

moving in the right direction

Mechanical Diagnosis And Therapy®
of the spine and extremities

▶▶ Bringing Back the Excitement to the Extremities

Richard Rosedale, PT, Dip. MDT

Monday morning, another busy day ahead...you look at your case load with dread: two OA knees, one hip bursitis, a plantar fasciitis, a bilateral patella femoral syndrome, two chronic rotator cuff tears and an assortment of others patients with recalcitrant and difficult to classify conditions. What a depressing bunch, 5 pm can't come soon enough as you contemplate a day of administering treatments that aim for slow and unimpressive gains at best or "maintaining function" at worst. Occasionally you stumble across an intervention with a rapid response and you try to hide your astonishment at realizing that this time you actually beat natural history.

Then, as you think about the day ahead, you suddenly remember that today was meant to be different. You recall the patients from the weekend's MDT course you attended; they actually changed before your eyes. Most had been labeled not dissimilarly from your list of patients, prognosis universally poor, failed previous interventions, perhaps heading for months of persisting and debilitating pain or worse; for the dreaded surgical consult. Yet on the course, they responded, not in months or years but in minutes: more range, less pain, restored function. What if you could reproduce this in your clinic? What if that plantar fasciitis patient walked out of here without limping, the patella femoral patient drove home with no pain, the rotator cuff tear patient grabbed his coat off the hook with no grimace?

As you are thinking about the possibilities the feeling of dread passes, you are thinking in a different way about your patients, you are getting excited about seeing them and the more chronic and unresponsive they have been, the more excitement you feel about their potential response. All of a sudden your patients have possibilities, not for an agonizingly slow change impossible to distinguish from the natural ebb of an episodic condition, but for dramatic change, change that you will know is a result of a specific loading strategy.

In walks your first patient of the day: "Hi Tom, I'm going to reassess your knee today, I know I told you that you will just have to live with that pain from your degenerated knee for the rest of your life, but there is a chance we can aim higher than that and I want to explore the possibility of getting some quick changes. Are you ready?"

OK, maybe they won't all change before your eyes, but what if even half of them do and what if among those are a few of the most chronic and disabled. Just the thought of this fires you up, you feel raring to go, to move those joints to places they have not gone for a long time, searching to expose those derangements that are hiding within.

There is a word which I am hearing from colleagues more now than I have heard over my 16 year career; the word is "fun", as in "that patient was fun to treat". Doesn't quite fit with an OA knee or plantar fasciitis does it? Hopefully, as more therapists wave good-bye to the pathoanatomical status quo and attempt to discover the extremity derangements, it is a word we will hear more and more.

As you read the Q and A with Mark and Scott in this issue, you can get a sense of their enthusiasm and their conviction that this could change the face of orthopedic conservative care. No doubt the change will be slow, but therapist by therapist, as more attempt to fully explore the possibilities of rapid responses; more and more patients will experience solutions and strategies to address

their persistent and recurrent symptoms. Mark has also given us a case study of a "cool knee" he recently saw.

No matter where we are on the learning curve, examples like this should spur us on to keep searching and discovering those derangements and applying as rigorously as we can the principles of MDT to the extremities. We can all work to change the face of orthopedic therapy and have fun while we do it, that's tough to beat! ■

"...more therapists wave good-bye to the pathoanatomical status quo and attempt to discover the extremity derangements..."

In This Issue:

- Guest Commentary
- Interview
- Case Study
- A Clinical Point of View

"There is no mystery whatever – only inability to perceive the obvious."

Wei Wu Wei, 1964,
All Else is Bondage; Non-volitional Living



As the evidence builds, stay up-to-date with our online Research Reviews at www.mckenziemdt.org/libReviews.cfm.
View the complete list of MDT references at www.mckenziemdt.org/libResearchList.cfm.

►► Interview with Senior MI Faculty

Scott Herbowy, PT, Dip. MDT and Mark Miller, PT, Dip. MDT

How significant an impact do you think the widespread recognition and treatment of extremity derangements could have on orthopedic physical therapy?

