition.

Management, as described by Moseley, is to first determine the baseline tolerance, the point that the patient perceives as an increase in pain that lasts more than a few minutes (2008). Tissue stimulation is necessary to begin the desensitization process, but care is taken to perform movements under the flare-up line and in a way that the patient perceives as non-threatening. This is also where the educational component is able to decrease fear of this mild stimulation of symptoms by increasing the patient's awareness that a short duration of only a few minutes of heightened symptoms will assist in preventing over -stimulation to the point of flare-ups (Moseley, 2008). Because the MDT assessment involves identification of symptomatic and mechanical effects of movement, the trained clinician will be able to identify the most mechanically advantageous movements to start with, modify and change as the patient progresses.

As the tissue begins to adapt, there is a gradual increase in the level of activity until a level of self-management, function and acceptance has been reached. Lance and Eccleston, found that "acceptance, versus coping with chronic pain, was associated with less pain, disability, depression and pain -related anxiety, higher daily uptime, and better work status" (2003). Ultimately, through this process and

successful performance, there is improvement in function, resumption of enjoyable activities, increase in comfort and independence with tasks, an increase in self-efficacy and improved attitude toward physical activity (Woods et al., 2008).

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The McKenzie Institute® International
2014 Vol. 3, No. 4

GUEST COMMENTARY

Mechanical Care Forum: A Resource Spreading Awareness of MDT

Jason Ward MPT, Cert. MDT

In 2001, Steve Jobs introduced his first generation music player, the iPod. Over the next several years, the term "podcast" emerged and gave opportunity for radio-like programming to be produced by professionals and amateurs, alike. There have been many factors that have contributed to the rising popularity of podcasts. One primary reason is increasing accessibility, with more and more people owning a means to listen right in their front pocket, their smart phone. There is also the growing interest in making the most of our time by consuming audio content while commuting, on a jog or even doing routine chores.

I began listening to podcasts a few years ago in an effort to fit in some additional learning while I could, and found myself disappointed in the available material pertaining to physical therapy or orthopedics. I began reflecting on the popularity of the conferences and courses offered by The McKenzie Institute and how devoted the participants are at these events and felt certain that an audio podcast related to mechanical assessment and treatment would be appreciated by many others. With the help of some others more experienced in podcasting than I, and the support of my family, I launched the Mechanical Care Forum in March of this year.

My initial interest was to gain knowledge and inspiration from leaders in our field through interviews so that I could share their views and insights with as many as possible. My hope was, and continues to be, to contribute to spreading the awareness of tried-and-true, proven principles that best resolve musculoskeletal disorders to everyone that is in a position to care for such patients.

Like many endeavors that have begun out of someone's burning devotion or passion, I started my podcasts out my own interest and desire to better serve people who suffer with movement and posture impairments. Hearing patients describe their lengthy experience of pain and declining participation in family events, social outings, occupation and recreation is what I find most motivating, and drives me to want to spread the MDT word. The disservice of some providers by what education they provide, whether intentional or not, essentially "sentencing" patients to a life with, for instance, a bad back or a bum knee, appears pandemic. Knowing the life-changing effects that end-range movement and posture modifications can have on so many, persuades me that it is not simply an option for me to inform the masses who are afflicted, but more a responsibility.

I have already gained so much knowledge from the guests I've interviewed. From the patient-education analogies Dave Oliver and Audrey Long use to "make it click" for the patient, to the resources that Mark Werneke and Ted Dreisinger just wouldn't do without, to the memorable patient experiences that Colin Davies and Ron Schenk have grown from, to the best professional advice Ron Bybee, Brian Mulligan and Robert Medcalf have ever received, I've gained not only pearls of wisdom, but also a tremendous appreciation for the quality of the individuals we have as mentors and their devotion to this cause. It motivates me to want to do more as well.

Up to this point, I have published podcast interviews with 22 guests in a total of 39 episodes. I have many additional ideas that I hope to move forward with stemming from initiating my podcast series and hearing the greatest needs and wants from my listeners. There are surely many more ideas that are just waiting to be discovered! I'm certain that we have plenty of talent within our MDT community to advance the visibility of the benefits of this system, in an even greater way, to individuals struggling with musculoskeletal pain.

So, as it relates to our obligation to reach out and extend ourselves as advocates for that patient who is without hope, who has essentially been told s/he will not recover, regain normal function, get well or be able to control pain - I prefer to do more. I'll take Ted Dreisinger's advice, as he mentioned in Episode 26, and say "YES!" because "Opportunities hinge on the willingness to say yes."

Avail yourselves of the outstanding opportunities Jason has created at http://mechanicalcareforum.com/

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BRANCH SPOTLIGHT

McKenzie Institute Sweden
Gunilla Limbäck Svensson PT, PhD
Swedish Branch Chairman

The Swedish Branch – Established 1992
Sweden is a small, but long country in northern Europe with nine million inhabitants. The Swedish Branch was founded in 1992 by a group of enthusiastic physiotherapists from different parts of Sweden. I, myself, went to one of the first Part A courses in Sweden in 1991, taught by Mark Laslett, an amazing teacher in a large auditorium setting. Our first native teacher was Lars Degerfeldt. He was, in many ways, the "Swedish Mr. McKenzie", since he was the only Swedish teacher, as well as the Chairman of the Swedish Board, for several years.

