

Feature Commentary**REPORT FROM THE WORLD CONGRESS ON LOW BACK AND PELVIC PAIN****RON DONELSON MD, MS**

I recently traveled to Dubai to give a presentation at the World Congress on Low Back and Pelvic Pain. This Congress is held every three years in a different, and always attractive, city. It is considered by many to be “the place” to hear the latest and greatest research from the world’s top spine and pelvic researchers. More than 1,000 clinicians and researchers from 58 countries attended this four-day conference in a fascinating city.

Many lectures were about spino-pelvic myofascial and musculature anatomy and physiology, but rarely any clinical data or context. One particular session focused on subgrouping was of great interest and well-attended, despite being the final half-day of this long conference. Hanne Albert, PT, PhD from Denmark, presented her research validating a new, but small, chronic LBP subgroup apparently caused by an infection within a disc that was previously herniated and now has Modic 2 changes in the adjacent vertebrae.¹ Validating this subgroup is viewed by many in the spine world as a major breakthrough, despite only one validating RCT and representing only about 1% of the LBP population.

My own presentation took place immediately before Dr. Albert’s, so I was assured good attendance. I presented two radiculopathy cases, one cervical and one lumbar, both with classic pain drawings with pain to the hand or foot, positive “tension signs” in that extremity, both with sensory loss and considerable loss of motion due to their pain, all captured nicely with baseline photographs. Their baseline MRIs both showed very large disc herniations compatible with their clinical presentations. One was already scheduled for surgery; the other was being considered for surgery.

Eze Gherscovici, PT, Dip. MDT evaluated both patients and rapidly eliminated their pain, along with their loss of motion and sensory loss, using pure extension during their initial evaluation session. While that is not uncommon, the unique part of this study was our opportunity to obtain MRI imaging immediately before and after Eze’s initial evaluation.

Consequently, 30 minutes after their baseline photos, new pain drawings were now blank, photos showed normal ROM and negative tension signs, all documenting a dramatically complete and rapid clinical turn-around without laying a hand on either patient. MRI imaging was repeated less than an hour after the baseline images, showing a measurable and visual decrease in the size of their respective herniations. Both were fully functional and back to work within two weeks, having avoided surgery, and reported remaining pain-free at their two-year follow-up by performing exercises proactively. Their entire treatments required only three PT visits. Both were exceedingly pleased with their rapid recoveries and ability to avoid surgery.

I illustrated that these recoveries, while dramatic, were not unusual by reviewing the Kopp study where 52% of pre-surgical sciaticas centralized and abolished their pain in two to five days. The Scannell pig cadaver disc study validates the ability to decrease the size of the herniation with repeated end-range extension.² So, the uniqueness of these two cases was our ability to obtain before and after MRI imaging to document some immediate decrease in herniation size.

Inside This Issue:

- Feature Commentary
- Guest Commentary
- A Clinician’s Perspective
- Literature Reviews
- Business & Marketing Corner

While these rapid and dramatic clinical changes are common, most spine clinicians are completely unaware that such rapid recoveries using such simple self-treatment movements can ever occur, and certainly not so commonly. The well-documented frequency of this response³ means that thousands of patients are undergoing unnecessary disc surgery every day simply because the rapid reversibility of their disc problem was never discovered and properly treated. That’s because most patients are never provided the opportunity to be properly evaluated using MDT methods.

I added two more important points: First, these rapid recoveries could have taken place weeks earlier if they had been provided the opportunity to be evaluated in this same way at the outset of their pain. So, most of their suffering and perhaps all of their work-loss was completely unnecessary, as well as the wasted money spent on useless treatments. Second, if these patients had not been provided this opportunity to be evaluated in this way, at least one, and likely both, would have undergone an unnecessary operation, with all its risks, pain, recovery process, and expense, with no guarantee of success.

There are now three other studies that show that this MDT form of evaluation and care, when provided to patients otherwise considered to be disc surgery candidates, can identify how to obtain these rapid recoveries in 50% of patients who would otherwise have undergone surgery.

Of course, not every patient will respond this way. Published studies report that 80-90% of acute low back and neck pain will resolve like this, however, by the time patients' pain becomes chronic, their chances of this type of rapid recovery are reduced to about 50%.

Following my presentation, a handful of participants commented favorably. One described people around him as "spellbound" by what they were seeing. Nevertheless, my sense was that my talk did not cause as much "buzz" as Dr. Albert's new discovery. Was that because many viewed the dramatic recoveries I presented as just too-good-to-be-true? Unrealistic? Or, perhaps such recoveries are just too disruptive to many clinicians' rigid perception of back pain's necessary slow recovery rate.

I believe the next World Congress will be in Singapore in 2016. MDT needs to have a prominent presence on the program. To do so, we need to find ways to finance MDT researchers to travel to this meeting to present their research. Perhaps funding such strategic presentations could be another function of the International MDT Research Foundation. Attendance would not be focused on acquiring CEU credits, but on influencing clinicians' and researchers' thinking about how best to achieve quality clinical care.

References

1. Albert H, Sorensen J, Christensen B, Manniche C. (2013). Antibiotic treatment in patients with chronic low back pain and vertebral bone edema (Modic type 1 changes): a double-blind randomized clinical controlled trial of efficacy. *Eur Spine J*; 22:697-707.
2. Scannell J, McGill S. (2009). Disc prolapse: evidence of reversal with repeated extension. *Spine*; 34:344-50.
3. Kopp J, Alexander A, Turocy R, Levrini M, Lichtman D. (1986). The use of lumbar extension in the evaluation and treatment of patients with acute herniated nucleus pulposus, a preliminary report. *Clinical Orthopedics*; 202:211-8.

The Power of One - Experiences in Afghanistan 18th May - 5th June 2012

Philomena Commons PhD, MSc Grad, Dip. Phys, Dip. MDT, MCSP

In 2012, I had the opportunity to take a trip to Afghanistan as an external evaluator for IAM -- International Assistance Mission. The organisation runs a number of humanitarian projects in different parts of the country. These include a Physiotherapy Centre and Orthopaedic Workshop in Faryab Province in the northwest of the country. Donors for this project had requested an external evaluation. My previous research and extensive work experience in Asia equipped me to be involved in the evaluation. The trip was an incredible experience.

While in Kabul, I offered to teach for three days in the only PT training school in the country. The training school is also one of IAM's projects. There are less than 200 PTs in Afghanistan and they have little opportunity for any continual professional development. They were very keen to learn about the McKenzie Method of treating spinal pain and I taught thirty physiotherapists from all parts of the country over the three day period. The gender segregation in the sessions meant any practice of techniques was done in separate rooms. Lunch also was served separately. From the feedback I received, it was evident that the students very much appreciated and enjoyed the opportunity.

During the visit, I was asked to visit a local prison in order to evaluate some of the prisoners with back pain. The severity and young age of the cases was alarming and this validated my suspicion that back pain is a huge problem in Afghanistan. It's easy to see the contributing factors to back pain: Afghan people spend a lot of time sitting on the floor; often eating and working in a position of sustained flexion.

I then flew north on a small plane to Faryab Province and completed the evaluation of the project. The orthopaedic workshop, supported by the International Committee of the Red Cross, makes and fits a lot of artificial limbs for victims of land mine blasts. The physiotherapy workshop has only one female therapist, which means that males do not receive physiotherapy.



The most remarkable aspect about this project was the two female American IAM workers working in Faryab. Their commitment and dedication was very impressive!

The Community Based Rehabilitation section of this project presently covers ten villages and is the first of its kind in the province. The staff visits the surrounding villages and works with the community leaders in order to identify and help disabled people become more integrated in their communities. In this region, disabled people experience marked discrimination and are often hidden away. Project staff members have discovered heart-wrenching situations where disabled people have been excluded from any meaningful participation in life. Disabled children do not go to school, for if they do, they are taunted by others and quickly drop out. There is much to be done to increase their life chances and through community-based rehabilitation. This work is beginning.

The journey to another of the villages served by the project involved driving across one river twice, as there was no bridge. Before meeting any of the village women, we met the local shura, a group of around ten males, who oversee the community-based rehabilitation work. Examples of the project's impact are shown in the following pictures. The photos were taken in a workshop of a man with club feet, who was previously totally dependent on his parents. He is now running a carpentry workshop and is quite self-sufficient. He was also passing on his skills to his younger brother (pictured) who could neither hear, nor speak.



During my visit to the north of the country, I was also invited to give a presentation to the provincial government ministers, whose responsibilities include discussion of matters relating to the disabled at their monthly coordination meetings. Representatives from a number of non-government organisations working in the region attend this meeting. My presentation provoked a lively discussion!

I realised that at every level, much effort is needed to create services that begin to address the issue of disability. The task is huge, but the small group of people committed to the task is seeing some progress. I feel very fortunate to have had the opportunity introduce MDT to Afghanistan's physiotherapists and the lessons I learnt in doing so will remain with me.



CASE REVIEW: A CLINICIAN'S PERSPECTIVE**Case Review: A Cervical Derangement***Matthew Niemiera PT, Cert. MDT***Introduction**

In 1981, Robin McKenzie introduced Mechanical Diagnosis & Therapy (MDT) to the world (McKenzie, 1981). The concepts of centralization, peripheralization, directional preference and tissue response to loading strategies have been well documented (Donelson et al, 1990; Sufka et al, 1998; Long, 1995; Rath and Rath, 1996). Further, inter-rater reliability has been demonstrated to be excellent, with rates of agreement of about 90% and kappa scores of 0.92-1.0 (Sufka et al, 1998; Werneke et al, 1999). MDT uses three mutually exclusive categories to classify patients: derangement, dysfunction, and postural syndrome.

McKenzie and May (2003) defined centralisation as the abolition of distal and spinal pain in response to repeated motions or sustained postures. They further defined directional preference as repeated movements in the direction that decreases, centralizes or abolishes symptoms, and/or produces a positive mechanical response, such as an increase in range of movement.

The purpose of this case study is to demonstrate the effectiveness of applying a MDT assessment to a patient of advanced age with unknown onset of nonspecific neck pain. Subsequently, the patient was given a provisional classification of cervical derangement and treated according to MDT principles.

History

A 71 year old female presented with complaints of constant neck and right shoulder pain of unknown onset for the past two weeks. Her main complaint was "severe pain and motion restriction when trying to look up." She further described that one week previously, while lying flat on her back for about 15 minutes, her symptoms completely resolved, only to return five minutes after rising. She reported a current VAS of 8/10. Previous treatment consisted of physical therapy incorporating general neck motions which had no effect.

Examination

Initial observation revealed poor sitting posture with a protruded head and resting pain in the neck and right shoulder of 8/10. Major mechanical restrictions were observed in cervical right rotation and extension. Postural correction of the cervical spine decreased right shoulder pain. As a result, a repeated motions examination was initiated. Repeated retraction of the cervical spine further reduced right shoulder pain and produced end range pain in the cervical spine which did not remain. Repeated retraction and extension of the cervical spine abolished both right shoulder and cervical pain, and significantly improved the mechanical presentation of both cervical extension and right rotation.

Treatment

The patient proceeded to perform three sets of ten repetitions with further improvements in cervical extension, right rotation and decreased end range pain. She was instructed to perform this reductive procedure at a frequency of two to three sets of ten repetitions five times per day. She was further educated in maintenance of reduction, given a lumbar roll, and the book "Treat Your Own Neck" (McKenzie, 2006) to assist with compliance. Her treatment goals were to restore full functional range of motion to the cervical spine, abolish all neck pain, and become independent in self management.

A follow-up phone conversation two weeks later with the patient revealed she had continued to improve and now reported only intermittent pain VAS 2/10. She further admitted that her neck motions were much improved.

Discussion

In this case, centralization and directional preference were used to guide the examination and subsequent treatment. Centralization has been demonstrated to be more prevalent in acute patients (Sulfka et al, 1998), with ranges as high as 87%. Although Werneke (2008) found the prevalence rate

mean age in cervical cases to be 55.2 years old, he also found limited data on the prevalence and prognostic validity of centralisation for patients with cervical impairments and patients over 65, indicating further research was needed. Even though centralization may be less common in older patients, prevalence rates are not well understood.

Another concept used to guide classification and treatment in this case was directional preference. May and Aina (2012) in a systematic review, found three studies where patients with a directional preference responded significantly better to treatment when compared to other treatments (Delitto et al, 1993; Long et al, 2004, 2008), however, overall found limited evidence for directional preference as a prognostic indicator. They also found evidence for directional preference as a treatment effect modifier in a study by Snook et al (1998) where patients that were restricted from morning flexion, which applied for directional preference for extension, showed a significant reduction in pain severity.

Our present case study of a 71 year old female with acute onset of severe non-specific neck pain demonstrates the usefulness of MDT during the examination process, as well as its effectiveness as a pain management strategy. Initially, this patient demonstrated a directional preference to cervical retraction, which reduced her symptoms and gave further clues that led the examination process to move into extension. Repeated retraction with extension further reduced, and ultimately abolished, her symptoms. Once the patient's directional preference was discovered and explored with repeated motions, the centralization phenomenon ensued. Furthermore, the patient's history of rapid change, and sudden onset, gave pattern recognition clues to the classification, establishing a direction for the examination.

As May and Aina (2012) found evidence of the use of directional preference as a treatment effect modifier, this further validates the use of maintenance as an educational tool in this patient's overall management strategy.

Conclusion

This case study demonstrates the effectiveness of MDT as an assessment tool, as well as a management strategy. Being 71 years old, Mrs. Marj is not typical, given that prevalence rates for centralization associated with adults over the age of 65 have been found to be as low as 15% (Werneke et al, 2011). Overall, prevalence rates for centralization are not as well understood in the neck as compared to the low back, and even less so in the elderly. This case study shows that directional preference and centralization do occur in patients over 65, and the rapid response can be just as dramatic as witnessed in the younger populations. Clearly, further investigation is needed in patients over 65 to document the prevalence of centralization in that age group, as well as the overall role that directional preference may play.

References

- Dilitto A, Cibulka MT, Erhard RE, Bowling RW, Tenhula JA. (1993). Evidence for use of an extension-mobilization category in acute low back syndrome: A prescriptive validation pilot study. *Physical Therapy*; 73(4):216-222.
- Donelson R, Silva G, Murphy K. (1990). Centralization phenomenon. Its usefulness in evaluating and treating referred pain. *Spine*; 15:211-213.
- Long A. (1995). The centralization phenomenon. Its usefulness as a predictor of outcome in conservative treatment of chronic low back pain (a pilot study). *Spine*; 20(23):2513-21.
- Long A, Donelson R, Fung T. (2004). Does it matter which exercise? A randomized control trial of exercise for low back pain. *Spine*; 29(23):2593-2602.
- Long A, May S, Fung T. (2008). Specific directional exercises for patients with low back pain: A case series. *Physiotherapy Canada*; 60(4):307-317.
- May S, Aina A. (2012). Centralization and directional preference: A systematic review. *Manual Therapy*; 17:497-506.
- McKenzie R. (2006). *Treat Your Own Neck* (4th ed.). New Zealand: *Spinal Publications New Zealand Ltd.*
- McKenzie R, May S. (2003). *The Lumbar Spine: Mechanical Diagnosis & Therapy* (2nd ed.). New Zealand: *Spinal Publications New Zealand Ltd.*

McKenzie R. (1981). *The Lumbar Spine: Mechanical Diagnosis and Therapy*. New Zealand: *Spinal Publications*.

Rath W, Rath J. (1996). Outcome assessment in clinical practice. *McKenzie Institute (USA) Journal*; 4:9-16.

Snook S, Webster B, McGorry R, Fogleman M, McCann K. (1998). The reduction of chronic nonspecific low back pain through the control of early morning lumbar flexion. A randomized controlled trial. *Spine*; 23 (23):2601-2607.

