

**Feature Commentary****EXTREMITY ADVANCES 2007—2013***GRANT WATSON, DIP PHYS (AUCK), ADP(OMT), DIP MT, DMDT*

Following the International Conference in Queenstown, New Zealand in 2007, I was invited to submit an editorial in the International Journal of MDT. I commented that we were progressing cautiously with the development of MDT for the Extremities, but there were many challenges ahead. Having been asked to contribute to this edition of the MDT World Press, I thought it would be an opportune time to assess progress since that period.

Overall, I think it is fair to say the early signs are encouraging, both related to the educational programme as well as the increase in the MDT literature.

There have been a number of significant developments under the astute guidance of Dr. Helen Clare, in her role as Director of Education, supported by the Education Committee in discussion with the worldwide Faculty.

Most prominent amongst these developments has been the successful graduated integration of the Extremities material into the core educational programme as part of the four course structure of MDT. Extremities concepts are introduced in “Part C – Advanced Lumbar Spine and Lower Limb Extremities”, and developed further on “Part D – Advanced Cervical and Thoracic Spine and Upper Limb Extremities”.

Coupled with this has been integrating MDT for the Extremities into the Credentialing Exam. This huge project is coming to careful fruition under the guidance of Dan Kelley and Kathy Hoyt, primarily, and it is envisaged this new format of the Exam will be available in the foreseeable future. Since 2010, an Extremities component has also been examined during the Diploma of MDT Final Examination.

As part of the interest in Extremities, and driven by requests from course participants, an Advanced Extremities Workshop has been trialled by a few Branches, and as a result of the positive feedback, a more formal proposed structure is currently being considered, and resources being developed.

The International Conferences also continue to highlight the Extremities concepts, with significant parts of the programmes in both Rio de Janeiro in 2009 and Austin, Texas in 2012 being related to Extremities topics – both platform papers and patient demonstrations. The Conference of the Americas in Denver scheduled for July 2013 also contains both hip and shoulder workshops, further demonstrating our potential to begin to explore the MDT for the Extremities concepts in more detail in different regions of the body. Spinal Publications has also published two more books in the “Treat Your Own...” series by Robin McKenzie. “Treat Your Own Shoulder” was published in 2009, and “Treat Your Own Knee” in 2012.

Ultimately, it will probably be the level of support for these first two Extremities books by the public and health professionals that will dictate whether more books are produced for different regions of the body. In 2007, I commented that “early data appears to show significant prevalence of pain and disability affecting shoulders and knees in particular, and in many peripheral joints, we seem to be able to identify significant numbers of Derangements, and/or Contractile and Articular Dysfunctions, which we understand how to manage effectively”.

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A number of recent studies support those early trends. Having demonstrated consistent inter-therapist reliability in a number of studies (May, 2006a & 2006b; Kelly, May, Ross 2008; May & Ross 2009), a recent survey of the McKenzie Classification System in the Extremities (May & Rosedale, 2012) demonstrated that of 388 patients collected from 30 therapists worldwide, 64% were classified in one of the MDT syndromes, and the rest were all classified as one of the ‘Other’ classifications. Whilst classifications varied con-

siderably between anatomical sites, the classifications were largely consistent over time, and patients who were classified as derangement syndrome required fewer treatment sessions. Furthermore, studies such as these assist us as a faculty to reach consensus on common patterns of directional preference, and associated loading strategies, for the Extremity Joints.

The as-yet unpublished study of MDT in Osteoarthritic knees that Richard Rosedale presented in Austin is a significant development being the first randomised controlled trial of MDT for the Extremities – in this case comparing MDT to Guideline Management for OA.

We also have an increasing number of case studies in the literature (Aina & May, 2005; Littlewood & May, 2008; Kaneko, Takasaki & May 2008; Krog & May, 2012; Menon & May, 2013; Lynch & May, 2013). Clearly, Stephen May is the “go to guy” to assist with publication! Chris Littlewood has also followed up his early work in the shoulder with a series of publications to date related to Contractile Dysfunctions in the shoulder (Littlewood 2012; Littlewood, Malliaras & May 2012) as part of his PhD studies in Sheffield, UK.

As I commented in 2007, there is still considerable work to be done before MDT will be recognised as an essential ingredient in the assessment and management of all musculoskeletal disorders as Robin envisaged in the Introduction to the 1981 edition of “The Lumbar Spine”. However, we appear to be moving in the right direction.

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**GUEST COMMENTARY****A Fellow-In-Training's Experience of the MDT Fellowship Program**

Brian McClenahan, PT, Dip. MDT

Many have asked me what drew me toward the MDT Fellowship Program, established by the US Branch as a collaborative effort of MII, APTA and AAOMPT, given the extensive and challenging regimen already achieved during the Diploma Program. The reason is simple, the 'process' of working toward Credentialing and achieving Diploma has served to mold me into a better clinician and spokesman of MDT. This was no easy process; it involves questioning what you know, challenging what you are told, and being open to feedback. The MDT Fellowship is a further step in the Mechanical Diagnosis and Therapy training program to improve ourselves as clinicians, educators, and spokesmen of MDT and the Physical Therapy Profession.