Our Board Members now spread the region from Umeå in the north to Lund in the most southern part - a distance of 1,240 km. Therefore, our board meetings are mainly held over the phone or via computers. One or two times per year we have a face-to-face meeting, which is much nicer and, most of the time, more productive!

Teachers & Diplomas
Today, we are happy to have four other Swedish teachers in addition to Lars: Göte Norgren, Tobias Croner, Tomas Cullhed, and Yvonne Lindbäck. In addition, we have three newly diplomaed therapists: Angelica Gunnarsson, Calle Lindqvist, and Henrik Moström. We have been very fortunate to have had the opportunity to host the practical portion of the diploma education in Sweden in the last years, which has certainly played a very important role in educating more therapists to the diploma level in our country.

The Courses
At this moment in time, we are proud to have 270 credentialed persons in Sweden. Most of them can be found on our homepage by patients as well as colleges. Our teachers hold courses in several cities in Sweden throughout the year. We are constantly looking for new and better local facilities to host additional courses. In 2013, the Swedish Branch saw a decrease in the number of courses held due to factors we could not influence, including new rules from the government for private practicing physiotherapists. However, during 2014 we have hosted more courses than ever before. So now we are pleased!

Questionnaire
In response to the decrease in applicants to our courses in 2013, we sent a questionnaire to all persons who had participated in a Part A or B course during the last year. Our intention was to improve the courses and increase the number of participants. The questionnaires showed that 95% of the participants found that the course gave them useful tools for examination and assessment. Even more participants, 97%, thought that the course gave them useful tools to treat patients. Most participants, 96%, said that they would recommend the course to colleagues. Some physiotherapists even requested mentors after they had participated in one or more courses.

Mentors
Following review of the questionnaire responses, we put out a call for credentialed mentors and persons seeking mentorship on our home page. Board member, Lisen Tell, is responsible for matching mentors up with persons seeking guidance. This partnering has, so far, been quite appreciated.

Annual Congress & Collaboration with Neighbouring Countries
Every year, we hold a two-day congress, which includes the annual meeting for members in the Swedish Branch. Some years, we have collaboration with our neighbouring countries on this endeavour. This past spring, we were invited to Denmark and had our annual meeting the day before their congress. A couple of years ago, we had an interesting and nice meeting together with the Finnish Branch on a ship between Stockholm and Helsinki.

Lumbar Disc Herniation
We have had different themes for our congresses. In 2013, the theme was lumbar disc herniation, which proved to be a popular subject as we almost doubled the amount of participants as compared to earlier congresses. An orthopaedic surgeon, Klas Halldin, described the criteria for disc surgery. New research on discography was presented, including why you can't trust discography, as presented in Hanna Hebelka Bolminger's thesis (http://hdl.handle.net/2077/34430). Hanne Albert and Gunilla Limbäck Svensson presented their research as well. Hanne's and Gunilla's studies really supported and strengthened each other and showed that you can treat patients with lumbar disc herniation with MDT and reach good results!

Patients with Neck Problems
At the next congress in April 2015, the theme will be neck patients. Three PhD students will present their studies on patients with neck problem. A teacher in orthopaedic medicine (Cyriax approach) will present how orthopaedic medicine and MDT may harmonize with each other. Our own teachers and diplomates will hold workshops on differential diagnostics between neck and shoulder, neck and thoracic, and neck and headaches. This will be an interesting congress and hopefully many physiotherapists will attend!

The Journal "Manualen"
The Swedish Branch contributes to a Swedish physiotherapy journal called "*Manualen*". "*Manualen*" releases four issues per year and we write different articles with MDT approach for each issue. Topics may include reports from congresses', patient reports, and research reports. Through this journal, we reach physiotherapists who are members of the Swedish MDT Institute but also members in the Swedish OMT organisation and physiotherapists in orthopaedic surgery organisations within the Swedish Physiotherapy community. We hope this will create more opportunities for collaboration between the different organisations and generate more participants in our courses!

Medical Doctors Conference ~ Stockholm, December 2014
We will be participating in a symposium at a congress for medical doctors this December. By the time you read this text, we will probably have already done so! Lars Degerfeldt will assess and treat a patient according to the MDT concept. Gunilla Limbäck Svensson will present new research on MDT and disc herniation. Finally, an orthopaedic surgeon, Tycho Tullberg, will present criteria for lumbar disc surgery. During the congress, we will present a one day MDT course for medical doctors.