Miller: The key words in your question are “widespread” and “recognition”. As a collective group, we have been attempting to change orthopedic spine physical therapy for 30 years. Having said this, if somehow “widespread recognition” did occur, in terms of MDT assessment and treatment of peripheral joints, the impact would be immeasurable.

Herbowy: I believe the impact can be immense. Obviously the greatest challenge is getting there. Currently, attendance at MDT extremity courses is extremely high, and continues to grow with increasing exposure to extremity concepts and demonstrations on the pre-requisite courses as well as MDT Conferences. However, long term successful recognition depends not only on anecdotal, but evidence-based studies.

Miller: Right, and currently, the “inflammation model” is an industry in the United States and yet our clinical findings and the scientific literature rarely describe inflammation as a source of ongoing peripheral joint pain and loss of function. Epidemiological literature describes poor long-term outcomes when our current findings in chronic peripheral joint patients suggest that 70+% of the spectrum presents with reducible derangements. Imaging studies of the peripheral joints are very sensitive but lack specificity, while joint derangements often mimic commonly diagnosed pathology.

Herbowy: Despite our clinical findings or supportive literature, there will always be the challenge of those who remain unconvinced and in opposition because the MDT approach does not fit the belief system they learned in previous training.

What is the most common reason the high % of derangements are underestimated?

Miller: The only literature available in this area is no longer current, and is therefore not applicable. Furthermore, all involved have recognized that the learning curve with this approach is quite steep as it applies to the peripheral joints. Once we recognized the prevalence of derangements, we became more vigilant in ensuring that they were not present before embarking on “remodeling” approaches. Simply, this vigilance leads to a stricter assessment regimen which in turn will unveil a great deal more joint derangements.

Herbowy: Firstly, a clear model for derangement such as the disc model for the spine does not exist for most clinicians. If it does not exist clearly in your mind with a very tangible foundation, it will not be something often considered in the clinic. What most clinicians are comfortable with are models for tendonitis, bursitis, impingement, etc. so naturally if you believe in it, you will find it. This reconfirms your beliefs. For those who are comfortable with the derangement concept in the extremities, careful examination and vigorous end range loading are required to properly classify.

What do you think are the most common errors clinicians are making when assessing for and treating extremity derangements?

Herbowy: Again, I believe it’s first an error in thought process followed by errors in examination. Until you have the first part right (clinical reasoning), the second part will never be correct. I do not believe clinicians can sit through 14 days of education of MDT for the spine where the emphasis is on the disc model and then suddenly make a conceptual shift to the “unknown” in a day and a half and be not only competent but also confident. Additionally, peripheral joints lend themselves to more “creativity”. Think about the ball and socket joints

such as the hip, shoulder and also the thumb. The multitude of movements and combination of movements is tremendous. In comparison, the spine has relatively few directions of movements. This results in some clinicians who simply follow a list of procedures, hopefully yielding the answer. In the periphery, creativity combined with sound mechanical thinking often ends up with being successful.

Miller lists:

1. Making dysfunction diagnoses too early in the assessment process.
2. Disregarding the parts of the history that “do not fit” rather than challenging those historical aspects.
3. Not establishing therapist over-pressure baselines prior to repeated movements.
4. Not getting to end range during the movement testing or during treatment.
5. Not recognizing the value of “concordant” or “concurrent signs”.
6. Not looking at combined movements and altered starting positions in the shoulder and hip.
7. Not looking at the effects of extension plus lateral in the elbow.
8. Not reassessing the wrist with traction + movement when movement responses fail to yield information.
9. Not performing the exercises weight bearing when reducing derangements in weight-bearing joints.
10. Not getting the knee into terminal extension and then maintaining that for the full 5-8 seconds.
11. Not assessing the effects of hind-foot and mid-foot accessory movement on the foot/ankle complex baselines

What % of extremity derangements responds to simple end range physiological movements, and how many need traction, accessory movements or resistance?

Miller: I’ve never kept track of how often these are simple and how often they require alternative forces. Perhaps this is a good thing as I therefore have no pre-conceived notions that may lead me astray. On the other hand, I can state that peripheral joint derangements rarely, if ever, fully reduce with normal, active “end-range physiological” movements, but rather require at least overpressure. Look at the list of “common errors” and you will see some other load requirements that you will run into at one time or another.

Herbowy: I agree, from my experience many require overpressure, and this most often can adequately be generated by the patient. The wonderful thing is those lesions that require forces described above can be identified in a few visits.

In which joint(s), or mechanism of onset situations, are you more likely to find contractile dysfunction and no derangement?

Herbowy: The only area where I can think of a predominance of this other presentation that rivals derangement is the ankle and foot.

Miller: “More likely” is the optimal parameter for this question. The Achilles tendon is number one, with the rotator cuff and plantar surface of the foot being numbers two and three. Be careful though, as the shoulder derangement often presents initially with many of the same characteristics as rotator cuff tendon pathologies. The foot can also rapidly respond once weight bearing loads are applied.

A combination of diagnoses is relatively uncommon in the spine, is this any more common in the extremities. If so, what is the most common combination?

Miller: Shoulder derangement with residual contractile dysfunction, as well as shoulder derangement with residual articular dysfunction.

Foot/ankle derangement with residual Achilles contractile dysfunction can occur on occasion.

Herbowy: I have not experienced any truly remarkable differences between the spine and extremities. It is true we have seen some cases of derangements that are fully reduced and then a residual contractile dysfunction is exposed. However this is not common.

In which extremity joint do you find derangements most commonly? Which least commonly?

Miller: I find derangements commonly in all of the joints. The presenting knee and wrist pathologies are almost always derangements.

Herbowy: I have seen derangements in even in toes and fingers. As long as a joint moves, derangement is a possibility.

How difficult do you think it will be in the extremities to get therapists to let go of their pathoanatomical diagnoses?

Herbowy: Extremely difficult, as it has been with the spine over the past 30 years since Robin first lectured in the USA. As we know, many still hang onto pathoanatomy of the spine despite widespread information to the pitfalls of such thinking. Advanced imaging has muddled the evidence. I suspect the transition in the extremities may be even more difficult due to the fact that many of the pathoanatomical models in use have been around for even a longer time than MRI based diagnosis, so these are even more ingrained.

Miller: Very! It is easier to drop pathoanatomical models for the spine as those that are being offered are a bit ridiculous from a practical standpoint. Everyone goes to a spine conference in order to knowingly debate pathoanatomy. The peripheral joints are another matter. Clinicians

working in the area believe that their deep understanding of origins and insertions allow them an ability to determine tissue pathology. Unlike the spine conference, all peripheral joint conference attendees begin the event by holding hands and singing “Koom – By – Yah” in demonstration of their solidarity as to the diagnosis of peripheral joint pathology. This of course is predicated on understood and agreed upon pathoanatomical models. The concept of “rapidly reversible” peripheral joint lesions is a foreign concept to most, even though its description has been around as far back as the times of Stoddard and Maigne. Based on our experience with the spine, my guess is that it will take a long time before this becomes universally accepted, and by that time, it is credit that will be claimed by many.

What would be the next step towards getting MDT in the extremities to the forefront of musculoskeletal care?

Herbowy: Gathering the research to support the clinical observations and results. Education at university level and early exposure to the concepts during the course of MDT training will also help. Finally, a more purely applied application of MDT principles by those who have the training. Mixing approaches dilutes the results.

Miller: I believe that Stephen May along with other Institute faculty are already on that track. We must teach the courses in order to get this out there to the clinicians. We must present the concepts and demonstrate them at every opportunity. Research that exposes the pit-falls of current thinking in the area along with reliability and validity studies of our approach are necessary, and as I understand, are currently underway. Lastly, studies that address “pathoanatomical” models that could explain our joint findings are necessary and are currently underway as well. ■

►► Mechanical Evaluation and Treatment of Left Knee

Mark Miller, PT, Dip. MDT

A 25 year old female Hotel Manager presented with complaints of general anterior left knee pain that developed for no apparent reason 6 weeks prior to assessment. She described intermittent symptoms that were only noted when rising from a seated position, with squatting and upon waking in the a.m. She stated that she could relieve presenting pain with walking, however, symptoms always returned when involved with the aggravating factors described.

