

Feature Commentary**AN OVERVIEW OF THE 13TH INTERNATIONAL MDT CONFERENCE:
SUPPORTING CLINICAL OBSERVATIONS***KIMBERLY GREENE, PT, DIP. MDT*

The 13th International MDT Conference in Copenhagen, Denmark was packed full of the most recent and relevant MDT-related research presented by world class speakers. The conference kicked off with speakers emphasizing the importance of identifying psychosocial risk factors when classifying patients in the OTHER/Chronic Pain category. Professor Tamar Pincus discussed the barrier of depression and the "yes, but" phrase frequently encountered with the depressed patient. Her research supports the importance of referring to a specialist for addressing psychological orange flags such as depression, personality disorders, and post-traumatic stress disorder. She also emphasized the importance of cognitive reassurance rather than affective reassurance by providing education rather than empathy. Jonathan Hill further highlighted the importance of identifying prognostic indicators using the STarT Back Tool by differentiating matched treatment provisions for those patients that are high-risk (Appendix A). His research found 12% of patients are high risk and benefit by implementing biopsychosocial treatment. Birgitta Oberg discussed the factors associated with a work injury (black flags). She determined that the patient's view about need for adjustments at work are important consideration for determining return to work, and the therapist plays an important role in working with the employer to address the concerns. Adri Apeldoorn discussed the reliability and validity of questionnaires used for psychological screening and the need for specific behavioral management with chronic pain patients. MDT faculty, Georg Supp, assessed a high risk lumbar patient using STarT Back questionnaire and Fear Avoidance Beliefs Questionnaire (FABQ) (Appendix B). Supp's assessment highlighted the importance of considering biopsychosocial factors when classifying patients and emphasized the importance of implementing a measurement tool for patients with yellow flags so that treatment can include strategies discussed by the above researchers.

Later afternoon sessions involved Hanne Albert presenting data on Modic Type 1 changes (vertebral bone edema). Her research indicates a high degree of disability is associated with the pathological changes. Albert reported that 6% of the chronic LBP population has Modic changes resulting in disability. For Modic Type 1 changes, Albert supports a multi-week antibiotic treatment resulting in marked improvement within six to eight weeks. Jaro Karppinen added that Modic Type 1 changes and disc extrusions often have clinical relevance, but degenerative radiological findings are frequent among asymptomatic individuals, and radiological findings increase with age. Karppinen reinforced the importance of downgrading radiological reports as an integral part of treatment to prevent fear avoidance behaviors.

Albert also presented her research on the benefits of active conservative rehabilitation, reinforcing that symptom-guided exercises are effective for radiculopathy in patients that qualify for surgery. Her advice for treatment included suggestions to remain active while avoiding activity that worsened leg symptoms. Oberg presented a similar study on the benefits of physiotherapy compared to cervical fusion. There was no functional improvement between the surgical and nonsurgical groups at two year follow-up suggesting that physical therapy should be the first line of treatment for cervical radiculopathy.

Ron Schenk, Hans van Helvoirt and Gunilla Svensson discussed the most recent research on centralization. Similar to the lumbar spine, Schenk's study supports centralization as a good predictor of positive outcomes of the cervical spine. In addition, his study supports greater improvement in patient perceived level of function for patients that centralize. Svensson's study reveals 50% of patients with herniated discs centralize using MDT. Van Helvoirt's study supports immediate improvement in the following clinical signs when lumbar patients centralize: aberrant lumbar movements, SLR, Trendelenburg test and prone instability test. A second study by van Helvoirt supports better outcomes for non-centralizers with MDT following a

Inside This Issue:

- Feature Commentary
- Guest Commentary I
- Guest Commentary II
- Literature Review
- Business & Marketing Corner

transforaminal epidural steroid injection (TESI).

Jeremy Lewis presented his shoulder research comparing exercise to passive treatments. He also reviewed the management of rotator cuff pathology, challenging the evidence for surgical intervention. Similar to MDT, he supports the use of using a shoulder algorithm with emphasis on symptomatic responses to determine the appropriate treatment. He emphasizes that Orthopedic Special Tests (OST) are not tissue-specific allowing multiple structures to be stressed; therefore, supporting the lack of reliability and validity with OSTs. Dr. Lewis emphasized that poor prognosis is associated with shoulder symptoms lasting a year in duration. He describes neovascular changes at the musculoskeletal junction with chronic tendinopathy (contractile dysfunction) and suggests tissue loading using exercise two to three times per week.

Richard Rosedale and Afshin Abady presented their recent studies applying MDT to shoulder pain. Their research also supports that Orthopedic Special Tests (OST) have limited reliability and validity in determining the pathoanatomical structure. Their study demonstrated that OST (Hawkins-Kennedy, Speed's, and Empty Can) have the ability to rapidly change in the presence of a derangement. The research suggests that approximately one third of patients referred for shoulder pain have a cervical component. This study also demonstrates that classification of shoulder pain is helpful for predicting outcome and discharge rate. To support their research, Grant Watson assessed a live patient referred for shoulder pain suffering from a cervical derangement; thus, depicting the high percentage of spinal derangements in the shoulder population.

