MDT Education Updates

Background

Since its development the McKenzie Classification system has been subjected to scrutiny by researchers, academics and clinicians alike. The MDT classification system has been modified over time in response to clinical needs and research findings (e.g. removal of the numbering of derangement because it contributed to poor reliability). Minor revisions will be required from time to time to ensure the MDT classification system remains contemporary, continues to meet the accepted criteria for reliability, and contributes to better outcomes for patients when MDT is utilized.

1. OTHER Subgroup

A common criticism is that the MDT Classification system is not comprehensive and does not allow for classification of all patients within the biopsychosocial model. This arises in part from the lack of understanding from those external to the Institute, that the MDT classification system does have a 4th category – OTHER However the criteria for the identification of the subgroups of Spinal or Extremity OTHER and the management of those patients is not currently well described in the MDT educational programme.

The use of MDT in the extremities has expanded the importance of OTHER to ensure that all patients with musculoskeletal symptoms can be classified, and the fact that MDT is a comprehensive system of classifying musculoskeletal conditions has been emphasized.

In response to these factors the focus on OTHER within the MDT classification system has been expanded. For both the Spine and the Extremities the subgroups of OTHER have been defined and criteria established (see Tables 1 and 2 on the following pages). The management of each subgroup will be determined by what is currently supported in the literature. It should be emphasised that classification into one of the OTHER subcategories only occurs when Derangement, Dysfunction and Postural syndromes have been excluded.

The teaching of the subgroups of OTHER will become an integral part of the McKenzie Institute International Education Programme and discussion on the management of the subgroups will be included in the Part C and D course. A summary article describing Extremity OTHER has been published and a similar article for the spine is being prepared to help ensure that non-MDT trained clinicians become aware of this development.

Table 1: McKenzie Classification: Spinal OTHER

Serious Pathology (List is not exhaustive)		
Category	**Clinical Findings (Red Flags)**	**Clinical Examples**
Cancer	Age >55, **history of cancer**, unexplained weight loss, progressive, not relieved by rest.	
Cauda equine syndrome / cord compression	Bladder retention, bowel incontinence, saddle anaesthesia, global or motor weakness in legs. Clumsiness in legs.	
Spinal fracture	History of severe trauma, older age, prolonged steroid use OR young, active with sport related back pain.	Compression fracture, stress fracture of the pars
Spinal related infection	Fever, malaise, constant pain, all movements worsen.	Epidural abscess, discitis
Vascular	Vascular disease, smoking history, family history, age over 65, male>female.	Abdominal aortic

Subgroup	Definition	Criteria (common)	Clinical Examples
Chronic pain syndrome	Pain-generating mechanism influenced by psychosocial factors or neurophysiological changes	Persistent widespread pain, aggravation with all activity, disproportionate pain response to mechanical stimuli, inappropriate beliefs and attitudes about pain.	
Inflammatory	Inflammatory arthropathy	Constant pain, morning stiffness, excessive movements exacerbate symptoms.	RA, sero-negative arthritis
Mechanically inconclusive	Unknown musculoskeletal pathology	All other classifications excluded. Symptoms affected by positions or movements **BUT** no recognisable pattern identified **Or** inconsistent symptomatic and mechanical responses on loading.	
Mechanically unresponsive radiculopathy	Radicular presentation consistent with a currently unresponsive nerve root compromise	Symptoms presenting in a radicular pattern in the upper or lower extremity. Accompanied by varying degrees of neurological signs and symptoms. There is no centralisation and symptoms do not remain better as a result of any repeated movements, positions or loading strategies.	
Post-surgery	Presentation relates to recent surgery	Recent surgery and still in post-operative protocol period.	
SIJ / Pregnancy related pelvic girdle pain (PGP)	Pain-generating mechanism emanating from the SIJ or symphysis pubis	Three or more positive SIJ pain provocation tests having excluded the lumbar spine and hip.	If related to pregnancy: PGP
Spinal stenosis	Symptomatic degenerative restriction of spinal canal or foramina	**Lumbar Spine**: older population, history of leg symptoms relieved with flexion activities and exacerbated with extension, longstanding loss of extension. **Cervical Spine**: arm symptoms consistently produced with closing foramen, abolished or decreased with opening.	Lumbar stenosis, cervical lateral foraminal stenosis
Trauma / recovering trauma	Recent trauma associated with onset of symptoms	Recent trauma associated with onset of constant symptoms / recent trauma associated with onset of symptoms, now improving and pain intermittent.	Post whiplash

Table 2:McKenzie Classification: Extremity OTHER

Serious Pathology (List is not exhaustive)		
Category	**Clinical Findings (Red Flags)**	**Clinical Examples**
Cancer	Age >55, **history of cancer**, unexplained weight loss, progressive, not relieved by rest.	
Fracture	History of significant trauma (If osteoporosis present minor trauma.) Loss of function. All movements make worse.	

Subgroup	Definition	Criteria	Clinical Examples
Articular structurally compromised	Soft tissue and/or bony changes compromising joint integrity	Mechanical symptoms (ROM restricted, clunking, locking, catching). May have sensation of instability. Long history of symptoms or history of trauma. Irreversible with conservative care.	Late stage OA, dislocation, labral tear, cruciate ligament rupture, irreducible meniscal tear
Chronic pain syndrome	Pain-generating mechanism influenced by psychosocial factors or neurophysiological changes	Persistent widespread pain, aggravation with all activity, disproportionate pain response to mechanical stimuli, inappropriate beliefs and attitudes about pain.	Regional pain syndromes
Inflammatory	Inflammatory arthropathy	Constant pain, morning stiffness, excessive movements exacerbate symptoms.	RA, sero-negative arthritis, some stages of OA
Mechanically inconclusive	Unknown musculoskeletal pathology	All other classifications excluded. Symptoms affected by positions or movements **BUT** no recognisable pattern identified **Or** inconsistent symptomatic and mechanical responses on loading.	
Peripheral nerve entrapment	Peripheral nerve entrapment	No spinal symptoms. Local paraesthesia / anaesthesia. May have local muscle weakness.	Carpal tunnel syndrome, myalgia paraesthetica
Post-surgery	Presentation relates to recent surgery	Recent surgery and still in post-operative protocol period.	
Soft tissue disease process	A fibroblastic or degenerative disease process affecting inert soft tissue with unknown or disputed aetiology	Each disease process has a unique clinical presentation, natural history and response to a variety of interventions.	Frozen shoulder, Dupuytren's, plantar fascia syndrome
Trauma / recovering trauma	Recent trauma associated with onset of symptoms	Recent trauma associated with onset of constant symptoms / recent trauma associated with onset of symptoms, now improving and pain intermittent.	
Vascular	Symptoms induced by poor blood supply due to pressure increase in a closed anatomical space	Below knee symptoms, predominantly in younger athletes. Consistently induced by exercise or activity. May have pain and /or paraesthesia in field of local cutaneous nerve and local swelling. Muscle may feel tight or full.	Compartment syndrome

2. Irreducible Derangement

The term Irreducible Derangement has gradually become an integral part of the MDT classification system. Although Robin McKenzie did use the term to describe derangements with advanced discal pathology which did not respond mechanically it wasn't until the revision of text books that Irreducible Derangement became an "independent classification".

This caused "issues" in two ways:

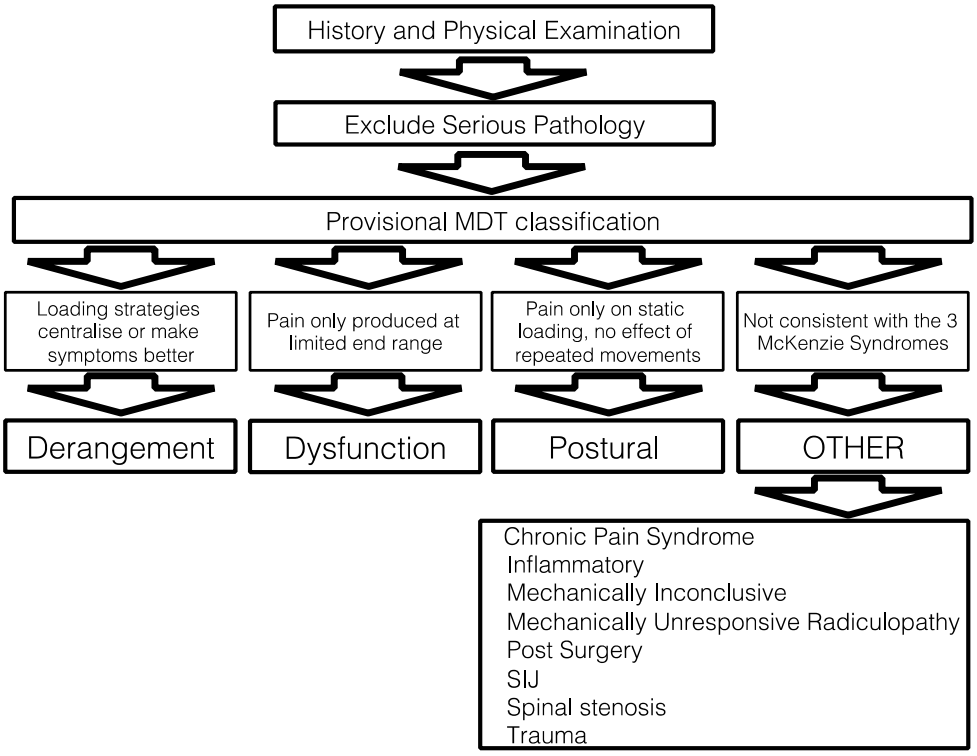
1. Research data on the prevalence of derangements. Some studies have included "irreducible data" under the classification of derangement, whilst other studies have had a separate classification of "irreducible derangement". The result being difficulty in comparing prevalence studies.
2. Teaching – the criteria for the use of the classification of "irreducible derangement" or the use of the classification "mechanically inconclusive" under "Other" was never established. During patient demonstrations on courses non–responsive "derangements" could either be called irreducible derangements or mechanically inconclusive depending on the opinion of the particular faculty. This had potential to result in confusion for course participants.

Following discussion with Robin McKenzie in March 2013, he agreed that the term Irreducible Derangement should cease being used and that the group of patients that appeared to be "derangements", but did not respond over a period of 3-5 sessions, should be classified under "Other" either as Mechanically Inconclusive or Mechanically Unresponsive Radiculopathy (MUR). The reason for the distinction between the two is that those with the radiculopathy may need other intervention such as surgery.

Definitions of these two terms follows:

Mechanically inconclusive	Unknown musculoskeletal pathology	All MDT Syndromes and OTHER subgroups are excluded. Symptoms affected by positions or movements **BUT** no recognizable pattern identified **Or** inconsistent symptomatic and mechanical responses on loading.
Mechanically unresponsive radiculopathy	Radicular presentation consistent with a currently unresponsive nerve root compromise	Symptoms presenting in a radicular pattern in the upper or lower extremity. Accompanied by varying degrees of neurological signs and symptoms. There is no centralisation and symptoms do not remain better as a result of any repeated movements, positions or loading strategies over a few days/sessions

The Classification Algorithm as it will now be taught is shown below:



3. Definitions of Derangement / Centralisation / Peripheralisation / Directional Preference

The definitions of Derangement, Centralisation, Peripheralisation and Directional Preference have been modified slightly to ensure they are inclusive of what is seen in clinical practice. Again the changes were driven by the need for consistent terminology when teaching students.

❖ Derangement

Derangement Syndrome is a clinical presentation associated with a mechanical obstruction of an affected joint. Directional Preference is an essential feature and Centralisation is an important phenomenon observed in the spine.

❖ Centralisation / Centralising / