

moving in the right direction

Mechanical Diagnosis And Therapy™
of the spine and extremities

GUEST COMMENTARY

▶▶ You Ought (Need) To Come To Austin in 2012

Ted Dreisinger, PhD, FACSM

I am delighted to have the opportunity to share a few thoughts regarding the upcoming 12th International Conference in Mechanical Diagnosis and Therapy "Pushing the Boundaries of Musculoskeletal Care" in Austin, Texas.

Next year, the International Conference returns to its roots. The first International meeting was held in Dallas, Texas in 1991 – next year it is Texas again, but this time Austin, the State Capital nestled along the shores of the Colorado River.

Austin is a university town known for its culture, food, Texas Longhorn football (American football that is) and its 'Texas sized' hospitality. It boasts being the "live music capital of the world" and the Travel Channel rated The Salt Lick (site for our Saturday night dinner) as the best BBQ in the country! It also claims the largest urban bat population possibly in the world. In the early evening every day, more than 1.5 million bats come out from under the Congress Avenue Bridge and blacken the sky. It is a phenomenon worth seeing.

The Conference Faculty and Keynote Speakers are in keeping with the high quality that has become the hallmark of MDT International meetings. I encourage you to visit www.mckenziemdt.org to review next year's outstanding program.

Over the years, International meetings have been held in Toronto, Cambridge, Philadelphia, Maastricht, Ottawa, Rome, Crete, Queenstown and most recently Rio de Janeiro. Each of these meetings attracted the best and brightest speakers and researchers who bring great prestige to our conferences. In addition, the venues have provided participants a real flavor for just how truly international the MDT community really is. Each of these meetings has given the sponsor country the opportunity to share its culture, its food and venue that has been conducive to strong scientific interchange and warm social interaction.

These conferences have done much to increase understanding of MDT to speakers and researchers from around the world for whom the method is either unknown or not well understood, and to put a personal face on the importance and efficacy of MDT. World renowned speakers from previous conferences have included, but not limited to: Robin McKenzie, Vert Mooney, Ron Donelson, Alf Nachemson, Nikolai Bogduk, Peter Croft, Maurits Van Tulder, Susan Mercer, Karim Khan, Richard Deyo, Charles

April, Kevin Spratt and Paul Hodges. Some of these names will be familiar to you and some will not, but these high profile researchers have all left the MDT International meetings having a better understand of MDT, and have

felt a great resonance with conference delegates. Ample time is made available to interact with the Faculty and Keynote Speakers on personal and professional levels. Through interaction with conference delegates, they see and feel the enthusiasm and learn of clinical successes through the experience of our best ambassadors – YOU!

There are differences between regional and International conferences. The MDT Conference of Americas (representing Argentina, Brazil, Canada and the United States), for example, provides hands on workshops, lectures, panels, demonstrations and case presentations. These conferences are intended to enhance clinical skill sets, share clinical experience and network with some of the best MDT practitioners available. It is at these conferences where skills are polished, connections are made – where questions and problem solving is encouraged with the experts.

The International Conferences have a different purpose. They provide the opportunity for MDT professionals to hear alternate points of view, and or different aspects of care against the backdrop of MDT. They provide the opportunity for critical and healthy debate in open forum panel discussions. They provide the opportunity for MDT professionals to meet and get to know internationally influential researchers. They expose these international Faculty and Keynote Speakers to MDT, MDT principles and most importantly to you – the MDT practitioner!

While the majority of delegates at both International and Regional conferences are certified in MDT or in the process of their training, our meetings also welcome those with an interest in the system and in the musculoskeletal care of the spine and extremities. Our conferences are intended to explore a broader array of topics and address why the method is so clinically effective and what evidence the scientific community has generated to support its efficacy.

So, mark your calendars for Austin, Texas – October 5-7, 2012 and make a date to come to the 12th International Conference in Mechanical Diagnosis and Therapy!

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The McKenzie Institute International

12TH International Conference in Mechanical Diagnosis and Therapy

5-7 October 2012 Austin, Texas, USA



Red Flags

Madhavi Kulkarni, PT, Dip.MDT

Every MDT clinician recognizes that one of the essential components of any physical therapy assessment is to rule out potential Red Flags. Red flags are signs and symptoms a clinician recognizes during the initial assessment that demand attention. Christopher Hawkes (2002) described red flags as smart handles that lead and help the clinician. A thorough neurological exam is often time consuming and these tipping signs are valuable. Hawkes described the signs as “diagnostic short cuts”.

Typically, a patient is referred to a physical therapist following an initial consult with a physician. In patients presenting to a primary care provider with back pain, having previously undiagnosed serious pathology is rare (Henschke et al 2009). A physical therapist may not see anything for 50-100 evaluations, but sometimes he/she will meet a patient and feel that it was worth the practice and the time spent asking questions about red flag signs.

Such was the case with Mary and Bob, who were individually referred for physical therapy after cervical fusions for different reasons. Even though both of these cases were post surgical, I learned much from their preoperative history.

Mary, a 50 y/o female worked an office job. She arrived in the clinic in a wheel chair with a rigid brace around her neck. Her movements were jerky. She needed assistance with every transfer and depended on her family for all functional tasks. The left hand and arm pain began six months prior to the surgery without any apparent reason. Physician's assessment and EMG tests diagnosed her with carpal tunnel, cubital tunnel and radial tunnel problems. The surgeries followed soon after, but the pain continued and increased. The pain was severe and often woke her up at night. She also reported weight loss, which she thought was due to the pain.

Pain medications and physical therapy failed to manage her pain. Unable to return to work, she reported spending many sleepless nights in a recliner. Four months following the arm surgeries, she was admitted to the hospital due to sudden onset of bilateral lower extremity weakness and loss of bladder control. Many more diagnostic tests, including MRI, revealed a cervical spine tumor resulting with a spinal fusion surgery.

Deyo (1992) found that age ≥ 50 years, previous history of cancer, duration of pain >1 month, failure to improve with conservative therapy, elevated erythrocyte sedimentation rate and anemia were significantly associated with underlying cancer. Henschke et al (2007) reviewed the accuracy of the tests to screen for spinal malignancy in patients with low back pain and found that the red flags such as age ≥ 50 years, failure to improve after one month and weight loss have only modest predictive ability and are not useful when used on their own. Although the evidence is not strong and individual red flags do not necessarily link to specific pathology, they do indicate a higher probability of a serious underlying condition that may require further investigation. Multiple ‘red flags’ need further investigation (Van Tulder et al 2004).

Bob saw the MD for knee pain and weakness. He described it as not being able to control his knee and was experiencing an involuntary tremor when he sat with his knee bent and forefoot on the floor. He was describing an ankle clonus and was seen by a physical therapist for four weeks without any appreciable improvement. He eventually was referred to a neurosurgeon who recommended immediate surgery.

After the cervical fusion, he returned to physical therapy for six weeks and demonstrated improved strength, but ankle clonus, hyperreflexia and increased tone affected his gait significantly.

The importance of myelopathic signs such as hyperreflexia, Hoffmann sign, ankle clonus and Babinski in establishing the diagnosis of cervical myelopathy is unclear (Rhee et al 2009). Individual myelopathic signs taken alone cannot diagnose cervical myelopathy in all patients, but at least one is present in severe myelopathy (Acharya et al 2010). Rhee suggested that in patients who appear to be myelopathic with no alternative explanations, clinical symptoms combined with correlative imaging studies must be used to base treatment decisions.

Identifying red flags and overall clinical judgment (Henschke et al 2007) helps the clinician in planning the treatment and referring patients when necessary. Few red flag signs require an ER visit or emergency surgery, while some require further diagnostic testing.

Recognizing red flag signs has always been important. As physical therapists start evaluating and treating patients without a physician referral, it is essential to be able to recognize the signs and feel comfortable to refer the patient when necessary.

References:

- Acharya S, Srivastava A, Virmani S, and Tandon R (2010). Resolution of physical signs and recovery in severe cervical spondylotic myelopathy after cervical laminoplasty. *Spine* 35 (21) E1083-E1087.
- Hawkes C (2002): *Hospital Medicine* 63(12): 732-742.
- Deyo RA, Diehl AK (1988). Cancer as a cause of back pain: frequency, clinical presentation and diagnostic strategies. *J Gen Intern Med* (3) 230-238.
- Deyo RA, Rainville J, Kent DL (1992). What can the history and physical examination tell us about low back pain? *JAMA* 268(6): 760-765.
- Henschke N, Maher CG, Refshauge KM, Herbert RD, Cumming RG, Bleasel J, York J, Das A, and McAuley JH (2009). Prevalence of and Screening for Serious Spinal Pathology in Patients Presenting to Primary Care Settings With Acute Low Back Pain. *Arthritis and Rheumatism* 60(10):3072-3080.
- Henschke N, Maher CG, Refshauge KM (2007). Screening for malignancy in low back pain patients: a systemic review. *Eur. Spine Journal* (16) 1673-1679.
- Leerar P, Boissonault W, Domholdt E and Roddey T (2007). Documentation of red flags by physical therapists for patients with low back pain. *J Man Ther.* 15(1): 42-49.
- McKenzie RA, May S (2003). *The Lumbar Spine, Mechanical Diagnosis and Therapy* (2nd Edition). Spinal Publications LTD. Waikanae.
- Rhee JM, Heflin JA, Hamasaki T and Freedman B (2009). Prevalence of physical signs in cervical myelopathy. *Spine* 34(9): 890-895.
- Van Tulder M, Becker A, Bekkering T, Gil del Real M, Hutchinson A, Koes B, Laerum E, Malmivaara A (2004). *European Guidelines for the management of acute nonspecific low back pain.* COST B 13.