Mark Miller presented the economic benefits of a precise mechanical diagnosis linked to specific care using a negotiated case rate in comparison to standard community care using fee-for-service. This study highlighted a 40% savings by lowering the use of MRI, injections, and surgeries, resulting in quicker recovery rates and higher patient satisfaction. This is the first study highlighting the cost effectiveness of MDT compared to standard of care and will likely attract the attention of the responsible payer.

Finally, Helen Clare did a great job summarizing the most recent research using MDT evaluation as a screening tool. The areas that were discussed included screening for serious pathology, prognosis, necessity for surgery, psychological barriers, treatment indicators and the presence of spinal involvement in extremity conditions (Appendix C).

The conference also featured several social highlights including the first ever International MDT Research Foundation (IMDTRF) Fun Run on Saturday morning, with over sixty participants. Runners gathered to enjoy a 5K run or walk through the city while enjoying the company of like-minded colleagues. IMDTRF plans to hold a Fun Run at the 2016 MDT Conference of the Americas in Miami, so be sure to bring your running shoes! The gala dinner was yet another opportunity for colleagues to connect and unwind. The evening started with a canal boat tour which delivered conference goers to Moltkes Palace where wonderful food and wine was served in a unique environment.

On Sunday evening, the Conference Committee recognized the Bronze Lady Awards for outstanding service to the Institute for the past three years. The recipients were:

2013: Antoine Gemayel, PT, Dip MDT (Italy), Mary Sheid, PT, Cert. MDT (USA)

2014: Richard Rosedale, PT, Dip MDT (Canada)

2015: Lawrence Dott, Chief Executive Officer, McKenzie Institute International

As with all MDT Conferences, much knowledge was shared, many memories were created and friendships formed. While we await word from MII on our next international conference location for 2018, we hope to see many of you for the America Region event next August 2016!

References

1. Hill JC, Whitehurst DGT, Hay EM. (2011). Comparison of Stratified Primary Care Management for Low Back Pain with Current Best Practice (STarT): a RTC. *The Lancet*; Vol.378: 9802.
2. Wahlin C, Ekberg K, Peterson J, Bemfort L, Oberg B. (2012). Association between clinical and work-related interventions and return-to-work for patients with musculoskeletal or mental disorders. *J Rehabilitation Med*; 44(4):355-62.
3. Albert HB, Sorensen JC, Christensen BS, Manniche C. (2013). Antibiotic Treatment in Patients with Chronic Low Back Pain and Vertebral Bone Edema (Modic Type 1 Changes): a double-blind RTC of efficacy. *Eur Spine J*; 22:697-707.
4. Albert HB, Lambert P, Rollason J, Sorensen JS, Worthington T, Pedersen MB, Norgaard HS, Vervallis A, Busch F, Manniche S, Elliot T. (2013). Is nuclear tissue infected with bacteria following disc herniations which leads to Modic changes in the adjacent vertebra? *Eur Spine J*; 22:690-6/.
5. Brinjikji et al. Systematic Literature Review of imaging features of Spinal Degeneration in Asymptomatic Populations. (2015). *AJNR Am J Neuroradiol*; 36: 811-6.
6. Albert HB, Manniche C. The Efficacy of Systematic Active Conservative Treatment for Patients with Severe Sciatica (2012). A single-blind clinical controlled trial. *Spine*; 37: 531-42.
7. Albert HB, Hauge E, Manniche C. (2012). Centralization in Patients with Sciatica: are pain responses to repeated movement and positioning associated with outcome r types of disc lesions? *Eur Spine*; 21:630-6.
8. Peolsson A¹, Söderlund A, Engquist M, Lind B, Löfgren H, Vavruch L, Holtz A, Winström-Christersson A, Isaksson I, Öberg B. (2013). Physical function outcome in cervical radiculopathy patients after physiotherapy alone compared with anterior surgery followed by physiotherapy: a prospective randomized study with a 2-year follow-up. *Spine*; 15;38(4):300-7.
9. Svensson L, Wendt K, Thomee R. (2015). The Occurrence of Centralisation of Pain after McKenzie Therapy for Patients with MRI-verified Lumbar Disc Herniation and Long-standing Pain. *Physiotherapy*.
10. Van Helvoirt H, Apeldoorn AT, Ostelo RW, Knot DL, Arts MP, Kamper SJ, van Tulder MW. (2014). Transforminal epidural steroid injections followed by Mechanical Diagnosis and Therapy to prevent surgery for lumbar disc herniation. *Pain Med.*; 15:(7).
11. Ainsworth R, Lewis JS, Conboy V. (2009). A prospective randomized placebo controlled clinical trial of a rehabilitation programme for patients with a diagnosis of massive rotator cuff tears of the shoulder. *Shoulder & Elbow*; 1 (1):55-60.
12. Cook JL, Rio E, Lewis JS. (2015). Managing tendinopathies. *Grieve's Modern Musculoskeletal Physiotherapy* (4th edition). Jull G, Moore A, Fall D, Lewis JS, McCarthy C, Sterling M (eds) Elsevier, London.
13. Lewis, JS. (2011). Subacromial Impingement Syndrome: A Musculoskeletal Condition or a Clinical Illusion? *Physical Therapy Reviews*; 16(5): 388-398.
14. Heidar A, Rosedale R, Overend T, Chesworth BM, Rotondi M. Association of the Orthopaedic Special Tests (OSTs), commonly used in the assessment of shoulder joint disorders, with the McKenzie System of Mechanical Diagnosis and Therapy (MDT) classifications. *In press*.
15. Heidar A, Rosedale R, Overend T, Chesworth BM, Rotondi M. Application of the McKenzie System of Mechanical Diagnosis and Therapy (MDT) in patients with Shoulder Pain. *In press*.