**Peer Review**

The Orthopedic Manual Physical Therapy (OMPT) component of clinical mentorship hours are an opportunity for further peer review. This is a give and take process during and after evaluation, treatment, and follow-up of patients. Variability in mentor training leads to some very thought provoking conversation and debate. My experiences include reaching similar conclusions through different pathways, learning alternate techniques for a particular presentation, and demonstrating the effectiveness of MDT principles.

**Exposure to Literature**

Evidence Based Practice remains the 'catch phrase' in today's healthcare environment. This means that we must not only be effective at treating the Mechanical Syndromes, but the many "Other" classifications as well. This is where the MDT Fellowship pushes you outside of your comfort zone. The MDT Fellowship is not a process of forgetting what you have learned. Instead, it is a way of becoming aware of and implementing alternate scientifically supported treatment regimens for conditions/presentations that do not fit the three primary syndromes. At times, a Mentor or Fellow-in-Training (FIT) will present a patient that does not fit an MDT Classification. An extensive discussion is undertaken of why this individual does not meet a classification and how this conclusion is reached. As a FIT, I then complete a literature review to seek out techniques/treatment regimens that could possibly be considered given the presentation. This process serves to provide me a broader base of knowledge and improve my skills further in being a critical consumer of scientific literature.

**Manual Skills**

Mechanical Diagnosis and Therapy is often summarized as 'extension exercises' and 'hands off'. The reality is that manual techniques are utilized within the reasoning process when indicated to confirm/reject classification, confirm direction, expose relevant lateral components, and reduce derangements. Progression of forces is an integral component to the McKenzie Method of MDT. The Fellowship serves to improve those skills further by gaining variations and new techniques that may be applied to orthopedic conditions of the spine and extremities.

**Open Communication within the Physical Therapy Profession**

The profession as a whole consists of many individuals with various opinions/perspectives on what constitutes best practice. "Worldwide promotion of excellence and unity in clinical and academic standards for manual/musculoskeletal physiotherapists" is the vision of IFOMPT (International Federation of Orthopaedic Manipulative Physical Therapists) a subgroup of the World Confederation for Physical Therapy. IFOMPT currently consists of member organizations in 22 countries; as such, it is a powerful staging ground and driving force of how orthopedic physical therapy will be implemented. MDT must have a seat at this table. This can be achieved by MDT clinicians stepping forward to complete the Fellowship in the US, and others around the world seeking to establish additional MDT Fellowships.

Robin McKenzie stated clearly in a letter his support of and importance of the MDT Fellowship for further recognition and acceptance of Mechanical Diagnosis and Therapy. I chose to accept his challenge, and I encourage others to do the same. The path to success as a clinician, mentor, or educator does not have an end, rather it is an ongoing process. We never realize what we have achieved until we look back, and we never realize how much more we have to learn until we turn around and continue forward. I encourage all of you to contemplate if you are continuing to move forward or have become 'comfortable' and desire to be challenged.

*"We are what we repeatedly do. Excellence, then, is not an act, but a habit." - Aristotle*

**BRANCH SPOTLIGHT**

**Polish Branch in Alphabet**

*Dr. Tomasz Stengert*

**A for Ambitious:** The Polish Branch runs close to 70 courses annually. On average, there are around 19 participants per course. The Branch initially had 16 courses in 1996, jumped to 27 in 1997, and has scheduled 67 courses for 2013, showing a consistent growth factor.

**B for Branch:** The Polish Branch has been in existence since 1996, structured as an association. The Board counts seven members with Dr. Tomasz Stengert as chairman.

**C for Credentialed:** The Polish Branch currently counts 688 Credentialed Therapists. The Credentialing Examination is held twice a year and usually is spread throughout three or four days. The first exam was held in the year 2000.

**D for Diplomaed:** From the very beginning, the Polish Branch was focused on developing the best specialists in musculo-skeletal care. This has resulted in eight Diplomaed Therapists in the Polish Branch.

**E for Education:** Informative courses for physicians have been led in the eastern region of Europe by Dr. Stengert (mainly Poland, but he has also visited Finland and Czech Republic). Aside, the Polish Branch is taking a great deal of care in providing students and faculty staff of Universities with informative lectures. We have also made effort to standardize classes about MDT at the Academic level.

**F for Family:** We are a big family. Nothing more, nothing less.

**G for Games:** We take each and every opportunity to challenge ourselves in football, but some of us are lacking some ligaments in their knees (although he is an Orthopedic surgeon, he says it would be hard for himself to reconstruct his own ligaments). This is why we need to switch to video games. Can anybody buy us a nice Playstation with FIFA 2013?

**H for Humor:** We really don't have a sense of humor...

**I for Instructors:** The Polish Branch consists of four instructors. One Senior Instructor (Dr. Tomasz Stengert), one instructor providing courses A-D (Rajmund Tomczakowski), one instructor teaching courses A-C (Jacek Tuz) and one Instructor allowed to teach courses A-B (Adrian Wozny).

**J for Job:** We believe our job is not only to teach how to evaluate using MDT but to push to think.

**K for Knowledge:** We always try to pass the knowledge about the cost-savings and effectiveness of MDT to government officials.