10/24/08:

Initial Evaluation

Please refer to the full completed assessment form contained in this issue's PDF posted in the MDT Resource Center on our website.

10/30/08:

The patient returns stating that she was compliant and describes a 50% improvement in her squatting and rising from sitting associated pains. She continues to display a minor loss of terminal knee extension with end range pain noted. Squatting still elicits pain during movement, however, both presentations are to a much lesser degree than on initial evaluation. Repetitive loaded left knee flexion (foot on chair) has no effect on her pain free status, however, squatting is painless following as is terminal knee extension. This confirms left knee derangement with treatment preference of loaded knee flexion.

11/06/08:

The patient returns stating that she is asymptomatic and fully functional. Her examination is within normal limits and we were unable to elicit any symptom with squatting or terminal extension. She was instructed in knee flexion prophylaxis and discharged with documented 0/10 pain, 100% function and 100% satisfaction with care given.

Discussion:

This patient presented with a 6 week history of knee pain that was steadily worsening and yet she was able to fully resolve her condition in three visits with self-treatment. This is common with Mechanical Diagnosis and Therapy application to peripheral joint pathology. However, there are some interesting things with this case that need further evaluation.

This patient presented historically on day 1 as a classic knee derangement with description of obstruction to motion that is alleviated with load. However, her initial physical examination baseline presentation was typical for knee derangement extension responders, and yet extension held no treatment value when fully assessed. Even more interesting was the fact that unloaded repetitive flexion worsened her baselines clinically, confirming derangement and in keeping with her description of derangement production with sitting (knee flexion), and yet loaded knee flexion was the source of derangement reduction. As seen by her third visit results, loaded flexion fully reduced her knee derangement and no other movement strategy was required.

Peripheral joint derangements are common, the majority of which are easily managed by the patient once the proper treatment program is determined and put in place for them. This case is a good example, however, of how the clinician must not allow direction bias or even past experience get in the way of the clinical assessment. If the history describes derangement then you will find it on assessment. However, you must be willing to test different loads from different starting positions along with combined movements in order to find the key load that unlocks the source of derangement reduction. ■

►► Unlocking the Magic with MDT

By Stephen Dine, PT, Dip. MDT

A few years ago while attending the clinical portion of the Diploma Programme, I had the pleasure of working with Scott Herbowy and Mark Miller. At that time, I had only a limited exposure to utilizing the principals of MDT on the extremities and I was what could be described as a little skeptical. However, I've always been an optimist and realized that I had an awesome opportunity before me. I put my skepticism aside and by the time I had finished my clinical studies, I was given the tools to explore all types of lesions logically and scientifically utilizing MDT. Believe it or not, the same logic that is applied to the spine is very easily transferred to treating the extremities.

I attended Part A several years ago and when I took Part B a few months later, I remember wondering why does my instructor keep discussing the lumbar spine when we are here to learn about the cervical and thoracic spine? It took years of practicing MDT before I realized that it was because the logic and principals were the same. One might say that early on, I couldn't see the forest thru the trees. My instructor was just building on my knowledge base concerning the lumbar spine and relating it to treating other regions of the spine. Getting to end range, force progressions, loading and unloading strategies are all concepts that apply to exploring a lesion; these same principals apply to the extremities. However, as it has already been discussed in this newsletter, ball and socket joints are not as easily related to the spine as the unidirectional knee.