The Keele STarT Back Screening Tool

Patient name: _____ Date: _____

Thinking about the **last 2 weeks** tick your response to the following questions:

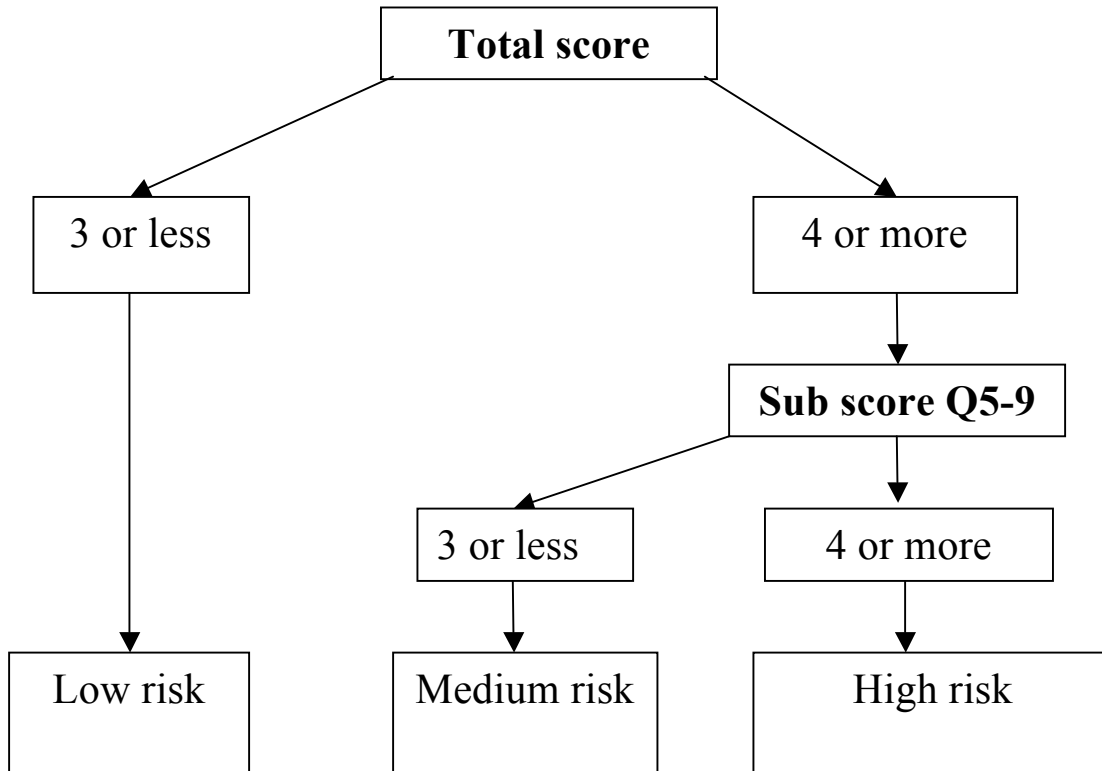
	Disagree 0	Agree 1
1 My back pain has spread down my leg(s) at some time in the last 2 weeks	<input type="checkbox"/>	<input type="checkbox"/>
2 I have had pain in the shoulder or neck at some time in the last 2 weeks	<input type="checkbox"/>	<input type="checkbox"/>
3 I have only walked short distances because of my back pain	<input type="checkbox"/>	<input type="checkbox"/>
4 In the last 2 weeks, I have dressed more slowly than usual because of back pain	<input type="checkbox"/>	<input type="checkbox"/>
5 It's not really safe for a person with a condition like mine to be physically active	<input type="checkbox"/>	<input type="checkbox"/>
6 Worrying thoughts have been going through my mind a lot of the time	<input type="checkbox"/>	<input type="checkbox"/>
7 I feel that my back pain is terrible and it's never going to get any better	<input type="checkbox"/>	<input type="checkbox"/>
8 In general I have not enjoyed all the things I used to enjoy	<input type="checkbox"/>	<input type="checkbox"/>

9. Overall, how **bothersome** has your back pain been in the **last 2 weeks**?

Not at all	Slightly	Moderately	Very much	Extremely
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
0	0	0	1	1

Total score (all 9): _____ **Sub Score (Q5-9):** _____

The STarT Back Tool Scoring System



The Keele STarT Back Screening Tool

Patient name: _____ Date: 31.08.15

Thinking about the **last 2 weeks** tick your response to the following questions:

	Disagree 0	Agree 1
1 My back pain has spread down my leg(s) at some time in the last 2 weeks	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2 I have had pain in the shoulder or neck at some time in the last 2 weeks	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3 I have only walked short distances because of my back pain	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4 In the last 2 weeks, I have dressed more slowly than usual because of back pain	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5 It's not really safe for a person with a condition like mine to be physically active	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6 Worrying thoughts have been going through my mind a lot of the time	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7 I feel that my back pain is terrible and it's never going to get any better	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8 In general I have not enjoyed all the things I used to enjoy	<input type="checkbox"/>	<input checked="" type="checkbox"/>

9. Overall, how **bothersome** has your back pain been in the **last 2 weeks**?

Not at all	Slightly	Moderately	Very much	Extremely
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
0	0	0	1	1

Total score (all 9): 9 Sub Score (Q5-9): 5

Name: _____

Date: 31.08.15

Here are some of the things which other patients have told us about their pain. For each statement please circle any number from 0 to 6 to say how much physical activities such as bending, lifting, walking or driving affect or would affect your back pain.