**L for Lech Poznan:** We encourage everyone to watch and support our favorite football club from Poznan.

**M for Meetings & Congress:** The Polish Branch organizes annual meetings for Credentialed and Diplomaed Therapists every year. This year, we held our XI<sup>th</sup> meeting. In 2011, we held our Opened Congress with such invited speakers as Prof. Michael Adams, Dr. Trish Dolan, Dr. Ronald Donelson, Dr.



Stephen May, and Dr. Andrzej Zytowski. Over 500 participants showed up to take part in this event. Our invitation for chairman has been accepted by the Polish Consultant in the field of rehabilitation. In 2001, the Polish Branch hosted the Euro-Meeting in Gdansk.



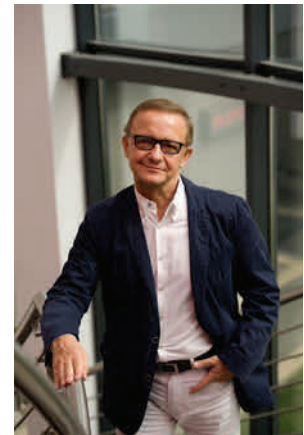
**N for New Zealand:** Any time to visit New Zealand is good time. This is why we were delighted to have our delegates visit Robin McKenzie for the celebration of his 80<sup>th</sup> birthday. Dr. Stengert was especially pleased since he always repeats that his visit for the Diploma program in New Zealand was the time of his brain “transplant”.

**O for Obligation:** We feel obligated to continue Robin’s work.

**P for Promotion:** In the Polish Branch, we always try to promote the McKenzie Method as best as we can. During a year, we are invited to give workshops and lectures at different conferences, which we, of course, accept with pleasure. Overall, our motto, which is daily repeated, by our Papa (Dr. Stengert) is “never say no”.

**Q for Questions:** In order to promote, we need to have our answers ready. Questions can be head braking.

**R for Research:** The Polish Branch is constantly publishing articles, chapters in books and accepts invitations for cooperation from different publishing houses. Additionally, we are conducting research and helping others with constructing good quality studies. We have finalized a project about objective gait and muscle analysis, which hopefully will soon be published, and are currently conducting two other large, original research projects. Because the Polish Branch is always supportive of good research and researchers, we are a multi-year donor to IMDTRF.



**S for Stengert:** Tomasz Stengert.

**T for Transation:** We try to keep current with the world and give opportunity to everyone as best we can to have access to the Literature about MDT. This resulted in translating Ronald Donelson’s book “Rapidly Reversible Low Back Pain”. We are also proud to be the first country to have translated the 2<sup>nd</sup> edition of “The Lumbar Spine – Mechanical Diagnosis and Therapy”.

**U for Unexpected:** 2009 was a big year for the Polish Branch. In Rio de Janeiro, during the 11<sup>th</sup> International Conference of The McKenzie Institute International, Dr. Tomasz Stengert received The MII Extension Award. This has pushed the whole team of the Polish Branch to work even harder and strive higher.



**V for Vacation:** Because someone has stolen all the dictionaries, we have absolutely no idea of what it means. Could anyone introduce us to the term vacation?

**W for Website:** [www.mckenzie.pl](http://www.mckenzie.pl)

**X for Xylophone:** Couldn’t find anything for X. X-ray is not reliable.

**Y for “Y Not”:** Why not visit us? We invite everyone that would like to spend some time in Poland to contact us. Give us a call sometime (61 8610467), or e-mail, [info@mckenzie.pl](mailto:info@mckenzie.pl).

**Z for Zip Code:** If we have a power outage and all phones die and the only way to find us is by our zip-code, then this may come in handy (60-287 Poznan).

**CASE REVIEW: A CLINICIAN'S PERSPECTIVE****Case Review: 26 y/o Athlete with Chronic Left Knee Pain**

Kimberly Greene, PT, Dip. MDT

This is a case about a 26-year old male with chronic knee pain of one year duration. The symptoms commenced for no apparent reason and the patient felt the symptoms were worsening. He reported that running, deep squatting and performing sit to stand transfers from a low surface produced his symptoms. Based on the history, McKenzie and May (2000) support the provisional diagnosis of knee derangement due to the following subjective reports from the patient:

- Patient reported symptoms worsening
- Variable pain pattern: sometimes worse with running, sometimes better
- Pain would often remain worse after running and squatting

Four baselines assessed during the repeated movement section of exam:

- Passive knee flexion prod concordant pain; PDM
- Minimal loss of flexion ROM
- Single leg squat on decline board produced concordant pain; PDM
- Valgus stress produced concordant pain and apprehension

**Visit 1:** The repeated movement techniques of the exam were assessed in a loaded position, based on the patient's history in which standing and walking did not worsen his symptoms. May and Rosedale (2012) observed that up to 91% of knee joint derangements display a directional preference for extension, therefore repeated extension was assessed initially. After thirty repetitions of extension techniques with no effect, it was decided to assess another direction. Repeated flexion was assessed using a chair for partial weight bearing (see Figure 1). After thirty repetitions of repeated flexion, the following baselines improved: PDM occurred deeper into the squat, improved flexion motion, and less pain and apprehension with valgus stress to left knee. The patient was instructed to perform repeated knee flexion, partial weight bearing x10, every 2 hours. The provisional diagnosis for this patient was left knee derangement with a directional preference for flexion (McKenzie and May 2000).