Swedish Theses with MDT Approach
To my knowledge, there have been five theses produced in Sweden regarding the MDT approach. Görel Kjellman wrote the first thesis in 2001, concerning patients with neck pain from Linköpings University. From the same university, Mark Laslett presented his thesis in 2005. The University of Gothenburg has presented three theses which included information on, but was not limited to, the McKenzie approach. In 2001, Gunilla Kjellby Wendt used FIL and EIL in early rehabilitation after lumber disc surgery. Mark Rosenfeld studied the benefits of active physical therapy after whiplash-associated disorder. I can't resist the opportunity to present my own thesis, which I defended in 2013, "Evaluation of a structured physiotherapy treatment model for patients with lumbar disc herniation", which you also can find at http://hdl.handle.net/2077/31996.

Copenhagen 2015
We look forward to see all of you in our neighbouring country, Denmark, in September 2015!

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CASE REVIEW: A CLINICIAN'S PERSPECTIVE

What Do You Do When MDT Doesn't Work?

Marc Wyckoff, PT, Cert. MDT, CEAS I

Introduction

Although I can't remember who said it to me first, the most consistent piece of advice that I've heard over the many courses I've attended or co-sponsored in the past 14 years has been that our greatest responsibility - and the benefit of MDT - is that it lets us definitively say "I'm sorry. I can't help you with this problem." There are several reasons we may say this, including, most importantly, patient safety, but also irreducibility, and non-mechanical classification.

We should learn as much, if not more, from non-responders. I always have two or three patient experiences for response when people ask "What do you do when MDT doesn't work?" My answer is, "It works every time." It works every time, because MDT is, firstly, an assessment process and not a treatment method. Every person that comes to see us needs to have one question answered: "Can I understand your symptom behaviors and positively change them with movement or positioning?" If either part of that answer is no, we can't "fix" them, but that doesn't mean MDT failed them.

The benefit that I have in working at my current job is that as a free-standing occupational health clinic, I have access to a full medical record, not just the therapy record. The detriment to working solely in workers' compensation is that I have no follow-through for people whom we refer back to their primary care provider for non-workers' compensation issues, except in this case.

Patient Examination

Day One: TJ was a welder at a local metal shop. He had presented to the medical clinic with right upper extremity symptoms that provoked/worsened with sustained welding activities, without any specific trauma or incident of onset in the past two months. Symptoms originated in the shoulder and would peripheralize to the hand. Symptoms were intermittent and would also occur for no apparent reason at times. He also noted intermittent tremoring of his right hand when welding. Examination of the shoulder demonstrated mild motion loss in flexion and internal rotation with end range pain. Strength was normal and non-provocative through the shoulder. Weakness was noted in the right wrist extensors, relative to his non-dominant left. Mechanical assessment of the shoulder demonstrated no directional preference or effect with repeated movements to end range +/- OP. Cervical clearing was positive and mechanical assessment of the cervical spine demonstrated provocation and peripheralization with flexion and centralization with retraction/extension. He was classified as D5 (unilateral/asymmetrical below the elbow, without deformity). He was given a home exercise program of posture correction with a lumbar roll and retraction extension exercises every one to two hours.

Day Two: TJ returned three days later very concerned. He had had no change in his symptoms as he did during the Day One session. His shoulder was moving better, but his tremoring was worse. He was able to demonstrate full range of motion of the cervical spine and had full range and strength of the shoulder (Improved ROM from Day One). However, when elevating his shoulder there was a marked distal tremor, which had not been present during the initial evaluation. He asked if such a tremor was normal. He was advised that it was rather unusual and was immediately seen by the referring physician (which is the greatest benefit of working in a full-service occupational medicine clinic). He was quickly referred to a neurologist and his primary care provider for follow-up.

Follow-up eight months later occurred during a functional capacity evaluation for return to work. TJ had been diagnosed with a thalamic tumor and was treated with radiation and steroids. At that point, he was in remission, according to his oncologist. He demonstrated marked fine motor deficits, balance and coordination deficits, and generalized right hemiplegia. While he demonstrated the material handling and positional tolerance abilities to return to his job, it was also recommended that further welding-qualification testing be done by the company to ensure that he could safely return to the job. Nevertheless, he was grateful to the therapist and medical clinic for identifying his problem and referring him out quickly. He had been told by the oncologist that his outcome could have been much worse had care been delayed any further.

What is important in this case is that “red flags” can arise at any time. The tremors weren’t observed on Day One. While “tremorring” as described by a patient could be a way of them describing fatiguing muscles, generalized idiopathic imprecision with fine motor activities, or a true central-origin tremor, it is worth noting as a potential “yellow” flag. Given that there were no other “red flags” (unexplained weight loss, dizziness, nausea, intractable symptoms, etc.), it appeared safe to proceed with examination on Day One.

This patient was first seen nearly 10 years ago, just after the advent of both the Extremities book and the original “Part E” course. At that time, the work of Scott Herbowy, Mark Miller and others in Austin, Texas to begin to understand general classifications of shoulder patterns was in its infancy. However, it was being impressed already on therapists in the extremities course that proximal screening should be undertaken for any symptom presentation that is not clearly of local origin (e.g., trauma). This is true, especially in light of symptoms extending distally greater than the elbow or knee for upper and lower extremity, respectively.