	COMPLETELY DISAGREE		UNSURE			COMPLETELY AGREE	
1. My pain was caused by physical activity	0	1	2	3	4	5	6
2. Physical activity makes my pain worse	0	1	2	3	4	5	6
3. Physical activity might harm my back	0	1	2	3	4	5	6
4. I should not do physical activities which (might) make my pain worse	0	1	2	3	4	5	6
5. I cannot do physical activities which (might) make my pain worse	0	1	2	3	4	5	6

The following statements are about how your normal work affects or would affect your back pain.

	COMPLETELY DISAGREE		UNSURE			COMPLETELY AGREE	
6. My pain was caused by my work or by an accident at work	0	1	2	3	4	5	6
7. My work aggravated my pain	0	1	2	3	4	5	6
8. I have a claim for compensation for my pain	0	1	2	3	4	5	6
9. My work is too heavy for me	0	1	2	3	4	5	6
10. My work makes or would make my pain worse	0	1	2	3	4	5	6
11. My work might harm my back	0	1	2	3	4	5	6
12. I should not do my normal work with my present pain	0	1	2	3	4	5	6
13. I cannot do my normal work with my present pain	0	1	2	3	4	5	6
14. I cannot do my normal work until my pain is treated	0	1	2	3	4	5	6
15. I do not think that I will be back to my normal work within 3 months	0	1	2	3	4	5	6
16. I do not think that I will ever be able to go back to that work	0	1	2	3	4	5	6

Name: _____

Date: 06.09.15

Here are some of the things which other patients have told us about their pain. For each statement please circle any number from 0 to 6 to say how much physical activities such as bending, lifting, walking or driving affect or would affect your back pain.

	COMPLETELY DISAGREE			UNSURE	COMPLETELY AGREE		
1. My pain was caused by physical activity	0	1	2	3	4	5	6
2. Physical activity makes my pain worse	0	1	2	3	4	5	6
3. Physical activity might harm my back	0	1	2	3	4	5	6
4. I should not do physical activities which (might) make my pain worse	0	1	2	3	4	5	6
5. I cannot do physical activities which (might) make my pain worse	0	1	2	3	4	5	6

The following statements are about how your normal work affects or would affect your back pain.

Thinking about the last 2 weeks tick your response to the following questions:

	Disagree 0	Agree 1
1 My back pain has spread down my leg(s) at some time in the last 2 weeks	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2 I have had pain in the shoulder or neck at some time in the last 2 weeks	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3 I have only walked short distances because of my back pain	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4 In the last 2 weeks, I have dressed more slowly than usual because of back pain	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5 It's not really safe for a person with a condition like mine to be physically active	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6 Worrying thoughts have been going through my mind a lot of the time	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7 I feel that my back pain is terrible and it's never going to get any better	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8 In general I have not enjoyed all the things I used to enjoy	<input type="checkbox"/>	<input checked="" type="checkbox"/>

9. Overall, how **bothersome** has your back pain been in the **last 2 weeks**?

Not at all

0

Slightly

0

Moderately

0

Very much

1

Extremely

1

Total score (all 9): 7 Sub Score (Q5-9): 4

References:

- Apeldorm A, Bosselaar H, Ostelo R et al. Identification of patients with Chronic Low Back Pain who might benefit from additional Psychological Assessment. *Clinical Journal of Pain*. Voln. 28 (1) 2012
- Chaniotis S (2012) Clinical reasoning for a patient with neck and upper extremity symptoms: A case requiring referral *Journal of Bodywork & Movement Therapies* (2012) 16, 359e – 363.
- Chen J, Phillips A, Ramsey M, Schenk R. A case study examining the effectiveness of MDT in a patient who met the CPR for spinal manipulation. *Journal of Manual and Manipulative Therapy*. 13 (4)
- Christiansen D, Larsen K, Jensen OK, Nielsen CV; Pain Responses in Repeated End-Range Spinal Movements and Psychological Factors in Sick-Listed Patients with Low Back Pain: is there an Association? *J Rehabil Med*; 41:545-549, 2009.
- Donelson R, April C, Medcalf R, Grant W. A Prospective Study of Centralization of Lumbar and Referred pain. A Predictor of Symptomatic Discs and Annular Competence *Spine* 22 (1997) 1135-1122
- Gregg CD, McIntosh G, Hall H, Hoffman CW, Prognostic Factors Associated Low Back Pain Outcomes, *J Primary Healthcare*, 6: 23-30, 2014.
- Gutke A, Kjellby-Wendt G, Oberg B. The inter-rater reliability of a standardised classification system for pregnancy-related lumbopelvic pain. *Man Therapy* 15;13-18. 2010.
- Gutke A, Josefsson A, O`Berg, A. Pelvic Girdle Pain and Lumbar Pain in Relation to Postpartum Depressive Symptoms. *Spine* 32, (13) 1430–1436. 2007
- Gutke A, O`Stgaard H, O`Berg B. Pelvic Girdle Pain and Lumbar Pain in Pregnancy: A Cohort Study of the Consequences in Terms of Health and Functioning. *Spine* 31 (5) E149-E155. 2006.
- Hartvigsen L, Kongsted A, Hesback L; Clinical examination findings as prognostic factors in low back pain. A systematic review of the literature. *Chiropractic and Manual Therapies*. 23:13. 2015
- Herbert J, Fritz J, Koppenhaver S, Thackeray A, Kjaer P. Predictors of Clinical outcome following lumbar disc surgery: the value of historical, physical examination and muscle function variables. *Eur Spine J*, April 2015,
- Horton S, Franz A. Mechanical Diagnosis and Treatment approach to assessment and treatment of Derangement of the SIJ. *Manual Therapy*; 12 (2) 126-132. 2013
- Long A; The centralization phenomenon: its usefulness as a predictor of outcome in conservative treatment of chronic low back pain (a pilot study *Spine*; 20(23):2513-2521, 1995.
- Laslett M, Young SB, April CN, McDonald B: Diagnosing painful sacroiliac joints: A validity study of a McKenzie evaluation and sacroiliac provocation tests. *Aus J Physio*; 49: 89-97. 2003.