**Visit 2** (3 days later): Patient reported a 30% improvement in his knee pain with squatting and running. Upon assessment, he displayed no apprehension or pain with valgus stress to the knee. The patient's knee flexion motion improved with single leg squat on the decline board, and passively with overpressure. The patient continued to display PDM with squat and passive flexion. The patient was instructed to continue with the current treatment plan, emphasizing end-range partial loaded flexion techniques x10 every 2 hours. The provisional diagnosis of derangement was confirmed as symptomatic, mechanical and functional baselines improved (McKenzie and May 2000).

**Visit 3** (1 week later): Patient reported 40% improvement in his knee pain with squatting and running. Once again, he displayed no apprehension or pain with valgus stress to knee. The patient improved his pain free motion with single leg squats and passive knee flexion, but still displayed slight loss of motion compared to right knee. The therapist provided clinician OP in a supine position x30 reps (see Figure 2) in which ROM improved. The patient was instructed to continue with current treatment plan with emphasis on end-range partial loaded flexion techniques x10 every 2 hours.

**Visit 4** (1 week later): The patient reported no change from the previous visit, and continued to report intermittent pain with squatting and running. Baselines remained unchanged from the previous visit. Patient tolerated prone knee flexion mobs with clinician traction using mobilization belt x20 reps, which decreased pain (see Figure 3). After mobilizations, the patient was able to perform a single leg squat on the decline board without pain. Patient was instructed to initiate end-range knee flexion techniques in a fully loaded position x10 every 2 hours (see Figure 4).

**Visit 5** (1 week later): Patient reported a 60% improvement of knee pain with squatting and running. For the first time in a year, he reported periods of running without pain. Patient still displayed PDM with sin-

gle leg squat on the decline board, but his pain free motion had improved significantly since his initial visit. The patient displayed no motion loss, but continued to display ERP with flexion. Patient tolerated prone knee flexion mobs with clinician traction using mobilization belt x20 reps, which abolished pain. Once again, the patient was able to perform pain free leg squat on the decline board pain free. Patient instructed to initiate end-range knee flexion techniques in a fully loaded position x10 every 2 hours.

**Visits 6-9:** The patient returned to the clinic 1x/per week for the following month. He continued to display gradual and slow improvement with flexion-based techniques. Therapist mobilizations were continued until the pain free range of motion in his left knee was equal to that in his right knee, using a single leg squat as a baseline for improvement. At discharge, the patient reported having met 80% of the goals: running and squatting. He met his goal of transferring from sit to stand pain free. Four months after the initiation of treatment, the patient reported that all goals were met for running and squatting.

In summary, this case review illustrates the following force progressions to reduce a knee derangement:

- Patient generated flexion techniques (using chair or lunge, Figure 1 & 4)
- Knee Flexion with clinician overpressure (Figure 2)
- Prone knee flexion mobilization with clinician traction (Figure 3)

The case demonstrates the utility of standard orthopedic tests being incorporated in the exam. Since this patient was a PT with a history of a MCL tear, the valgus stress test was used as a mechanical baseline. Surprisingly, the test was asymptomatic after three days of treatment, but the patient subjectively reported only a 30% improvement. This supports the MDT method in placing more reliability in symptomatic responses rather than special orthopedic tests.

Furthermore, the case underscores the time component needed to fully reduce slowly responding derangements. Even though this patient was incredibly compliant, he reported slow and gradual improvement throughout his treatment, which required a full four months to meet his goals. This is not a typical timetable for treatment of a knee derangement, but it is not unusual given a year-long history of symptoms. During each reassessment, the baselines consistently improved so that the classification of derangement remained unchanged. In more prolonged cases such as this one, weekly reassessments become critical to confirm classification and to reassure the patient that his problem will resolve given the proper loading strategy and enough time.

**References:**

1. McKenzie R, May S. *The Human Extremities: Mechanical Diagnosis and Therapy*. Wellington, New Zealand: Spinal Publications New Zealand Ltd; 2000.
2. May S, Rosedale R. A Survey of the McKenzie Classification System in the Extremities: Prevalence of Mechanical Syndromes and Preferred Loading Strategies. *Physical Therapy; Journal of the American Physical Therapy Association* 2012; 9: 1175-1183.