Following these recommendations, it appeared that a cervicogenic pattern was present, including positive responses to “limited” shoulder ROM following performance of retraction/extension. Given the provisional classification and absence of “red flags”, expectations were high for a successful outcome and the tremor concerns appeared benign. Clearly, this was not the case on Day Two. I can’t be certain that I didn’t identify and reduce a cervical derangement on Day One. However, it is because of the thoroughness with which the bottom of “Page One” of the Cervical Exam form is taught, an obvious “red flag” was not discarded. We, as clinicians, have a single question to ask ourselves before “turning the page” to examination each and every visit: Is it safe to treat this patient? It should be foremost in our mind and is part of the reason why MDT never fails.

THE McKENZIE INSTITUTE
EXTREMITIES ASSESSMENT

Date

Name "TJ" Sex M / F X

Address

Telephone

Date of Birth Age 22

Referral: *GP / Orth / Self / Other*

Work Welder

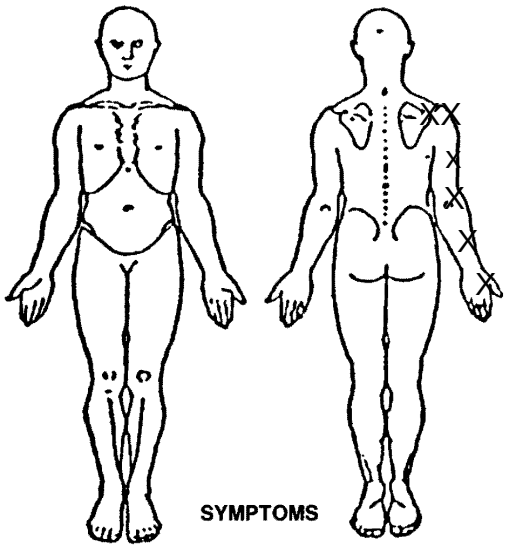
Leisure Outdoorsman

Postures / Stresses Sustained stooping

Functional Disability from present episode

Functional Disability score

VAS Score (0-10)



HISTORY

Present Symptoms Right shoulder "burning", peripheralization to hand, twitching and fine motor

Present since 2 months *Improving / Unchanging / Worsening*

Commenced as a result of no apparent reason *or no apparent reason*

Symptoms at onset: as above

Constant symptoms: Intermittent symptoms: shoulder, arm, forearm,hand

What produces or worsens sustained welding, fine motor activities,

What stops or reduces resting with arm supported and elevated

Continued use makes the pain Better Worse No effect

Pain at rest *Yes / No* X

Disturbed night *Yes / No* X

Other Questions No reports of paracervical/parascapular symtpoms

Treatments this episode Generalized shoulder stretches- no benefit

Previous episodes None

Previous treatments

Spinal history None

Paraesthesia *Yes / No* X

Medications tried Motrin, Indocin Effect No change

Present medication Indocin

General health Normal

Imaging None

Summary: *Acute / Sub-acute / Chronic* *Trauma / Insidious onset*

Sites for physical examination Cervical, R shoulder

EXAMINATION

Observation No acute deformity, atrophy, spasm

Baseline measurements (pain or functional activity) Right shoulder burning, R arm

Active Movements (note symptoms and range)	**PDM**	**ERP**
Flexion mild limitation		X
Internal Rotation- mild limitation		X
Passive Movement (+/- over pressure) (note symptoms and range):		
Flexion- mild limitation, no change symptoms		
Internal Rotation- mild limitation, no change symptoms		
Resisted Test Response (pain)		
Strength WNL and non-provocative through shoulder and elbow		
Mild weakness noted of right wrist extensors (C6)		

Repeated Tests (choose the most symptomatic from above)

Baseline symptoms **Symptoms response** **Mechanical Response**

Active movement, passive movement, resisted test	**During Movement –** Produce, Abolish, Increase, Decrease, NE	**After Movement –** Better, Worse, NB, NW, NE	↑ROM	↓ROM	No Effect
ROM in all planes					
Active and Passive with OP	NE	NE			NE
Effect of static positioning					
Other tests: eg loaded, compression, unloaded etc.					