Long A, Donelson R, Fung T. Does it Matter Which Exercises? A RCT of Exercise for Low back Pain. *Spine*, 23, 2593-2602 2004.

May S, Aina A; Centralization and directional preference: a systematic review. *Manual Therapy*; 2012;17:497-506, 2012.

May S, Gardiner E, Young S, Klaber-Moffett J ; Predictor variables for a positive long-term functional outcome in patients with acute and chronic neck and back pain treated with a McKenzie approach: a secondary analysis. *J Manual Manip Ther*; 16.155-160, 2008.

May S, Rosedale R,. A case study of potential manipulation responder whose back pain resolved with flexion exercises. *Journal of Manipulative and Physiological Therapeutics*. 2007.

Menon A , May S. Shoulder pain: differential diagnosis and therapy extremity assessment – a case report. *Manual Therapy* 18; 354-357. 2013

Petersen T, Larsen K, Nordsteen J, Olsen S, Fournier G, Facobsen S. The McKenzie Method compared with manipulation when used adjunctive to information and advice in low back pain patients presenting with centralization or peripheralization. A RCT. *Spine* 36 (2011) 1999-2010

Rasmussen C, Nielsen G, Hansen V, Jensen O, Schioeltz-Christensen B. Rates of Lumbar Disc Surgery before and After Implementation of Multidisciplinary Non surgical spine Clinics. *Spine* 30 (21) 2469-2473.

Rosedale R, Rastogi R, May S, Chesworth BM, Filice F, Willis S, Howard J, Naudie D, Robbins SM. Efficacy of Exercise Intervention as Determined by the McKenzie System of Mechanical Diagnosis and Therapy for Knee Osteoarthritis: A Randomized Controlled Trial. *J Orth Sports Phys Ther*, 2014;44:3:173-181,2014.

Schenk R, Lozefczyk K, Kopf A. A Randomized trial comparing interventions in patients with lumbar posterior derangements. *Journal of Manual and Manipulative Therapy*. Voln 11 (2003) 95-102

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

Soerensen B . (2011) Mechanical diagnosis and therapy (MDT) approach for assessment and identification of serious pathology. *Manual Therapy* 16; 406e – 408.

Svensson GL, Wendt GL, Thomee R., A Structured Physiotherapy Treatment Model Can Provide Rapid Relief to Patient who Qualify for Lumbar Disc Surgery: A Prospective Cohort Study. *Journal of Rehab Med*. 46(3)233-40, 2013

Tuttle N; Is it reasonable to use an individual patient's progress after treatment as a guide to ongoing clinical reasoning? *J Manip Physiol Ther*; 32.396-403, 2009.

Van Helvoirt, Apeldoorn, A, Ostelo R, Arts M, Kamper S, van Tulder M. Transforaminal Epidural Steroid Injections followed by Mechanical Diagnosis and Therapy to prevent surgery for Lumbar Disc Herniation. *Pain medicine* 15(7) 1100-1108. 2014

Werneke M, Hart DL, Cook D; A descriptive study of the centralization phenomenon. A prospective analysis. *Spine*; Apr 1; 24(7): 676-83, 1999.

Werneke M, Hart DL; Centralization phenomenon as a prognostic factor for chronic low back pain and disability. *Spine*; Apr 1; 26 (7): 758-65 , 2001.

Werneke M, Hart DL. Centralization: association between repeated end-range pain responses and behavioural signs in patients with acute non-specific low back pain. *Journal of Rehabilitation Medicine* 2005; 37: 286e90.

Werneke MW, Hart DL, George SZ, Stratford PW, Matheson JW, Reyes A. Clinical outcomes for patients classified by fear avoidance beliefs and centralization phenomenon. *Archives Physical Medicine and Rehabilitation* 2009; 90: 768e77.