Sufka A et al. (1998). Centralization of low back pain and perceived functional outcome. *JOSPT*; 27:205-212.

Werneke M et al. (2008). Centralization: Prevalence and effect on treatment outcomes using a standardized operational definition and measurement method. *Journal of Orthopedic & Sports Physical Therapy*; 38(3):116-125.

Werneke M, Hart D, Cook D. (1999). A descriptive study of the centralisation phenomenon. A prospective analysis. *Spine*; 24(7):676-683.



THE MCKENZIE INSTITUTE CERVICAL SPINE ASSESSMENT

A Derangement Syndrome of The Cervical Spine

Matthew NieMiera PT, Cert. MDT

Date 2-11-2013

Name Marj Sex M / F Female

Address _____

Telephone _____

Date of Birth _____ Age 71 y/o

Referral: GP / Orth / Self / Other Southwestern Medical Center

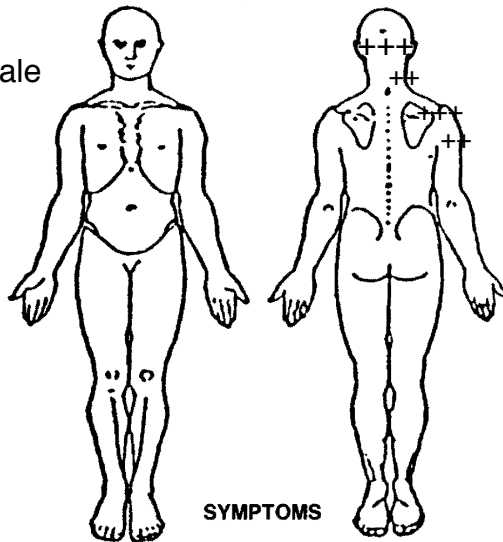
Work: Mechanical stresses Retired

Leisure: Mechanical Stresses IADL's

Functional Disability from present episode _____

Functional Disability score _____

VAS Score (0-10) 8 with
looking up



HISTORY

Present Symptoms Severe pain (neck/right shldr) and major restriction in motion: looking up, neck feels "locked"

Present since 2 to 2 1/2 weeks , Improving, except looking up *Improving / Unchanging / Worsening*

Commenced as a result of No apparent reason *Or no apparent reason*

Symptoms at onset: *neck / arm / forearm / headache* Neck, right shoulder, constant

Constant symptoms: *neck / arm / forearm / headache* Intermittent symptoms: *neck / arm / forearm / headache*

Worse *bending sitting turning lying / rising*
am / as the day progresses / pm when still / on the move
other "Looking up"

Better *bending sitting turning lying*
am / as the day progresses / pm when still / on the move
other While laying flat on back for 10-15 minutes, a week ago, it totally resolved, but
within 5 minutes from rising, it returned.

Disturbed Sleep *Yes / No* Pillows _____

Sleeping postures *Prone / sup / side R / L* Surface *Firm / soft / sag*

Previous Episodes 0 1-5 6-10 11+ Year of first episode First Episode

Previous History _____

Previous Treatments Physical Therapy, General motion

SPECIFIC QUESTIONS

Dizziness / tinnitus / nausea / swallowing / +ve / -ve Negative *Gait / Upper Limbs: normal / abnormal*

Medications: *Nil / NSAIDS / Analg / Steroids / Anticoag / Other* *Negative*

General Health: *Good / Fair / Poor* *Good*

Imaging: *Yes / No* *No*

Recent or major surgery: *Yes / No* *Night Pain: Yes / No*

Accidents: *Yes / No* *Unexplained weight loss: Yes / No*

Other: *No red flags observed*

EXAMINATION

POSTURE POOR

Sitting: *Good / Fair / Poor* Standing: *Good / Fair / Poor* Protruded Head: *Yes / No* Wry Neck: *Right / Left / Nil*
 Correction of Posture: *Better / Worse / No effect* **Better, decreased right shldr** Relevant: *Yes / No* **Yes**
 Other Observations: _____

NEUROLOGICAL

Motor Deficit Negative Reflexes _____
 Sensory Deficit Negative Dural Signs _____

MOVEMENT LOSS	Maj	Mod	Min	Nil	Pain
Protrusion				✓	+
Flexion			✓		-
Retraction		✓			-
Extension	✓				+

	Maj	Mod	Min	Nil	Pain
Lateral flexion R		✓			-
Lateral flexion L		✓			-
Rotation R	✓				+
Rotation L		✓			+

TEST MOVEMENTS Describe effect on present pain – **During:** produces, abolishes, increases, decreases, no effect, centralising, peripheralising. **After:** better, worse, no better, no worse, no effect, centralised, peripheralised.