»» The Case of the *Cancerous Red Flag*

Kim Greene, PT, Dip. MDT

Day 1:

67 y/o female presents with diagnosis of cervical radiculopathy x1 month duration. Cervical MRI displays degenerative changes; (+) history for cancer. Her primary complaint was tingling and numbness in both upper extremities L>R with neck pain that disturbed her sleep. She did not report lower extremity symptoms until questioned. History described cervical obstruction, without directional preference. Neuro exam was negative. Movement exam revealed that neck pain decreased and ROM improved with cervical retraction techniques. Patient sent home with cervical spine retraction + OP on Day 1.

Day 2:

Patient stated neck pain felt better and sleeping better. Reported improved ROM and also foot symptoms were worsening. Neuro intact Movement exam: Lower extremity symptoms produced consistently with cervical retraction techniques (test x40 reps). Home Program included RFISit + OP: NE (patient given precautions).

Day 3:

Patient reported improved neck pain and ROM; tingling and numbness unchanging. Neuro intact. Cervical Examination unchanging; lower extremity symptoms consistently produced with cervical retraction techniques. Physician contacted to request scan of spine to rule out cancer. Later that week, patient contacted clinic to report (+) MRI for tumor in spinal canal.

Discussion

When a patient presents to the clinic with a history of cancer, it is critical that the therapist continuously re-assess the patient for signs and symptoms of recurrence. Deyo et al (1992) reported that a previous history of cancer has .98 specificity with 14.7 likelihood ratio in identifying cancer. The body diagram is the first clue to possible red flag pathology; therefore, a history of cancer and symptoms in >1 limb should raise some concern.

Furthermore, with a history of cancer, the patient should be questioned about lower extremity symptoms; even if the prescription is for cervical treatment. In this patient, the lower extremity symptoms were of recent onset and the patient had not reported them to her physician. Cord compression from a tumor can present in a number of ways including: pain, paraesthesias, weakness, clumsiness, ataxia, hyperreflexia, and gait disturbances. Even though this patient had some neck pain, it is important to recognize that pain does not have to be present in order for cord compression to occur. Moreover, this patient did not have upper motor neuron signs, which typically accompany cord compression; nor did the patient report any weight loss or night pain that can also be a symptom of cancer.

In the cervical spine, it is important to recognize that neurological deficits often go unnoticed initially (McKenzie and May 2003); therefore, any atypical mechanical evaluation with these key characteristics warrants immediate referral back to the physician:

- Tingling and numbness along no dermatomal distribution (primary complaint)
- Symptoms x4 extremities
- Cervical retraction produced foot symptoms (atypical response)
- History of Cancer

The following chart describes additional clues in history to identify cancer (Deyo and Rainville 1992):

History	Sensitivity	Specificity	Likelihood Ratio
>50 y/o	0.77	0.71	2.7
Previous hx cancer	0.31	0.98	14.7
Unexplained wt loss	0.15	0.94	2.7
Failure to improve after 1 month of therapy	0.31	0.90	3.0
No relief w/ bed rest	>0.90	0.46	
Duration pain >1 month	0.50	0.81	2.6

The following describes significant history and exam findings in identification of upper motor neuron lesions (McKenzie and May 2003):

- Non-dermatomal sensory loss (for instance bilateral 'stocking' paraesthesia)
- Non-myotomal muscle weakness (for instance, several segments)
- Hyperreflexia
- (+) Babinski sign or extensor plantar response
- Ankle clonus
- Positive Lhermitte sign-neck flexion produces a generalized 'electric shock'
- Generalized hypertonicity
- Generalized flaccidity
- Bowel or Bladder Dysfunction

The completed assessment form for this case study is posted in the MDT Resource Center at www.mckenziemdt.org/resource.cfm

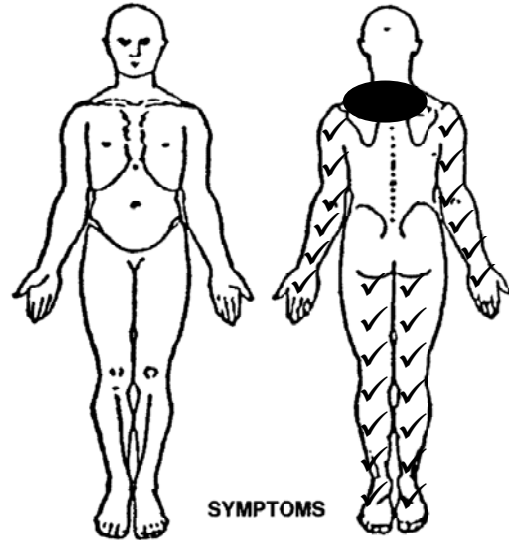
References:

- Deyo RA, Rainville J, Kent DL (1992). *What can the history and physical examination tell us about low back pain?* JAMA 268.760-765.
- McKenzie RA, May S (2003). *The Lumbar Spine, Mechanical Diagnosis and Therapy (1st Edition)*. Spinal Publications Ltd, Waikanae.



THE MCKENZIE INSTITUTE CERVICAL SPINE ASSESSMENT

Date _____
 Name _____ Sex M / F
 Address _____
 Telephone _____
 Date of Birth _____ Age 67
 Referral: GP / Orth / Self / Other _____
 Work: Mechanical stresses _____
 Leisure: Mechanical Stresses homemaker
 Functional Disability from present episode Turning head, sleeping
 Functional Disability score _____
 VAS Score (0-10) _____



HISTORY

Present Symptoms Neck pain L>R, T&N x4 extremities
 Present since x1 month Improving / Unchanging / Worsening
 Commenced as a result of _____ Or no apparent reason
 Symptoms at onset: neck / arm / forearm / headache
 Constant symptoms: neck / arm / forearm / headache Intermittent symptoms: neck / arm / forearm / LE / headache
 Worse bending sitting Turning L>R lying / rising
am / as the day progresses / pm when still / on the move
 other _____
 Better bending sitting turning lying
am / as the day progresses / pm when still / on the move
 other _____
 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 _____
 Previous History _____
 Previous Treatments nil

SPECIFIC QUESTIONS

Dizziness / tinnitus / nausea / swallowing / +ve / -ve Gait / Upper Limbs normal / abnormal
 Medications: Nil / NSAIDS / Analg / Steroids / Anticoag / Other NSAIDS
 General Health: Good / Fair / Poor History of Cancer, HTN
 Imaging: Yes / No (+) MRI cervical DJD
 Recent or major surgery: Yes / No Night Pain: Yes / No
 Accidents: Yes / No Unexplained weight loss: Yes / No
 Other: _____

EXAMINATION

POSTURE

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

NEUROLOGICAL

Motor Deficit WNL Reflexes WNL
 Sensory Deficit Nil Dural Signs Nil

MOVEMENT LOSS	Maj	Mod	Min	Nil	Pain
Protrusion				X	
Flexion				X	
Retraction			X		ERP
Extension		X			ERP

	Maj	Mod	Min	Nil	Pain
Lateral flexion R			X		
Lateral flexion L			X		
Rotation R			X		ERP
Rotation L			X		ERP

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: Asymmetrical Neck pain L>R					
PRO	NE				
Rep PRO					
RET	X1 Inc				
Rep RET	X10 dec NB x20 + OP dec B		X		
RET EXT					
Rep RET EXT					
Pretest symptoms lying:					
RET					
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 Neg Babinski; Neg Clonus; no gait deficits

PROVISIONAL CLASSIFICATION

Derangement Dysfunction Postural Other
 Derangement: Pain Location Asymmetrical above elbow

PRINCIPLE OF MANAGEMENT

Education: _____ Equipment Provided: Lumbar Roll
 Mechanical Therapy: Yes / No _____
 Extension Principle: Rep Ret + OP x10 q 2 hrs Lateral Principle: _____
 Flexion Principle: _____ Other: _____
 Treatment Goals: _____

»» Improving Communication Outside the McKenzie World

Bob Robinson, DPT, Dip.MDT, FAAOMPT

In the Fall of 2006, I was invited to participate in a joint task force with the American Physical Therapy Association. The goal of the project was to create a set of assessment tools to allow for comprehensive performance feedback for academic coordinators of clinical education and directors of clinical education for APTA accredited universities.