MDT and the Athlete

Allan Besselink, PT, Dip. MDT and Greg Lynch, Dip. Phyt, Dip. MDT, Dip. MT, MPNZ, MNZCP

The 13th McKenzie Institute International Conference in Copenhagen was the first time that a pre-conference workshop was included in the program for an international conference. The workshop, entitled “MDT and the Athlete”, was developed and presented by Allan Besselink (USA), Greg Lynch (NZ) and Ole Meyer (Denmark). The two sessions sold out almost as quickly as they were posted resulting in a total of 89 participants from 23 countries.

With a comprehensive manual, the four hour workshop emphasised the application of MDT to the athletic and sporting population. It was divided into sections that addressed the broad scope of sports medicine and training followed by an introduction to the relevance of MDT for the athlete, assessment and treatment, recovery of function, and prevention. Case studies and role playing scenarios were utilized to further emphasise the assessment and management process.

Group discussion addressed not only the challenges of the current sports medicine model, but also the potential role and challenges of applying and integrating MDT in sports medicine. Limitations of the current sports medicine model – much the same as the general orthopaedic community – are the emphasis on ‘imaging’ for diagnosis and management, reliance on orthopaedic special tests for diagnosis, and the foundation of a pathoanatomical model. As research has indicated, all of these areas have questionable reliability and validity, making MDT a natural choice for the assessment and treatment of sports-related injuries.

The value of MDT across the athletic spectrum – from injury to recovery of function, and training to injury prevention – was presented. Progression of forces – a cornerstone of MDT – has a perfect fit with the training continuum. Discussion focused on the progression of forces for athletes diagnosed with Derangement and progression of loading for Contractile Dysfunction in returning an athlete back to training and sport. The use of consistent MDT terminology can assist the clinician, athlete, and coach in guiding the athlete back to training and sport in a safe and efficient manner. The same terminology can also be used in a training context. The principles of MDT allow the athlete to manage their return and to be an active participant in the process. For those athletes who do not specifically fulfil the criteria for classification, the group discussed appropriate classification in the ‘OTHER’ sub-group along with how to manage these individuals according to their individual clinical and sport presentation.

The workshop is scheduled to be presented again as a Pre-Conference Workshop in conjunction with the 2016 McKenzie MDT Conference for the Americas in Miami. Facilitators will include Allan Besselink and Greg Lynch with support provided by Josh Kidd, PT, DPT, OCS, Dip. MDT, CSCS, Mathieu Sequin, BSc, PT, Cert. MDT, Cert. Sport Physio and Nicolas Turcotte, PT. Cert. MDT. The “MDT and the Athlete” workshop continues to evolve from its roots in Copenhagen, and we look forward to having you join us in Miami!

McKenzie Physical Therapists and the American Dental Association: What We Learned from San Francisco Screenings

David J Pleva, PT, MA, Dip. MDT and Timothy J Caruso, PT, MBA, Cert. MDT

Over the past 15 years, Tim Caruso has been speaking to dental professionals at national and state meetings about the effects of poor posture, improper techniques or equipment, and pain in the profession. During his travels, he has noticed an increasing number of dental professionals seeking out suggestions for how to relieve their pain and discomfort, how to choose the proper equipment and how to begin an exercise routine to meet their specific needs. Additionally, he has sat on the Dental Wellness Advisory Committee (DWAC) of the American Dental Association (ADA) and has been working with them to keep dental professionals healthy. He has also helped create ergonomic tip sheets for ADA members to avoid some of the ongoing maladies that they encounter in their day to day practice. But still the question remains on how to establish a cost effective way to address the practitioner's pain while at work or to help prolong their careers pain free.

To answer some of these questions, in 2011, the American Dental Association invited Tim and I to their annual conference in Las Vegas. We participated in the health screenings portion (HSP) of the national meeting performing musculoskeletal and postural assessments on dental professionals in attendance. The musculoskeletal screenings were done using the Mechanical Diagnosis and Therapy (MDT) system guidelines for evaluating musculoskeletal spinal and extremity conditions.

We screened 62 participants in two days. We had originally allowed for 20 minute "appointments", but due to several computer glitches, we were quickly overrun with dental professionals that wanted to be screened. The process included having the participants postures photographed in a seated and standing position before and after his/her screening. Next, a musculoskeletal pain survey was filled out and an abbreviated MDT assessment was performed. The recorded complaints ranged from spinal pain to extremity pain and even a few non-mechanical presentations requiring further investigation were discovered. The participating dental professionals were very appreciative of the time we had with them, the tips we provided and the recommendation for follow-up with a McKenzie certified therapist closer to home. We asked ourselves "perhaps there is a real need out there?!"

The screenings were so well received that we were invited back to their annual conference in 2012 in San Francisco. In addition to our revisions to the questionnaires and scheduling, we enlisted the help of three California licensed, McKenzie certified therapists (Todd Soares, PT, Cert. MDT, Karl von Tiesenhausen, PT, Cert. MDT, and Marianne Potts, PT, Cert. MDT) to perform the screenings due to California's practice act. Over 100 dental professionals (dentists, hygienists and assistants) were screened for various spinal and extremity complaints. Once again, we obtained seated and standing postural photos prior to the musculoskeletal pain survey and performing the MDT assessment.