**Figure 1: Knee Flexion Partial WB**



**Figure 2: Knee Flexion + Clinician OP**



**Figure 3: Prone Knee Flexion Mobilization**

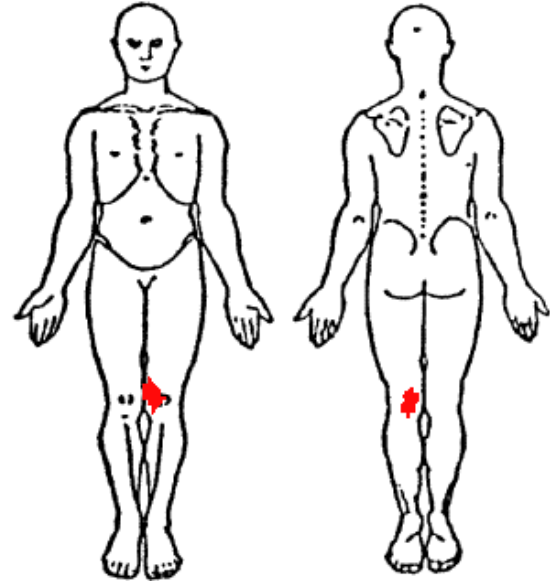


**Figure 4: Knee Flexion + OP Fully Loaded**



# THE MCKENZIE INSTITUTE PERIPHERAL ASSESSMENT

Date 10/11/2012  
 Name Mr. Knee Sex  M / F  
 Address \_\_\_\_\_  
 Telephone \_\_\_\_\_  
 Date of Birth 02/02/1987 Age \_\_\_\_\_  
 Referral GP / Orth /  Self / Other \_\_\_\_\_  
 Patient accepts anonymous use of data for research Yes / No  
 Work: Mechanical Stresses PT  
 \_\_\_\_\_  
 Leisure: Mechanical Stresses Running, Weight Lifting  
 Functional Disability from present episode \_\_\_\_\_  
 Functional Disability score \_\_\_\_\_  
 VAS Score (0-10) 5/10



## HISTORY

Present Symptoms Left Anteromedial knee pain/medial hamstring insertion  
 Present since 1 year Improving / Unchanging /  Worsening  
 Commenced as a result of \_\_\_\_\_  Or no apparent reason  
 Symptoms at onset \_\_\_\_\_  
 Constant symptoms \_\_\_\_\_ Intermitt. symp. All  
 What produces or worsens Running, single leg squat, sit to stand from low surfaces  
 \_\_\_\_\_  
 What stops or reduces Inactivity  
 \_\_\_\_\_  
 Continued use makes the pain Better /  Worse / No effect  
 Pain at rest Yes /  No  
 Disturbed night Yes /  No  
 Other Questions \_\_\_\_\_  
 \_\_\_\_\_  
 Treatment this episode Nil  
 Previous Episodes DX MCL tear 10 years ago: resolved with PT  
 Previous treatments \_\_\_\_\_  
 Spinal history nil  
 \_\_\_\_\_ Paraesthesia Yes /  No  
 Medications tried \_\_\_\_\_  
 Present medication \_\_\_\_\_  
 General Health  Good / Fair / Poor \_\_\_\_\_  
 Imaging Yes /  No  
 Summary \_\_\_\_\_ Acute / Sub-acute /  Chronic \_\_\_\_\_ Trauma /  Insidious onset  
 Sites for physical examination Left Knee  
 \_\_\_\_\_

## EXAMINATION

Observation \_\_\_\_\_

Baseline measurements (pain or functional activity): Single leg squat on decline board: PDM

Active Movements (note symptoms and range): _____	PDM	ERP
Flexion: Min loss		X
Extension: Nil loss		
Passive Movement (+/- over pressure)(note symptoms and range) _____		
Flexion: Min Loss	X	
Hyperextension: R=L		X
Valgus stress test painful and apprehension		
Resisted tests response (pain) _____		
5/5 MMT all planes pain free		
Deep squat limited secondary to left knee pain		

### Repeated Tests (choose the most symptomatic from above)

Active movement passive movement resisted test	During Movement	After Movement	Mechanical Response		
			^ ROM	v ROM	no effect
Rep Ext FWB	30 rep/ No effect	No effect			X
Rep Flex PWB	30 rep/ Decreases/ VAS 3	Better	X		
<b>Effect of static positioning</b>					
<b>Other tests: eg loaded, compression, unloaded etc</b>					

## SPINE

Movement Loss \_\_\_\_\_

Effect of repeated movements \_\_\_\_\_

Effect of static positioning \_\_\_\_\_

Spine testing Not relevant / relevant / secondary problem \_\_\_\_\_

### PROVISIONAL CLASSIFICATION

Dysfunction - Articular \_\_\_\_\_ Contractile \_\_\_\_\_

Derangement \_\_\_\_\_ Postural \_\_\_\_\_

Other \_\_\_\_\_ Uncertain \_\_\_\_\_

## PRINCIPLE OF MANAGEMENT

Education \_\_\_\_\_

Exercise Rep Flex PWB using chair \_\_\_\_\_ Frequency q 2 hrs

Treatment Goals 1. Sit to stand from deep surfaces without pain 2. Running pain free 3. Single leg deep squat pain free

## LITERATURE REVIEWS

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

**May S, Comer C. Is surgery more effective than non-surgical treatment for spinal stenosis, and which non-surgical treatment is more effective? A systematic review. *Physiotherapy* 2013;99:12-20.**

**Objective**

Spinal stenosis can be treated both conservatively and surgically; the aim of this review was to determine which was superior, and also to determine the effectiveness of conservative therapies.

**Design**

System review of Medline, CINAHL, AMED, PEDro, and Cochrane databases till August 2010.

**Study selection / appraisal**

All conservative interventions were included, not just physical therapy interventions; non-English language papers were included; PEDro was used to score quality, where PEDro scores were not available this was done by the authors. Levels of evidence were used to synthesise studies where possible.