The research consortium consisted of the APTA's director of clinical education, a physical therapy program director, an Academic Coordinator of Clinical Education (ACCE), a Director of Clinical Education (DCE), a site coordinator of clinical education and a certified clinical instructor. I was invited on this task force for having satisfied the requirements of being an APTA credentialed clinical instructor with at least 10 years of experience as a CI and having acquired a transitional DPT.

Admittedly, when I joined the task force I did not know what to expect, but I felt that it would be a good opportunity to observe and participate in the interworking of our professional organization as well as have an opportunity to better understand how MDT fits into the overall picture of the APTA.

The first observation that I experienced was that the APTA headquarters in Alexandria, Virginia is a much busier place than I ever could have imagined. I met some very hardworking and professional physical therapists who work tirelessly as advocates for our profession. We discussed the APTA'S Vision for 2020, and I felt very comfortable that Credentialed and Diplomaed MDT practitioners are well positioned to help the APTA achieve its vision.

My research team emphasized that the APTA Vision 2020 underlined the need for direct access for the assessment and treatment of musculoskeletal dysfunction. In order for physical therapists to be the practitioners of choice, we need to practice evidenced based medicine and maintain a commitment to lifelong learning. Discussions in regards to MDT revealed a few predictable misconceptions relating to the validity of the disc model, the "hands off" approach, and the reliability of the assessment process.

To rebut these misunderstandings, I explained that MDT trained clinicians classify patients with a mechanical diagnosis of Posture, Dysfunction or Derangement syndrome. Pathologies of the discs and other anatomic

structures are not the basis for classification or treatment and are not the focus of properly trained MDT practitioners. Treatment based on classification, rather than anatomical structures, allows us to determine prognosis and provide outcomes to our patients.

Furthermore, I emphasized the importance of force progressions, which require the proper integration of patient generated forces and manual therapy when indicated. The sequence of force progressions are clearly defined and allow for increased patient safety and independence. When mobilization and manipulation are required, we are properly trained to do so, and therefore, MDT is considered a "hands on" approach when necessary.

In regards to the overall reliability and validity of the MDT System, I stated:

- 1) The MDT evaluation employed by Credentialed and Diplomaed practitioners is reliable for classifying derangement, dysfunction, or postural syndrome.
- 2) The screening for red flags is well within the scope of the MDT history and mechanical assessment, which is very important for direct access.
- 3) The ability to properly assess centralization is a reliable and valid prognostic indicator for a good therapeutic outcome.
- 4) The continuum of care is comprehensive from assessment and treatment through the recovery of function and prevention of reoccurrence through patient education.

The take home lesson from my time spent with the APTA was that we have a lot more similarities than differences. There is no question that Mechanical Diagnosis and Therapy fulfills the APTA's requirements for evidenced based practice. As MDT trained practitioners, we are well positioned to grow with the physical therapy profession. We can all assist in this growth through the sharing of ideas with our professional colleagues. Whether it's attending an APTA Combined Sections meeting, an AAOMPT conference, participating in a research project, or taking students in our clinics, we can all find a way of helping to spread the message. It is up to each of us as MDT practitioners to help improve communication outside of the MDT world.

ATTENDING A CONFERENCE?

Be sure to stop by and visit McKenzie's exhibit booth at the following shows:

- **AAOMPT Annual Meeting**
October 26-30, 2011
Anaheim, CA
Booth #7
- **PPS Annual Conference and Expo**
November 2-5, 2011
Seattle, WA
Booth #325
- **APTA Combined Sections Meeting**
February 8-11, 2012
Chicago, IL
Booth TBA
- **APTA Annual Conference and Expo**
June 6-9, 2012
Tampa, FL
Booth TBA
- **NATA Annual Meeting**
June 26-29, 2012
St. Louis, MO
Booth TBA
- **IFOMT**
September 30-October 5, 2012
Québec City, Canada
Booth TBA

2013 MDT Conference of the Americas

Details are currently being finalized regarding the next Americas Region conference. The 2013 event will be held in beautiful Denver, CO! Make a note to check the website periodically for updates at www.mckenziemdt.org/educonf.cfm!



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