On the HSP questionnaire, 61% of current practicing dental professionals reported regularly experiencing pain, tingling or numbness with 42.6% stating their symptoms began as a result of their work. In reviewing the data from San Francisco, we had 61 males (51.3%) and 58 females (48.7%). The years in practice ranged from 0 to 55 with most in the 31 – 35 year range. Age ranged from 25 to more than 75 years old. The average visual annual score (VAS) was 4.03 out of 10. Their regions of pain complaints included: headache, neck, shoulder, elbow, wrist/hand, back, thigh, leg and foot. Some participants had upper or lower extremity symptoms consistent with cervical or lumbar derangements. The most common regions of pain complaints for both the hygienists and dentists were back, neck and shoulder pain. The hygienists had more complaints of wrist, forearm, hand/finger symptoms than the dentists. The dentists had more complaints of back and neck pain. Seventy percent of the dental professionals screened had experienced pain in the last 12 months.

Symptoms were categorized as follows: present zero to two years in 41 subjects (37%), two to five years in 22 (20%), five to 10 years in 17 (15.5%) and more than 10 years in 30 subjects (27%). Of these, 22 (19%) felt they were getting better; 67 (59%) were unchanging and 23 (20.5%) felt that they were getting worse. Almost 43% have had pain for greater than five years and the majority had symptoms that were either staying the same or worsening. Seventy-six percent had previous episodes with 36% having more than 11 episodes. Thirty seven percent believed their symptoms began as a result of repetitive motions

at work with 34% not being able to find a direct cause. Eight percent were not able to practice because of their symptoms.

Overall, 78.4% responded positively to mechanical therapy after this brief screening. Fifty-two percent had an extension directional preference, 27% lateral, 3% flexion and 19% did not exhibit a directional preference. With classification of these participants, fifty-five percent were derangements, 17% were dysfunctions, 2% posture and 15% fell into the OTHER category. Of those who were derangements, 73% responded to extension, 14% to lateral principles and 13% responded to flexion. Just by correcting the sitting posture, 31.8% reported improvement in their symptoms. These findings demonstrate that the majority of dental professionals that participated in the screenings can respond quickly to an appropriate conservative treatment plan.

We also found some interesting findings that we need to further investigate. Hand dominance did not have a significant role in symptoms and neither did the number of hours worked per year or hours spent sitting or standing have any significant correlation with back pain. Significant risk factors were height, age, years in practice and posture.

The next two years, we were involved in the ADA meeting performing postural screenings and ergonomic assessments with participants at the meeting in an informal setting. We discovered similar findings and a general lack of knowledge on where to seek out a competent caregiver.

When looking at these numbers, we ask ourselves, why should one suffer so long with symptoms that are not getting better when there is help out there? Our experience and the feedback that we have received has been invaluable and speaks to the need to share the importance of seeking out and exhausting conservative spinal care before having expensive imaging, undergoing unnecessary procedures or signing up for surgical intervention. There are a significant number of individuals in any number of professional organizations that do not have any idea where to start to seek out competent initial care and treatment for ongoing back, neck or extremity pain. We can see that partnering with the American Dental Association will have a positive impact on the dental professionals by sharing this information about MDT as a service to its members.

We were invited back to the 2014 ADA conference in San Antonio and in addition to screening more dental professionals, we presented our initial findings from San Francisco to over 150 dental professionals. We are in the process of streamlining our musculoskeletal questionnaire in order to make meaningful recommendations to the ADA. We will be presenting more detailed findings from San Francisco with the assistance of the American Dental Association's epidemiologist at the 2015 American Dental Association conference this November.

LITERATURE REVIEWS

Summary and Perspective of Recent Literature

Celia Monk, Dip. Phys (Otago), Dip. MDT, MNZSP, MINZ

Hebert J, Fritz J, Koppenhaver S, Thackeray A, Kjaer P. (2014). Predictors of clinical outcome following lumbar disc surgery: the value of historical, physical examination, and muscle function variables. *European Spine Journal*.

Objective:

Explore the relationships between preoperative finding and clinical outcome following lumbar disc surgery and investigate the prognostic value of physical examination findings after accounting for information acquired from the clinical history.

Design:

A secondary analysis of a parallel group randomized clinical trial comparing two postoperative rehabilitation protocols following lumbar disc surgeries.

Setting:

Patients were selected from academic and private neurological and orthopaedic spine surgery practices in Salt Lake City, Utah.

Patients:

Inclusion criteria:

- Aged from 18-60 years of age.
- Imaging confirmed lumbar disc herniation.
- Identified as candidates for single-level lumbar discectomy or microdiscectomy by their spine surgeon.

Exclusion criteria:

- Previous lumbar surgery.
- Significant comorbidities or perioperative complications representing a contraindication to exercise.

At postoperative week two, all participants underwent an eight-week exercise programme comprising weekly supervised sessions and daily home exercises. Group 1 had general lumbar exercises and Group 2 had specific lumbar exercises.

At the end of the original study, no difference was found in the specific exercise group vs. general exercises.

Main Outcome Measures:

Change in disability and pain intensity from the preoperative assessment to the completion of the rehabilitation program. Low back pain related disability was assessed using the modified Oswestry Disability Questionnaire.

Main Results:

At the end of the original study, no difference was found in the specific exercise group vs. general exercises. Comparing pre-operative history and physical findings with end-of-rehabilitation findings revealed the following relationships:

Univariate analysis:

- Greater pre-operative leg pain relative to low back pain was associated with more improvement in disability and leg pain intensity, but less improvement in lower back pain intensity.
- Longer time to surgery was associated with more improvement in disability.
- More improvement in leg pain intensity was reported among participants who had received pain medication.
- The presence of preoperative deformity was associated with greater improvement in disability, leg pain intensity, and low back pain intensity.