SPINE

Movement Loss None, weakness noted in right wrist extensors v. left

Effect of repeated movements Rep flexion- peripheralize to arm, Rep retraction/extension centralize mid-trap

Effect of static positioning Flexion- peripheralized Shoulder ROM restored with Retraction/extension

Spine testing *Not relevant / relevant / symptomatic/problem* XXXXXX XXXXXXXXXX

PROVISIONAL CLASSIFICATION Peripheral

Dysfunction – Articular		**Spine** Contractile	
Derangement	D5- unilateral/assymetrical, below	Postural	
Other	elbow	Uncertain	

PRINCIPLE OF MANAGEMENT

Education Posture correction with lumbar roll

Exercise Repeated retraction/extension x 10 Frequency every 1-2 hours

Treatment Goals 1) Independent with HEP; 2) Centralize, Reduce, Maintain, 3) Return to full duty

The McKenzie Institute® International
2014 Vol. 3, No. .4

Summary and Perspective of Recent Literature
Stephen May, PhD, MA, FCSP, Dip. MDT, MSc (UK)

Bydon M, De la Garza-Ramos R, Macki M, Baker A, Gokaslan AK, Bydon A. (2014). Lumbar fusion versus nonoperative management for treatment of discogenic low back pain. A systematic review and meta-analysis of randomized controlled trials. *J Spinal Disord Tech*; 27:297-304.

Objective
To evaluate the evidence regarding lumbar fusion versus non-operative management for chronic discogenic low back pain.

Design
Systematic review and meta-analysis.

Participants
Pubmed and CENTRAL databases were searched for randomized controlled trial that compared lumbar fusion to some nonoperative management for patients with a diagnosis of chronic discogenic low back pain, which was not further defined.

Interventions
Five randomized controlled trials were included, in which 523 patients received lumbar fusion and 134 received conservative management. Inclusion and exclusion criteria were relatively similar across the studies, but surgical techniques and conservative management varied. The surgical interventions were described in some depth. The conservative managements were somewhat vague, but consisted mostly of physical therapy and/or cognitive therapy. Risk of bias was assessed against six criteria that focussed on randomization, allocation concealment, blinding of participants, personnel and outcome assessment, loss to follow-up and selective reporting. One study presented one possible risk of bias, another two possible risks of bias and the remaining three studies presented four or five possible risks of bias.

Main outcome measures
The main outcome was pooled across the Oswestry Disability Index (ODI), ranging from zero to 100.

Main results
The pooled mean difference in Oswestry across all studies favoured the fusion groups by 7.4% (95% confidence interval 20.3%, -5.5%), but this was not significantly different (P=0.26).

Conclusions
Although the results favoured fusion, this was not statistically significant, and it is not clear if this was a clinically important difference. Both treatments could be recommended for intractable low back pain depending on patient preferences.

Comments
Unlike the use of surgery for patients with sciatica and with spinal stenosis, for which there is a short-term benefit over conservative treatment, though this can be an effective choice for patients with sciatica, there appears to be no such advantage for so-called discogenic low back pain. This label appears to have derived from investigations showing degenerative changes, back pain more than leg pain, but without radiculopathy, of at least one year's duration. Although the fusion groups did do better in four trials, 2.3, 3.8, 8.8 and 25.7 on the Oswestry scale, with a mean improvement of 7.4, this was not statistically significant. Furthermore, there is no agreed threshold of what the clinically important difference for the Oswestry scale should be.

http://www.ncbi.nlm.nih.gov/pubmed/24346052

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Khan M, Evaniew N, Bedi A, Ayeni OR, Bhandari M. (2014). Arthroscopic surgery for degenerative tears of the meniscus: a systematic review and meta-analysis. *Can Med Assoc J*; DOI:10.1503/ cmaj.140433.

Objective
To evaluate the efficacy of arthroscopic meniscal debridement in patients with degenerative meniscus tears.

Design
Systematic review with meta-analysis of the pooled data.

Participants
MEDLINE, Embase and the Cochrane databases were searched for randomized controlled trials that compared arthroscopic debridement with non-operative or sham treatment in patients with degenerative meniscal tears and knee pain, regarding pain and function.

Intervention
Seven randomised controlled trials with 805 patients were included in the review, with risk of bias assessed according to the Cochrane tool. Only one trial presented a low risk of bias. Five of the seven control groups consisted of exercises; 384 patients were in the control groups and 345 in the arthroscopy group.

Main outcome measures
Outcomes were pain relief and function at short-term, defined as less than six months, and long-term, defined as less than two years.

Main results
The pooled treatment effect for arthroscopic surgery did not show a significant or minimally important difference compared to sham or control treatment either for short or long-term outcomes for pain and functional improvement.

Conclusions
There was moderate evidence that there is no benefit to arthroscopic meniscal debridement for meniscal tears compared to non-operative or sham treatment for middle-aged patients with mild or no osteoarthritis.

Comments
Surprisingly, the review found that the surgical intervention, that logically would be appropriate for patients with meniscal lesion, conferred no benefit over control groups, which mostly consisted of exercises. Clearly, the advice to such patients is that quality of life must be considered first, and then an initial trial of non-operative care should be conducted. The authors report that five other trials were being conducted at the time of the review, so it would be interesting to see if these more recent trials alter the conclusions in any way. A number of patients declined to participate or crossed over to a different treatment arm, which may have confounded the results. Cross-over is ethical in terms of patient choice, but is a major problem in trials comparing surgery with conservative treatment in general.

http://www.cmaj.ca/content/186/14/1057.full

♦♦♦♦♦

Abbott JH, Kingan EM. (2014). Accuracy of physical therapists' prognosis of low back pain from the clinical examination: a prospective cohort study. *J Man Manip Ther*; 2:DOI 10.1179/2042618613Y.0000000045.

Objective
To investigate the predictive validity of history items, demographic variables, outcome scores, clinical examination items and physical therapists' estimation of prognosis on a four-point scale.

Design
Prospective cohort study.

Participants
Patients with chronic or recurrent low back pain; 138 were recruited and 89 (64%) were followed up at one year.

Intervention
The variables listed above gathered at baseline to see which best predicted Roland-Morris Disability score at one year. Analysis was done with univariate analysis, and then significant variables were entered into a multivariate model.

Main outcome measures
Roland-Morris disability score at one year.

Main results
12 baseline variables were significant in univariate analysis, of which four were retained in the final model: the therapists' opinion of prognosis, an abnormal passive physiological flexion test, heavy work and age. These were all independent prognostic factors, but only explained 24% of the model.

Conclusions
Physical therapists' clinical impressions regarding the patient's prognosis following the physical examination provides a valid predictive estimate of functional outcome at one year in patients with chronic or recurrent low back pain.

Comments
The ability of physical therapists to accurately predict outcome at one year has been explored a little before, however, factors the therapists used in making this judgement are not known. Age and heavy workload were independent predictors, which had been found before. That passive physiological flexion was predictive had also not been found before. However, the strength of association was weak and only explained 24% of the total variance. Centralisation or directional preference in response to repeated movements was not recorded, and it would have been interesting to see how this finding would have fared against the other variables.

www.researchgate.netpublication/258194589_Accuracy_of_physical_therapists_prognosis_of_low_back_pain_from_the_clinical_examination_a_prospective_cohort_study

♦♦♦♦♦

Murtezani A, Govori V, Meka VS, Ibaimi Z, Rrecaj S, Gashi S. (2014). A comparison of McKenzie therapy with electrophysical agents for the treatment of work related low back pain: a randomized controlled trial. *J Back Musculo Rehab*; In press, DOI:10.3233/BMR-140511.

Objective
To compare McKenzie therapy with electrophysical agents.

Design
Randomized controlled trial.

Participants
Patients with chronic low back pain were recruited and allotted to two groups: McKenzie group (n=134), if they demonstrated centralization, and electrophysical agents group (n=137). If they did not experience centralization, they were dropped from the study (129 of 400 assessed). At the three month follow-up, 110 (82%) and 109 (80%) of the patients were assessed, respectively.

Intervention
The McKenzie group used repeated movements and mobilization for a maximum of seven sessions. Therapists were McKenzie trained, but were not certified. The electrophysical agents group (EA) received interferential, ultrasound and heat over 10 sessions.

Main outcome measures
Pain was assessed with visual analogue scale, function by Oswestry, and finger-to-floor distance at baseline, four weeks, two and three months.

Main results
Both groups improved significantly over time in pain and function ($p < 0.0001$), but the improvements in the McKenzie group were greater in all outcomes at all time points ($p < 0.05$) (Figures 1 and 2).

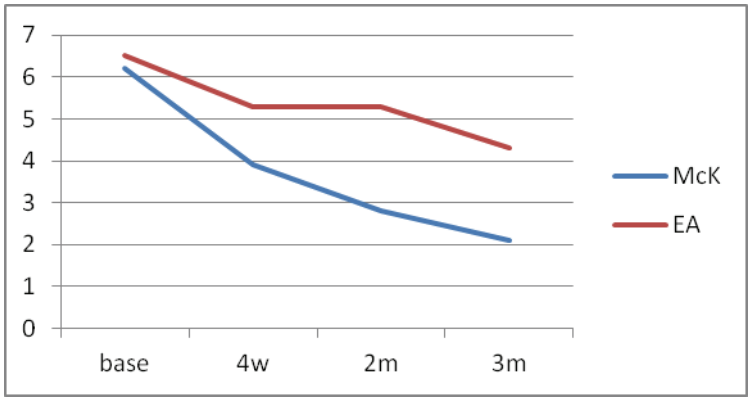

Figure 1. Visual analogue scale

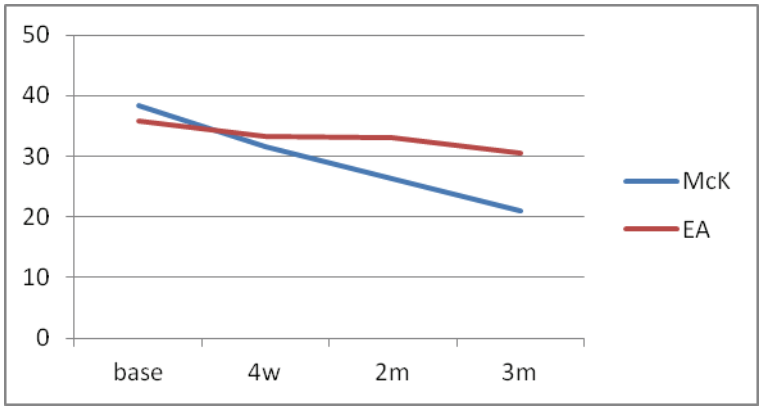

Figure 2. Oswestry scores
EA = electrophysical agents

Conclusion
McKenzie reduces pain and disability in patients with chronic low back pain more effectively than electrophysical agents.

Comments
The trial demonstrated that McKenzie therapy is an effective treatment for patients with chronic low back pain. The study had several strengths: randomisation, which appeared to be concealed, equal baseline comparisons and adherence to treatment protocol. It also had several weaknesses: nearly 20% loss to follow-up, lack of double blinding, but the assessor was blinded, lack of long-term follow-up and the therapists were not McKenzie certified, but had undertaken 50 hours of training.

http://www.mdlinx.com/orthopedics/news-article.cfm/5516585/low-back-pain

MDT World Press

The McKenzie Institute® International
2014 Vol. 3, No. 4

BUSINESS & MARKETING CORNER

In follow-up to the last issue where I raised the topic of telemedicine, here's two stories that reflect the differences faced worldwide. While this is a growing trend globally, every country has different laws and challenges that will drive whether telehealth can be utilized and to what degree. Clearly, in the United States, there is good reason to tread carefully.

Enjoy!

Yoav Suprun, PT, DPT, Dip. MDT, CSCS

MDT & Telehealth in the US: The Possibilities Are Endless, But Please Beware!
Susan Bamberger, PT, Dip. MDT

Most successful MDT clinicians tell stories of how they were able to help their college roommate or oldest friend via Skype or text successfully using MDT as their assessment tool. You are the hero; your friends can't believe how you figured this out so quickly, without even having to touch them!!!

Our ability to assess using signs and symptoms, in combination with our emphasis on self management techniques, makes MDT ideal for telehealth. Telehealth is a fast growing industry; one that is being utilized successfully in many different areas, such as medicine, mental health, and even occupational and speech therapy. However, to date, there have not been many physical therapists that have utilized telehealth in the US.

There are, however, people who are experimenting with physical therapy in telehealth and are doing so with the cooperation of their state boards of physical therapy and the American Physical Therapy Association. If we want MDT to be seriously considered as a viable and valuable way to assess using telemedicine, we absolutely must follow the recommendations of these groups. If we want MDT to be seriously considered as a viable and valuable part of telemedicine, we have to focus our efforts on helping this very important niche develop.

Before we move ahead with telemedicine, I call your attention to the following facts:

- Most states currently do not have any regulations as to the parameters for telehealth and physical therapy. One could argue that if the regulations say nothing about what physical therapists can or cannot do, that we are free to experiment with this ourselves. This is a dangerous endeavor and, while it may give us a temporary line of income, in the end, working out of our scope may also create some very restrictive rules imposed by the board. It may also garner an overall lack of trust from the board. The main goal of PT licensing boards is to protect the public. Since telehealth services are not always currently regulated, any misstep or bad experience could result in heavy restrictions for all. I believe it is in the best interest of all MDT providers to not perform any telehealth services if your state has not ruled on this. Always check with your state licensing board to determine what your limits are, if any.

- You can only evaluate and treat patients in states where you hold a license. The patient you are evaluating also needs to be physically located in that same state. The Federation of State Boards of Physical Therapy, the national entity overseeing Physical Therapists in the United States, is considering license portability for this very reason. However, to date, this is not allowed in the US. So, if you are treating a patient in Kansas, and live in California, you need to have a Kansas license.

- The transmission method that you are using must be secure *AND* HIPAA compliant. There are a few tools out there that are HIPAA compliant, but they do cost some money. If you are going to do telemedicine, think of this as part of your overhead; a necessary operating expense. With it being as easy as it is for outsiders to hack into someone's computer, you will need to be able to demonstrate that you are doing your best to protect all confidential information. Think of it as the frosted glass you install on your windows to keep your treatments private.

Telehealth services must be documented, like any other patient encounter. Document it in the same way you would document any live patient you see, and follow the same standards required by your state practice act.

Despite the challenges ahead for PTs offering telehealth services, it should be noted that there does seem to be an overall excitement to see telehealth develop. Even state regulators and legislators seem to share this sentiment. As soon as the general population realizes the power we, as Physical Therapists, have to deliver this service, I am sure we will have way more business than we can handle. To be a part of this change, please consider becoming involved in the following activities:

1. **Get to know your State Physical Therapist Licensing Board**
   Ask them where they are with creating regulations for telehealth. If they are forming a workgroup, ask them if you can be a part of this group. If you cannot, ask them if you can testify; as a licensee, you should be able to at least testify. Take advantage of any opportunity you can to educate legislators and state regulators.