**Patients**

Randomised clinical trials were included that involved patients with a clinical or radiological diagnosis of spinal stenosis.

**Intervention**

All conservative treatments were included; there must be non-surgical treatment in one group.

**Main outcome measurements**

Pain and disability were key outcome measures at short-term (less than three months after randomisation), medium (between three and 12 months), and long-term (12 months or more).

**Main results**

Thirty-one papers were included, that related to 27 separate trials, with short-term follow-up (10 trials), medium term (10 trials), and long-term follow-up (7 trials); 18 were deemed to be high quality. In four out of five trials, decompression surgery was better than conservative treatment, but in one trial there was no difference. However, in this latter trial decompression, surgery occurred in 54% and 66% of those randomised to conservative care and surgery respectively. Given this huge non-adherence to treatment protocol the intention-to-treatment analysis cannot be taken at face value. In the as-treated analysis, there were significantly better results for those receiving surgery. Thus, there was moderate quality evidence that surgery produced significantly better outcomes in function, pain, and walking both short and very long-term.

There was strong evidence (6 RCTs) that epidural injections were no more effective than active controls. There was moderate quality evidence (5 RCTs) that calcitonin was no more effective than placebo or paracetamol. No other treatments could be grouped in any meaningful way. Evidence regarding prostaglandin, a vitamin B12, and gabapentin was contradictory and mostly low quality and negative.

Physical therapy interventions were less effective than decompression surgery in three out of four studies. There was limited evidence to support exercise, cycling, or bodyweight sustained treadmill training. Bodyweight sustained treadmill training combined with manual therapy and flexion exercises was more effective than the same without the manual therapy, but only short-term.

**Conclusions**

There is no evidence that supports the effectiveness of any conservative therapy for spinal stenosis.

**Comments**

The two major conclusions from this review; that decompression surgery was more effective than all conservative treatments, and that there was no evidence for any conservative treatments at all, came as a surprise to the authors. However, this reading of the literature was supported by other recent systematic

reviews; regarding surgery versus conservative treatments (Kovacs et al. 2011), and regarding the lack of even moderate evidence for any of the conservative treatments mentioned earlier (Ammendolia et al. 2010). Ours was the largest review to date, and was not limited by non-English publication bias.

## References

Ammendolia C, Stuber K, de Bruin LK, Furlan AD, Kennedy CA, Rampersaud YR et al. Non-operative treatment for lumbar spinal stenosis with neurogenic claudication: a systematic review. *Spine* DOI: 10.1097//BRS.0b013e318240d57d

Kovacs FM, Urrutia G, Alarcon JD. Surgery versus conservative treatment for symptomatic lumbar spinal stenosis. *Spine* 2011;36:E1335-E1351.

<http://www.ncbi.nlm.nih.gov/pubmed/23219644>



**Slaven EJ, Goode AP, Coronado RA, Poole C, Hegedus EJ. The relative effectiveness of segment specific level and non-specific level spinal joint mobilization on pain and range of motion: results of a systematic review and meta-analysis. *J Man Manip Ther* 2013;21:7-17.**

## Objective

To examine the effects of a single session of joint mobilisation on pain at rest and on movement, and to compare the effects of specific and non-specific mobilisation at segmental levels.

## Design

Systematic review of MEDLINE, CINAHL, PEDro to November 2010; quality was assessed using criteria from a previous Cochrane review; and where possible meta-analysis was conducted.

## Patients and intervention

Randomised controlled trials were included that evaluated the effect of a single session of joint mobilisation (non-thrust) on patients with cervical, thoracic, or lumbar pain. Studies evaluating the effects of manipulation thrust techniques, or long-term studies were not included.

## Main outcome measurements

Immediate, within session changes in pain at rest and most painful movement.

## Main results

Eight articles were finally included, with seven deemed to be high quality. There was some evidence from four studies that in the cervical spine segment specific mobilisation is favoured (mean difference -0.41), whereas in the lumbar spine non-specific mobilisation is favoured (mean difference 0.29). Similar effects were found on the most painful movement; mean differences -0.27, and 0.34 respectively for the cervical and lumbar spines.

## Conclusions

Multiple studies showed single sessions of joint mobilisation could reduce pain at rest and with movement. However, whether this mobilisation needs to be specific regarding segmental level appears to be influenced by the segmental level. In the cervical spine, segmental specific mobilisation appears to be more effective, but in the lumbar spine non-specific mobilisation.

## Comments

Given the short-term nature of the follow-up in all these studies, little conclusion can be given about the long-term efficacy of mobilisation. But these trials also looked at the specific segmental level of these mobilisations, and found this was not always relevant to having an effect. Of the eight trials selected for the review, six of the eight involved patients with some kind of neck pain, and in the majority of these studies segmental-specific mobilisation had a greater effect than randomly selected mobilisation. In the two studies involving patients with back pain, there was little or no difference between randomly-selected and segmental-specific mobilisation techniques. In the meta-analysis of studies that could be pooled, there was a significant difference between the neck and back pain patients ( $p=0.02$ ) indicating a preference for segmental-specific mobilisation in the cervical spine, but not in the lumbar spine.

<http://www.ingentaconnect.com/content/maney/jmt/2013/00000021/00000001/art00003>



Chan AYP, Ford JJ, McMeeken JM, Wilde VE. Preliminary evidence for the features of non-reducible discogenic low back pain: survey of an international physiotherapy expert panel with the Delphi technique. *Physiotherapy* 2013 <http://dx.doi.org/10.1016/j.physio.2012.09.007>

### Objective

The intervertebral disc is a known source of back pain, with several sub-groups of discogenic back pain (DBP) suggested, one of which is non-reducible discogenic pain (NRDP). The aim of this study was to obtain consensus amongst a group of experts about the features of discogenic pain.

### Design

Three-round Delphi study.

### Participants

Twenty-one international physical therapists with expertise in back pain.

### Intervention

Three-round Delphi study, in the first round participants list features of DBP and NRDP, which are then consolidated by the author panel, and re-sent to participants, who then select and rank 15 features. Author panel again consolidates responses, and omits features that were not selected. Participants re-rank features, and final consensus is achieved by including features that achieved higher than 50% agreement.

### Main outcome measurements

Clinical and imaging features associated with discogenic pain.

### Main results

After round one, 56 and 42 consolidated features were listed for DBP and NRDP respectively; this was reduced to 51 and 35 by round three. Finally, 10 and 9 features were listed for DBP and NRDP respectively (Tables 1 and 2).

**Table 1. Features of discogenic back pain from consensus**

Feature	Acceptance (%)
Directional preference	88%
Lateral shift	81%
Symptoms aggravated by sitting	81%
Positive discography, epidural and fact injection not helpful	69%
Symptoms change sides	63%
Symptoms aggravated by cough / sneeze	63%
Postural preference	56%
Symptoms aggravated by bending	56%
Incidence associated with flexion / rotation	50%
Symptoms aggravated / relieved by postures / movements	50%

**Table 2. Features of non-reducible discogenic pain from consensus**

Feature	Acceptance (%)
No position / movement produces lasting change	100%
No centralisation	94%
Peripherlisation with all movements	75%
No effect of loading strategies	69%
Constant symptoms	63%
Increase in symptoms all loading strategies	63%
Symptoms difficult to control	63%
Positive discography	56%
Increase in symptoms randomly / inconsistently	50%

### Conclusions

This expert survey reached consensus and preliminary validation for features associated with discogenic back pain and non-reducible discogenic pain.

### Comments

Delphi studies have both qualitative and quantitative elements, in that opinions are sought, albeit that of experts, and then through ranking and percentage agreement, a weighted consensus is achieved. As with any qualitative study, they can therefore be challenged regarding external validity. In this study, contact was

attempted with 88 potential panellists, comprising 14 academics, 30 McKenzie diploma therapists, and 44 researchers. The biggest reason for non-participation was non-response; the country, primary work setting, mean age, gender, and mean clinical practice in years of those who participated was presented. Having said that, the Delphi study has been a more commonly used data collection tool in physical therapy studies recently, in areas where evidence is incomplete, but where opinions are commonly held.

The features of discogenic pain about which there was most consensus are not surprising: directional preference (including centralization and peripheralization), lateral shift, and symptoms aggravated by sitting. Likewise those features most thought to be associated with non-reducible discogenic pain: no position or movement that reduces symptoms in a lasting way, no centralization, and peripheralization with all movements and positions. These are certainly the features that would fit the operational definitions as used in Mechanical Diagnosis and Therapy (MDT). Interestingly, the authors considered the potential bias that might come with seven participants having a Diploma in MDT, by removing their data from the analysis, but no difference in features reaching consensus was found. So inclusion of the McKenzie therapists was unlikely to have biased the results, which provide preliminary evidence for clinical features for discogenic and non-reducible discogenic pain.

<http://www.sciencedirect.com/science/article/pii/S0031940612001356>



**Garcia AN, Costa LCM, da Silva TM, Gondo FLB, Cyrillo FN, Costa RA, Costa LOP. Effectiveness of back school versus McKenzie exercises in patients with chronic nonspecific low back pain: a randomised controlled trial. *Physical Therapy* 2013 doi:10.2522/ptj.20120414**

### **Objective**

To compare the effectiveness of Back School and the McKenzie Method in patients with chronic non-specific low back pain.

### **Design**

Randomized controlled trial with blinded assessor.

### **Setting**

In an outpatient physical therapy clinical in Sao Paula, Brazil.

### **Patients**

One hundred and forty-eight patients with chronic low back pain; 74% female, mean 54 years old, median symptoms nearly two years, 32% physically active, mean symptoms 6.5/10, and mean Roland-Morris Disability Questionnaire (RMDQ) 11/24.

### **Intervention**

Both groups received four one-hour sessions over four weeks, once per week, under the supervision of a physical therapist. The patients were asked to perform the same exercises at home, but compliance was not monitored. Patients in the McKenzie group were treated by a 'fully certified McKenzie therapist'; the 'assessor', who was trained over two months by the 'certified' therapist, evaluated and classified each patient, but the final decision was made by the treating therapist. Management was based on postural education and specific exercises. Treatment was based on directional preference, if classified as derangement, with force progressions and force alternatives used as appropriate. The Back School group were treated by the same therapist, who had received extensive training during under-graduate training one-hour per week over a year. This approach also included postural education, and an exercise programme, but not one tailored to the individual, involving stretching and strengthening exercises. The initial session was conducted individually, and the remaining sessions in groups.