- Greater improvement in disability was associated with the presence of a positive straight leg raise test, cross straight leg raise test, pain peripheralization, as well as diminished reflexes, sensation or strength prior to surgery.
- Having a positive straight leg raise test or strength deficit was associated with more improvement in leg pain intensity.
- No relationship was found between lumbar multifidus function and clinical outcome.

Multivariate analysis (To account for the variation in the clinical history):

- The presence of pain peripheralization at baseline was associated with greater improvement in both disability and low back pain intensity after ten postoperative weeks.

Conclusion:

The multivariate analyses indicated that the presence of preoperative pain peripheralization was associated with improved disability and low back pain intensity following surgery and exercise rehabilitation. Preoperative lumbar multifidus showed no relationship with clinical outcome following lumbar disc surgery and postoperative rehabilitation. Another predictor of outcome following lumbar disc surgery was the presence of predominant leg pain compared to low back pain.

Comments/ Implications for the MDT clinician:

The authors' preoperative mechanical assessment left a lot to be desired. They assessed the patient's response to sustained extension in prone, and single and repeated repetitions of lumbar extension, flexion and side-gliding while standing, not lying, monitoring only for centralization and peripheralization and not a mechanical response. The assessment and the definitions of centralization and peripheralization were remedial; there was no attention to Directional Preference or an attempt to exhaust the sagittal plane. One wonders how the mechanical assessment would have differed in the hands of trained individuals. However, that being said, 32.7% of the patients demonstrated centralization and 85.5% demonstrated peripheralization.

The authors pointed out that centralization was not associated with outcome following lumbar surgery. If a patient centralizes during a mechanical evaluation, the recommendation would be to pursue therapy, not to go ahead with surgery. The presence of centralization should further be explored because the lesion has demonstrated a possibility that it can be reduced. This is exactly the patient that should not have surgery, and it is no epiphany that a person who was not a good candidate for surgery in the first place, may not have an optimal outcome. So, it is no wonder that centralization did not predict good postsurgical outcome. This study does support that the presence of peripheralization preoperatively is one of the best indicators of a good outcome post-surgically. This result corresponds with what MDT clinicians see in the clinic. The presence of peripheralization is of utmost importance. It guides our decision making, when to change direction, force, or when to refer out. With regards to peripheralization, this study lets us know that one of the foundations that MDT is based upon continues to be solid.

<http://researchrepository.murdoch.edu.au/26285/>



BUSINESS & MARKETING CORNER**A Global Perspective: Growing a MDT Clinic Against the Odds**

Celia Monk, Dip. Phys (Otago), Dip. MDT, MNZSP, MINZ

Early in 2010, due to New Zealand-wide health funding changes, I had the unexpected privilege of suddenly having to open my own physiotherapy clinic without any preparation or forward planning. It was a great challenge and opportunity to establish a practice in a city that was already over-supplied by physiotherapy clinics and in a country that was beginning to feel the reality of the global financial crisis. There was also an attitude in the local patient population that physiotherapy was ineffective and was not the first treatment option when someone was experiencing any pain from an injury. This attitude had arisen from several years of free physiotherapy treatments being offered by the main funding source, and many were people being over-treated with poor results.

The first step I took to face the challenge was to write a business plan. This process was a fantastic opportunity to sit down and put the emerging dream on paper, looking at what my competitors were doing, researching the local demographics to enable effective marketing strategies to be put in place, and to formulating a plan of how the clinic was going to function on a daily basis. As I had absolutely no experience in writing a business plan, I turned to Google and found some great resources, making the process painless and helpful.

The next important step was to develop a marketing plan. This included identifying my unique points of difference from the other seven physiotherapy clinics that were within a 3km radius of my clinic. MDT featured strongly in this, especially as I offer effective treatment requiring a low number of appointments, which is opposite to the expectations and experiences for the local patient population. Word of mouth has been a very powerful tool and has ensured that my clinic has grown steadily, even in spite of the challenges faced by our city due to the earthquake events of 2010 and 2011 and the associated ongoing issues. As a result, I have to ensure that every single contact a patient has with my clinic is positive, from the first contact via phone or face-to-face, right through to all forms of communication and treatment.

One of the most helpful pieces of marketing advice I was given was to calculate how many patients I would have to treat to pay for each marketing strategy. This was calculated by dividing the price of the marketing strategy by the monetary figure that treating a patient 3.5 times (my average number of treatments for patients) would generate. I then tracked each marketing strategy over the next year to see which ones were the most cost effective. Out of all the many strategies I used, including newspaper advertising, mail box drops, sports teams sponsorship, Google advertising, website development and patient email newsletters to name a few, the most effective ones were my website and online communication via patient newsletter, blogs, and utilisation of social media. I therefore invested time and money into those strategies only.

Another important step was gathering a support team around myself. I meet regularly with my accountant/financial advisor, and have monthly meetings with another local physiotherapist who is facing similar issues. I also have a business advisory team involving four of my closest friends who are able to ask me the hard questions and offer new ideas and fresh initiatives. Without all this support, it would have been tempting to lose sight of the overall dream and goals, and my business would not have grown to the extent it has.