2. **Consider joining the American Telemedicine Association**
   This is the group that is working to lead the way in creating telehealth services. They have a lot of information available on current trends in telehealth that you, as a member, can access. They even have a telerehabilitation special interest group.

3. **Utilize your APTA membership to get information about current trends with PT and telehealth.**
   Consider getting involved as an APTA delegate, as they are also guiding their legislative efforts based on the decisions of the House of Delegates.

Going at telehealth alone is a mistake. It is not only a mistake for you, but it is a mistake for MDT. As MDT clinicians, we have to be careful about walking that fine line between leading the way and turning off other therapists and the general public. Anyone that holds a Cert. or Dip. MDT designation is representing McKenzie to all. Please be a part of the solution, because with cooperation, hard work and dedication we can succeed as leaders in telehealth with physical therapy.

Telehealth Using a McKenzie Approach in Physiotherapy Student Education
Carol Ann Flavell, MSc, GDip Phty

In 2011, the Australian Government Department of Health and Ageing began the National TeleHealth Initiative to fund health services via communication technology. This method of health provision was instigated to support access for patients in regional, rural and remote areas of Australia where services can be limited or absent. As a result, telehealth has become a developing and contemporary aspect of clinical practice across a variety of health professions in Australia.

Consequently, it was decided that physiotherapy consultations via communication technology should be included in the fourth year of the undergraduate physiotherapy program at James Cook University (JCU), Townsville campus. The rural, remote, and tropical medicine focus of the university further supported our decision to include a teaching module around this topic.

Development of the teaching module for telehealth video consultations highlighted some potential challenges for student education and the physiotherapy profession. For example, the application of 'hands on' manual techniques during face to face consultations is entrenched in our everyday practice as physiotherapists. Many physiotherapists find the idea of not being able to place their hands on a patient unthinkable. Conversely, those trained in the McKenzie approach already use a paradigm of patient management where 'hands on' manual techniques are applied only after patient generated forces have failed to provide an appropriate mechanical response. Mechanical Diagnosis and Therapy (MDT) is,

therefore, an ideal approach for the telehealth setting, and was the method of assessment and treatment used during the first telehealth teaching sessions delivered to the fourth year undergraduate physiotherapy students at JCU in October 2014.

Communication technology based health delivery can take several forms, but our students were educated in the application of online video-conferencing. The format was a simulated patient video-consultation conducted by an academic trained in MDT. Groups of 12 students were present in the video-conferencing room with the examiner and observed the patient via the video link (Figure1). The patient's remote consultation room had a standard treatment plinth, a chair and a mobile video camera which could be positioned by the patient or an assistant, allowing the examiner to observe and direct the physical examination effectively (Figure 2).

Figure 1: Teaching room set up with on screen video link to patient consultation area.

Figure 2: Patient consultation room with video screen, plinth and chair.

Currently, 'assisted' and 'unassisted' are the two types of video-consultation most often conducted. The teaching sessions conducted at JCU used an 'assisted' telehealth consultation, where the patient consents to having a second person present during the consultation. The scenario had the patient in a simulated remote community health facility with video conferencing facilities and health support workers. The simulated patient resided 150 km from the nearest physiotherapist but was able to access the community health facility which was only a few kilometres from the sheep station where she lived. This example of limited health service accessibility is typical across rural and remote Australia.

A health support worker was present during the consultation and assisted with camera positioning and other requirements at the remote site. The person assisting during consultations can vary; family members, other health professionals or indigenous health workers may perform this role. From a physiotherapy perspective, there is future potential for the assistant based in a remote health facility to be trained in basis measurement skills such as goniometry, tape measurement and various other ancillary tasks. Under the video-guidance of the physiotherapist this would facilitate re-evaluation processes. Unfortunately, 'unassisted' tele-health consultations would not provide these possibilities. Nevertheless,

the physiotherapist could collect objective measurements using on screen measurement tools providing patient positioning was standardised between examinations.

The simulation scenario we used during teaching was a patient who presented with lower back pain. She was assessed using a standard McKenzie assessment process (McKenzie and May 2003), and a principle classification of reducible asymmetrical above knee derangement syndrome was concluded. The large video screen provided for excellent observation of movement and assessment of mechanical responses. The patient was treated with extension principle using self-generated forces, provided education and a follow-up video consultation was arranged.

Telehealth is a developing opportunity for physiotherapists around the world to assess and treat patients who would otherwise have little or no access to our professional skills. Our students were able to see the benefits of the MDT approach in a telehealth setting. It highlighted the value of the MDT approach in situations when the therapist is unable to touch the patient. Additionally, it consolidated the effectiveness of self-management, the education philosophy that MDT emphasises, and student feedback on teaching sessions was excellent.

Many physiotherapy graduates will experience working in rural and remote settings and an introduction to telehealth service delivery via a patient simulation, using the McKenzie approach has provided JCU students with skills and knowledge that can be enhanced as their career progresses. Our experience at JCU supports future possibilities for the use of the MDT approach in telehealth, not only in Australia, but around the world.