### **Main outcome measurements**

Patients were evaluated by a blinded assessor at baseline. The primary outcome measures were Numeric Pain Rating Scale (0-10), and the RMDQ (0-24), secondary outcomes were flexion range of motion, and quality of life; outcomes were gathered at one, three, and six months after randomization, except range only gathered at one month. A sample size calculation was made and determined that 148 patients were required for the whole study; there was 99% follow-up at six months.

### **Main results**

Both groups received a similar amount of treatment. There were slight improvements in pain, but no signifi-

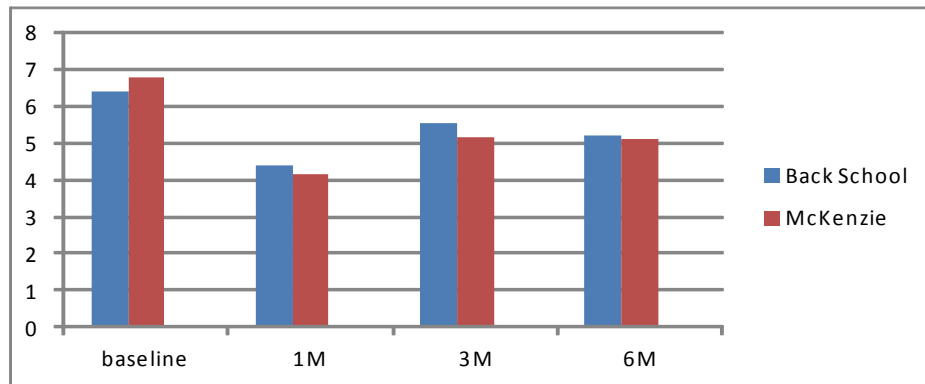


cant differences between groups (Figure 1). There were minor improvements in dysfunction, with significant differences favouring the McKenzie group at one month ( $p=0.004$ ), but no long-term differences (Figure 2).

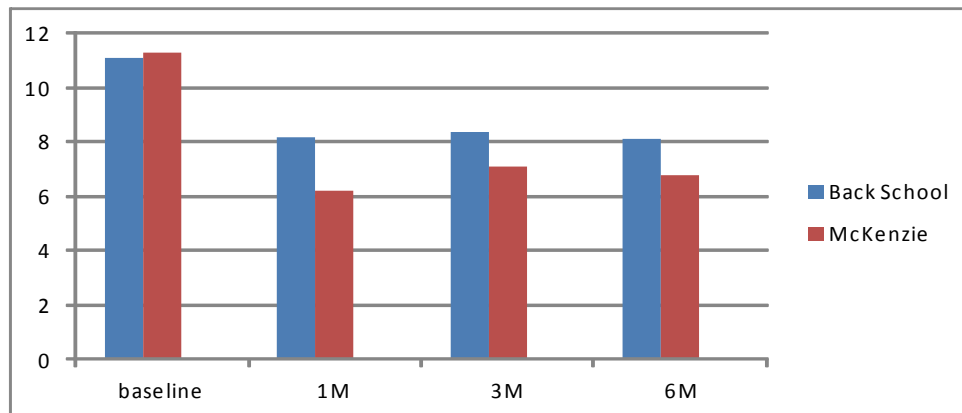
## Conclusions

There were significant differences short-term in terms of dysfunction in the McKenzie approach, but in no other outcomes.

**Figure 1. Pain intensity changes**



**Figure 2. Roland-Morris Disability Questionnaire**



## Comments

There were minor changes in pain and disability in both groups, but which barely cover minimally clinically important differences; with only one significant difference between the groups at one month favouring the McKenzie group. In other words, in both groups there was little important change, but given the very chronic nature of this group and minimal intervention this might not be seen as surprising.

The more troubling elements related to the validity of the McKenzie approach, and the role of the assessment therapist. In the paper, the therapists are reported as 'fully certified McKenzie therapists (certified by The McKenzie Institute of Brazil)'. The McKenzie Institute of Brazil has reported that the therapist had no more than participation in an A course, which does not qualify as 'fully certified'. Another element that lacks clarity is the mechanical diagnoses and directional preferences recorded in Table 3 in the article. It is suggested that these decisions were made by the assessor therapist after two months training from the therapist who had been through one four-day course, though this is not entirely clear. In Table 3, in both groups, 65-68% were classified as derangement, about 67% with a directional preference, and specific mechanical diagnoses and directional preferences are provided for 99% of patients. Given the minimal level of training, the certainty of mechanical classification and establishment of directional preference after an initial assessment seem rather optimistic, to say the least. It is very surprising that Physical Therapy has been prepared to publish this trial without a greater attempt to establish the validity regarding the treatment interventions, and some of the authors' claims.

<http://ptjournal.net/content/early/2013/03/26/ptj.20120414.abstract>