Earlier I stated that Scott and Mark provided me with the tools to explore all types of lesions. What's more, after having had some time to experiment with the principals of MDT on the extremities, I'm convinced that everyone needs to discover the endless possibilities of utilizing MDT in the clinical setting. However, in my situation, I found that a few light bulbs needed to be turned on in the clinic before I could actually see the forest thru the trees. One light bulb was illuminated when I discovered that the ball and socket joint of the shoulder almost always needs to be viewed in 3 dimensions rather than just 2 dimensions. I've learned to visualize rotation of the humerus along the X or Y or Z axes of rotation that emanate from ball and socket joint of the shoulder. Even when

looking at the sagittal plane movement of shoulder extension, the humerus typically needs to be held in either end range internal or external rotation to obtain optimal results when reducing derangements. This additional component of end range rotation added to a 2 dimensional planar movement constitutes a 3 dimensional movement. Other times it's necessary to fix the humerus on a single axis of rotation (typically 90 degrees of shoulder flexion or abduction) in order to rotate it to end range. This is accomplished by using the forearm as a lever-arm by fixing the elbow at 90 degrees to improve patient generated overpressures; picture in your mind the forearm as a crank handle and the humerus as a crank shaft, whose origin is along a single axis of rotation emanating from the glenoid fossa.

Another bright light bulb went on in the clinic for all of us in 2004 when Audrey Long asked the world, "Does it matter which exercise." She brought to light the importance of directional preference. When I was in PT school, my instructors told me about bucket handle tears of the meniscus. They described how sometimes the bucket handle is lifted up and is flailing about producing pain in the knee and other times it can be laying down flat. I remember Scott telling me that people describe it as trick knee that can go from exquisitely painful one moment to symptom free the next. What's more, we can unlock the magic of the trick knee when we utilize the principal of directional preference and visualize the bucket handle laying down flat with repeated end range movements.

I like to think of the derangement in the knee as the common ground for those who practice MDT and the rest of the medical community at large. We can all clearly see the concept of the bucket handle tear in the meniscus. The next step is applying the same principals to the labrum of the shoulder. It's simply taking the same mechanical principles that we already understand and building on our knowledge base. Pure logic tells us that wherever we find torn cartilage, loose bodies, intra-articular inclusions or meniscoids, we will find obstructions to joint movements that can rapidly change with repeated end range movements. We just need to unlock the magic by using MDT. ■

More on Documenting Patient Outcomes During Clinical Practice

As a follow up to our last issue (Vol. 2, No.3), we would like to update you on our progress with MDT outcome documentation. Briefly in the last issue, we heard from Jon Weinberg regarding his successful payer negotiations to increase his therapy reimbursement for treating patients with the MDT system, from Dr. Donelson who reported that MDT methods producing superior functional outcomes with fewer visits would be a powerful influence in the LBP marketplace, and from Mark Werneke who described an ongoing multi-clinic MDT research project. Taken collectively the above messages highlight the importance of patient outcome documentation. As the marketplace becomes increasingly competitive with a shrinking dollar, outcomes will be required to differentiate the quality of care rendered by MDT practitioners compared to other rehabilitation providers.

We have already been contacted by more than fifteen MDT clinicians interested in collecting outcomes to promote their business and / or participating in our scientific endeavors, and five new clinics have already contracted with FOTO. For those credentialed or Diploma MDT therapists who may still be interested in joining our research efforts to investigate the benefits of MDT, please contact us. The only research requirements are to use the FOTO outcome tool to standardize data documentation and to assist the research team with your expertise. Research training can be performed either onsite at 1 of 5 of our research clinics or by telephone conference and email.

FOTO has created a **MDT Outcomes Resource Center** on its website. To access go to <http://www.fotoinc.com/mdt.htm>. There you will find the original webinar that introduces outcomes, the MDT research project, and provides a demonstration of FOTO's Patient Inquiry software. There are also two recorded presentations from FOTO's User Conference: "The Proof is in the Outcomes" by Jon Weinberg and "Integrating Outcomes Data during Routine Clinical Practice: Is It Important?" by Mark Werneke. Additional information and presentations will be added on an ongoing basis.

For further information please contact:

Mark: mwsurf75@verizon.net • **Jon:** jweinberg@nc.com • **Judy:** holder@fotoinc.com





THE MCKENZIE INSTITUTE EXTREMITIES ASSESSMENT

Date 10/24/08

Name _____ Sex M F

Address _____

Telephone _____

Date of Birth _____ Age 25

Referral: GP / Orth / Self / Other

Work Hotel Manager

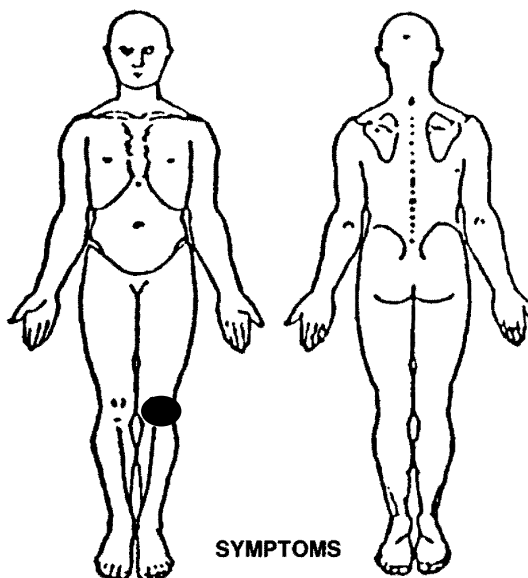
Leisure _____

Postures / Stresses _____

Functional Disability from present episode _____

Functional Disability score _____

VAS Score (0-10) 5/10



HISTORY

Present Symptoms Anterior Lt Knee Pain

Present since 5-6 weeks *Improving / Unchanging / Worsening*

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

Symptoms at onset: _____

Constant symptoms: _____ Intermittent symptoms: Lt Knee pain

What produces or worsens Squatting, rising from sitting

What stops or reduces walking

Continued use makes the pain Better Worse No Effect

Pain at rest Yes No

Disturbed night Yes No

Other Questions _____
Worse in a.m., difficulty walking at first, but with continued walking symptoms abate and function returns.

Treatments this episode no

Previous episodes no

Previous treatments no

Spinal history T/S and L/S history

Paraesthesia Yes No

Medications tried no Effect _____

Present medication none

General health good

Imaging no

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

Sites for physical examination Lt Knee

EXAMINATION

Observation Normal looking Lt Knee

Baseline measurements (pain or functional activity) Squat = P, NW, PDM

Active Movements (note symptoms and range)	PDM	ERP
Extension – minimal loss extension		X
Flexion – WNL	X	
Passive Movement (+/- over pressure) (note symptoms and range):		
Extension – loss terminal extension		X
Flexion - WNL	X	
Resisted Test Response (pain)		
WNL – all muscle groups strong. All resisted tests painless		

Repeated Tests (choose the most symptomatic from above)

Baseline symptoms	Symptoms response		Mechanical Response		
	During Movement – Produce, Abolish, Increase, Decrease, NE	After Movement – Better, Worse, NB, NW, NE	↑ROM	↓ROM	No Effect
Active movement, passive movement, resisted test					
RExt (sitting)	P	NW (inc. int. with reps)			NE
Rext (standing)	P	NW (inc. int. with reps.)			NE
RFlex (supine)	P	W		Ext, squat	
Sit x 5 minutes	A	B			NE
RFlex (loaded)	NE		Ext, squat		
Effect of static positioning					
Other tests: eg loaded, compression, unloaded etc.					

SPINE

Movement Loss _____

Effect of repeated movements _____

Effect of static positioning _____

Spine testing *Not relevant / relevant / secondary problem* _____

PROVISIONAL CLASSIFICATION Peripheral

Dysfunction – Articular _____

Derangement Lt Knee

Other _____

Spine

Contractile _____

Postural _____

Uncertain _____

PRINCIPLE OF MANAGEMENT

Education Derangement model and self-treatment

Exercise RFlex – loaded Frequency Q2h + after sitting

Treatment Goals Painless squat and painless rising form sitting