	Symptoms During Testing	Symptoms After Testing	Mechanical Response		
			↑Rom	↓Rom	No Effect
Pretest symptoms sitting:					
PRO					
Rep PRO					
RET	ERP	Better			✓
Rep RET	ERP	Better			✓
RET EXT	ERP	Better	✓		
Rep RET EXT	ERP, PDM, Abolished 3 sets of 10	Abolished, right shldr	✓		
Pretest symptoms lying:					
RET		Abolished, C-spine			
Rep RET					
RET EXT					
Rep RET EXT					
If required pretest pain sitting:					
LF - R					
Rep LF - R					
LF - L					
Rep LF - L					
ROT - R					
Rep ROT - R					
ROT - L					
Rep ROT - L					
FLEX					
Rep FLEX					

STATIC TESTS

Protrusion _____ Flexion _____
 Retraction _____ Extension: *sitting / prone / supine* _____

OTHER TESTS _____

PROVISIONAL CLASSIFICATION Derangement, Cervical Spine

Derangement _____ Dysfunction _____ Postural _____ Other _____
 Derangement: Pain Location Upper and Lower C-spine

PRINCIPLE OF MANAGEMENT

Education: Reduction, maintenance of reduction Equipment Provided: Lumbar roll for maintenance of Reduction, Treat your own neck
 Mechanical Therapy: *Yes / No* _____
 Extension Principle: RREISitt 2-3 sets of 10, 5 X/day Lateral Principle: n/a
 Flexion Principle: n/a Other: _____
 Treatment Goals: Restore functional cervical motion in all directions, Abolish neck pain, Independent in self management

LITERATURE REVIEWS

Summary and Perspective of Recent Literature

Stephen May, PhD, MA, FCSP, Dip. MDT, MSc (UK)

Rosedale R, Rastogi R, May S, Chesworth BM, Filice F, Willis S, Howard J, Naudie D, Robbins. (2014, In Press). Efficacy of exercise intervention as determined by the McKenzie system of Mechanical Diagnosis and Therapy for knee osteoarthritis: a randomised controlled trial. *J Orth Sports Phys Ther.*

Objective

To determine the efficacy of exercises determined by a MDT assessment, compared to evidence based exercises, and a no treatment control group.

Design

Randomised controlled trial with three arms.

Participants

180 patients with at least four month history of knee pain, radiological confirmed diagnosis of knee osteoarthritis (OA), and referred to the waiting list of five orthopaedic surgeons.

Intervention

Patients were randomised to the intervention or control groups. Patients in the intervention group were given a MDT assessment over two to three sessions, and then were divided into derangement (N=40) or non-responder (N=59) groups. The derangement group were given specific end-range exercises that matched their directional preference in an unloaded, semi-loaded or loaded position based on their response to repeated movements. The non-responder group were given quadriceps strengthening and advice on aerobic exercises in line with current guidelines. Both groups attended four to six physiotherapy sessions. The control group (N=60) received no treatment and remained on the waiting list.

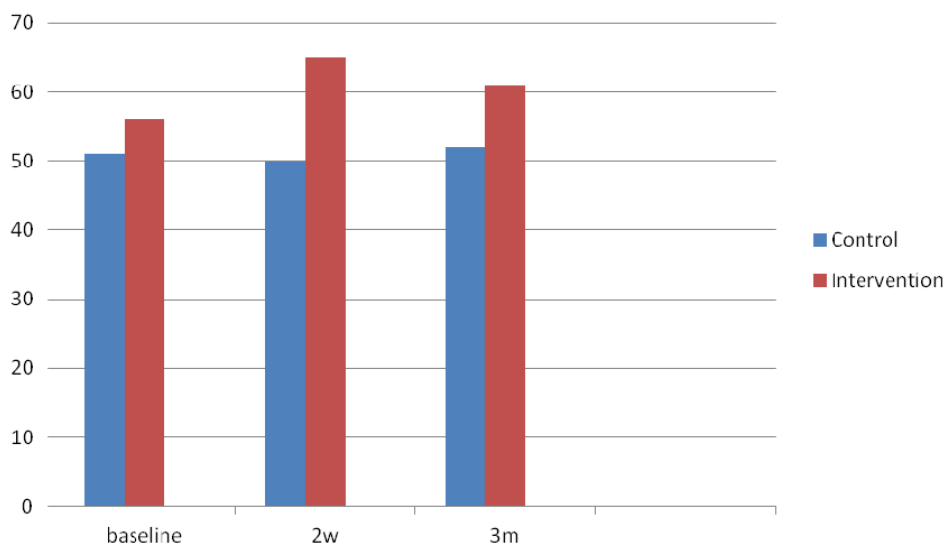
Main outcome measures

Outcomes were collected at baseline, two weeks and three months. Primary outcomes were a four-item pain intensity measure (P4), which asks patients to evaluate pain in the morning, afternoon, evening, and with activity, and Knee Injury and OA Outcome Score (KOOS). The KOOS comprises 41 items assessing pain and function. Secondary outcomes were the KOOS subscales of symptoms, function in sport and recreation, and quality of life.

Main results

The intervention group (derangement and non-responders) had significantly better improvements in pain and function at two weeks ($p < 0.01$), and at three months in terms of pain ($p < 0.01$) and function ($p = 0.02$)

Figure 1. Functional changes (KOOS) at different time points



There were significant differences at two weeks and three months between the derangement and non-responder and control groups in all outcomes (<0.01). At two weeks, the effect sizes were between 0.40 and 0.58 (medium to large) and at three months, between 0.20 and 0.37 (small to medium).

Conclusions

Exercise intervention, as determined by an MDT assessment, was effective at decreasing pain and improving function for patients with knee OA at two weeks, but less at three months.

Comments

There is growing evidence to support the use of MDT in the extremities; this started with case studies, but has now expanded considerably beyond this. There are case studies for contractile dysfunction and derangement at the shoulder, derangement at the wrist, knee and temporomandibular joints (Aina & May 2005; Littlewood & May 2007; Kaneko et al. 2009; Krog & May 2012; Menon & May 2012; Lynch & May 2013). There are validity and reliability studies (May 2006; May and Rosedale 2012; Kelly et al. 2008; May and Ross 2009). A randomised controlled trial is being conducted for contractile dysfunction at the shoulder (Littlewood 2012; Littlewood et al. 2012). This study augments the basis for evidence of effectiveness for the McKenzie methods in the extremities.

It shows that the derangement group was significantly better short-term than evidence-based best practice and a no treatment control group. Of the 99 patients who underwent a MDT assessment, 40 demonstrated a directional preference; and, as mentioned already, this was in a group with chronic OA referred for possible surgery. Interestingly, no dysfunctions were detected. A very similar proportion of patients from physiotherapy clinics, (43%), were classified with derangement in a recent survey (May and Rosedale 2012).

The reviewers were reluctant to accept the derangement sub-group as a separate group, as they were selected by the MDT assessment process, rather than the randomisation process. They forced the authors to weaken conclusions regarding the derangement group and emphasis the differences between the intervention (derangement and non-responders) and the control groups. This highlights one of the problems with randomised controlled trials that try to focus on specific sub-groups.

References

- Aina A, May S. (2005). Case report – A shoulder derangement. *Manual Therapy* ; 10:159-163.
- Kaneko S, Takasaki H, May S. (2009). Application of mechanical diagnosis and therapy to a patient diagnosed with de Quervain's disease: a case study. *J Hand Ther*, 22:278-284.
- Kelly E, May S, Ross J. (2008). The reliability of the McKenzie classification system using extremity McKenzie assessment forms. *Int J Mech Diagnosis & Ther*; 3:3:3-6.
- Krog C, May S. (2012). Derangement of the temporomandibular joint; a case study using Mechanical Diagnosis and Therapy. *Manual Therapy*; 1-4.
- Littlewood C, May S. (2007). Case study. A contractile dysfunction of the shoulder. *Manual Therapy*; 12:80-83.
- Littlewood C. (2012). Contractile dysfunction of the shoulder (rotator cuff tendinopathy): an overview. *J Man Manip Ther* ; 20:209-213.
- Littlewood C, Ashton J, Mawson S, May S, Walters S. (2012). A mixed methods study to evaluate the clinical and cost-effectiveness of a self-managed exercise programme versus usual physiotherapy for chronic rotator cuff disorders: protocol for SELF study. *BMC Musculo Dis*; 13:62.
- Lynch G, May S. (2013). Directional preference at the knee: a case report using mechanical diagnosis and therapy. *J Man Manip Ther*; 21:60-66.
- May S (2006). Classification by McKenzie's mechanical syndromes: report on directional preference and extremity patients. *Int J Mech Diagnosis & Ther*; 1;3:7-11.
- May S, Ross J (2009). The McKenzie classification system in the extremities: a reliability study using McKenzie assessment forms and experienced clinicians. *J Manip Physiol Thera*; 32:556-563.
- May SJ, Rosedale R. (2012). A survey of the McKenzie classification system in the extremities: prevalence of the mechanical syndromes and preferred loading strategy. *Physical Therapy*; 92:1175-1186.
- Menon A, May S. (2013). Shoulder pain: Differential diagnosis with mechanical diagnosis and therapy extremity assessment - A case report. *Manual Therapy*; 18:354-7.
- Rosedale R, Rastogi R, May S, Chesworth BM, Filice F, Willis S, Howard J, Naudie D, Robbins SM. (2013, *In Press*). Efficacy of exercise interventions as determined by the McKenzie system of Mechanical Diagnosis and Therapy for knee osteoarthritis: a randomized controlled trial. *J Orth Sports Phys Ther*.



Werneke MW, Deutscher D, Hart DL, Stratford P, Ladin J, Weinberg J, Herbowy S, Resnik L. (2013, *In Press*). McKenzie lumbar classifications: inter-rater agreement by physical therapists with different levels of formal McKenzie post-graduate training. *Spine*

Objective

The aim was to examine the association between therapists' levels of formal pre-credential, post-graduate training in the McKenzie Method and agreement on the following variables: syndromes, lateral shift, derangement, directional preference and centralization.

Design

Inter-rater chance-corrected agreement study.

Participants

47 raters examined 1,662 patients.

Intervention

Each pair of examiners conducted independent and consecutive evaluations of between 25 and 30 patients, with alternate examiners being the first examiner. Examiners were blind to the other examination and completed data were placed in a sealed envelope.

Main outcome measures

Percentage agreement and kappa values, with 95% confidence intervals, and with minimum threshold for acceptable level of agreement set at 0.60.

Main results

There was between 76% and 100% data on the different variables. Therapists who had completed Parts A/B, C and D of the McKenzie training programme respectively agreed that 82%, 87% and 81% of the patients were derangements. There was 86% to 90% agreement at the different course completion levels that there was no lateral shift present. There was between 92% and 95% agreement that a reducible derangement was present. There was between 69% and 74.5% agreement that the directional preference was extension. There was between 52% and 78% agreement that centralization was present. There was no learning effect from sequential completion of the courses, with those who had completed part D sometimes having poorer levels of agreement. Kappa values for all variables were all lower than 0.50 (0.11 to 0.44), with 95% confidence intervals only once reaching the 0.60 threshold.

Conclusions

No training level studied had acceptable agreement for any McKenzie classification variable. Agreement between training levels were similar with overlapping 95% confidence intervals.

Comments

This report contradicts studies that support the reliability of the MDT assessment and classification system (May et al. 2006), though generally these results were from therapists who had a Diploma level of education in MDT. Early studies with therapists with lower levels of training in the method or with limited experience also showed poor levels of reliability (Riddle and Rothstein 1993; Kilby et al. 1996).

Whereas some of the percentage agreements appear to be reasonable, it is normal for kappa values to show weaker levels of agreement. However, kappa values are the key determinants of reliability for nominal decision-making as they take chance agreements into account. The study has a number of strengths, such as the very large numbers of patients and therapists, and the effort to ensure blinding. As the study was only conducted in the country of Israel, generalisability might be questionable.

The low level of kappa values may be due to a number of issues. When the prevalence index is very high, or very low, as here with the high number of derangement classifications or low number with posture classification, chance agreement is high also and therefore kappa is reduced accordingly (Sim and Wright 2005). The bias index can affect kappa values as well, but the authors have tried hard to reduce this influence.

It has been suggested that sample sizes can be calculated for reliability studies (Sim and Wright 2005), but the sample size for this study is very large and, therefore, adequate. Finally, it has to be considered if the sequential McKenzie training course does make therapists better equipped to make clinical decisions that align with their colleagues. This study would suggest no.

References

Kilby J, Stigant M, Roberts A. (1990). The Reliability of Back Pain Assessment by Physiotherapists, Using a 'McKenzie Algorithm'. *Physiotherapy*; 76:579-583.

May S, Littlewood C, Bishop A. (2006). Reliability of procedures used in the physical examination of non-specific low

back pain: a systematic review. *Aus J Physio*; 52:91-102

Riddle DL, Rothstein JM. (1993). Intertester Reliability of McKenzie's classification of the type of the syndrome types present in patients with low back pain. *Spine*; 18:1333-1344.

Sim J, Wright CC. (2005). The Kappa statistic in reliability studies: use, interpretation, and sample size requirements. *Physical Therapy*; 85:257-268.

<http://www.ncbi.nlm.nih.gov/pubmed/24253786>



Svensson GL, Wendt KW, Thomee R. (2014). A structured physiotherapy treatment model can produce rapid relief to patients who qualify for lumbar disc surgery: a prospective cohort study. *J Rehabil Med*; 46.

Objective

To evaluate a structured physiotherapy programme based on Mechanical Diagnosis and Therapy (MDT) and stabilization training in patients who qualify for disc surgery.

Design

Initially the study was planned to be a randomised controlled trial, but a large number of patients refused to be randomised, so the study reports a cohort of 45 patients who undertook the physiotherapy programme.

Participants

Of the 80 patients who qualified for surgery: persisting radicular pain for > six weeks, with neurological signs and symptoms, and confirmation of disc herniation by MRI; 45 were treated in the cohort study.

Intervention

Six physiotherapists with credentialed examination in MDT treated the patients with an initial two weeks of MDT protocol based on directional preference. Graded trunk stabilisation was added at the third week. Patients were also encouraged to do physical training of their own choice, as well as the home exercises based on MDT and stabilisation.

Main outcome measures

Measures were collected at baseline, three, 12 and 24 month follow-ups. Primary outcomes: pain intensity in the leg, Oswestry disability questionnaire; secondary outcomes: back pain, Tampa scale for Kinesiophobia (TSK), quality of life (EQ-5D), depression (Zung), Self-Efficacy Scale (SES), and work status.

Main results

No patients had undergone surgery at three months, but four had undergone surgery at 24 months. There were highly significant ($p < 0.001$) changes in all outcomes at three months, which remained at 12 and 24 months.

Conclusions

This study recommended that patients being considered for surgery for lumbar disc herniation should first undertake this structured physiotherapy programme of MDT and stabilisation exercises.

Comments

This study supports previous studies that have suggested that at least 50% of patients who are suitable for surgery for lumbar disc herniation will, in fact, recover with conservative treatment using MDT (Kopp et al. 1986; Skytte et al. 2005). Furthermore, recovery has been noted regardless of type of disc herniation found on imaging (Albert et al. 2011; Broetz et al. 2008). The introduction of a MDT clinic in the county of Denmark led to a significant reduction in those undergoing such surgery, compared to the rest of the country, where surgery rates remained unchanged (Rasmussen et al. 2005). Thus, there is growing evidence that a MDT screening should be used for all patients who present with lumbar radiculopathy that might be suitable for surgery, but which actually could respond to MDT conservative care.

It is not clear if the additional stabilisation programme used in this and a previous study (Svensson et al. 2013; Albert et al. 2011) were important features of the overall programme or if they were not relevant to the patient's improvement. This would need further research to determine if this additional component secured any additional benefit.

Initially, McKenzie suggested that contained herniations might respond to MDT, whereas sequestrations and extrusions would not, as the hydrostatic mechanism of the intervertebral disc had been lost. This recent data challenges that to some extent.

References

Albert HB, Hauge E, Manniche C. (2011). Centralization in patients with sciatica: are pain responses to repeated movement and positioning associated with outcome or types of disc lesions? *Eur Spine J*; DOI 10:1007/s00586-011-2018-9

Broetz D, Hahn U, Maschke E, Wick W, Kueker W, Weller M. (2008). Lumbar disk prolapse: response to mechanical physiotherapy in the absence of changes in magnetic resonance imaging. Report of 11 cases. *NeuroRehab*; 23:289-294.

Kopp JR, Alexander AH, Turocy RH, Levrini MG, Litchman DM. (January 1986). The use of Lumbar Extension in the Evaluation and Treatment of Patients with Acute Herniated Nucleus Pulposus. A preliminary Report. *Clinical Orthopaedics*; 202:211-218.

Rasmussen C, Nielsen GL, Hansen VK, Jensen OK, Schioetz-Christensen B. (2005). Rates of lumbar disc surgery before and after implementation of multidisciplinary nonsurgical spine clinics. *Spine*; 30: 2469-2473.

Skytte L, May S, Petersen P. (2005). Centralization: Its prognostic value in patients with referred symptoms and sciatica. *Spine*; 30:E293-E299.

<http://www.pubfacts.com/detail/24336970/A-structured-physiotherapy-treatment-model-can-provide-rapid-relief-to-patients-who-qualify-for-lumb>



Edmond SL, Cutrone G, Werneke M, Ward J, Grigsby D, Weinberg J, Oswald W, Oliver D, McGill T, Hart DL, Edmond SL. (2014, In Press). Association between centralization and directional preference; and functional and pain outcomes in patients with neck pain. *J Orth Sports Phys Ther*.

Objective

In subjects with neck pain, the objective was to describe the prevalence of centralization and directional preference, determine if these were associated with any variables, and to determine if either was associated in changes in pain and function.

Design

Cohort study design.

Participants

Data was collected by eight physical therapists on 304 patients with neck pain.

Intervention

Patients were provided with a MDT assessment and treatment programme.

Main outcome measures

Presence of centralisation and directional preference, and their association with pain and functional outcomes.

Main results

Prevalence of centralization was 40%, and of directional preference was 70%. Both younger and more acute subjects were more likely to demonstrate centralization and directional preference, respectively. In patients who centralized, showed directional preference function was better by 5.4 / 7.7; when adjusted for age and symptom duration, the difference was 3.6 / 5.4, respectively. For pain outcomes, there were no significant differences.

Conclusions

Directional preference, and, to a lesser extent, centralization represent distinct categories that are both associated with improvements in functional outcomes.

Comments

Centralization and directional preference has not been reported on in the cervical spine as much as in the lumbar spine. This study confirms previous reports that directional preference has a higher prevalence than centralization, but, unlike previous reports, indicates that directional preference is a stronger indicator of outcome than centralization (May and Aina 2012). Nonetheless, centralization and directional preference have previously been reported in the cervical spine (Werneke et al. 1999; Hefford 2006). For instance, in 111 cervical spine patients, 81% were classified with derangement, 1% as irreducible derangement, 8% with dysfunction, 3% with postural syndrome, and 7% with other. Treatment directions for the derangements as follows: 72%, 9%, and 19% respectively for extension, flexion and lateral movements (Hefford 2008).

References

Hefford C. (2007). McKenzie classification of mechanical spinal pain: profile of syndromes and directions of preference. *Man Ther*, 13:75-81

May S, Aina A. (2012). Centralization and directional preference: a systematic review. *Man Ther*, 17:497-506.

Werneke M, Hart DL, Cook D. (1999). A descriptive study of the centralisation phenomenon. A prospective analysis. *Spine*; 24:676-83

<http://www.ncbi.nlm.nih.gov/pubmed/24261929>

BUSINESS & MARKETING CORNER

Free New Webinars Available to Help Improve Your MDT Business

Yoav Suprun DPT, Dip. MDT, CSCS

Firstly, I would like to thank the MIUSA head office for organizing and orchestrating this series of webinars to assist MDT practitioners with their business. MIUSA has worked diligently on getting close to 400 live listeners from around the world to tune in to these webinars. Technology is assisting us all to share great ideas with each other.

Dana Greene, PT, Dip. MDT, a Senior MIUSA Faculty Member (and the reason I fell in love with MDT), started this series with his excellent webinar entitled "[Best Practices for McKenzie Driven Private Practice.](#)"

I continued to share my success story on marketing MDT to the public in "[How to Create a Successful MDT Clinic by Marketing to the Public.](#)"

The next webinar, scheduled for March 20, 2014 with Todd Edelson, PT, DPT, Dip. MDT, will cover each step of establishing a direct-pay practice, from clinical, social and business preparation to marketing MDT's Unique Selling Points. Economist, market analyst and business development expert, Maureen Edelson, will join her husband for the presentation, which includes case studies. [Register Here.](#)

Feedback has been very positive from our first two webinars and MIUSA looks forward to continuing the series in 2014. You are welcome to listen to the first two webinars on your own time via the links provided above. Hopefully, it will stimulate you to improve or add to your existing marketing techniques.

Please feel free to send us your stories of how you manage to market your MDT clinic to either a Doctor, a group of Doctors or to the public directly. We also welcome your thoughts on what you have enjoyed about our webinars so far and offer any suggestions for future webinar topics. We all benefit from the knowledge and information gained through shared experience!

Many thanks,



Yoav Suprun DPT, Dip. MDT, CSCS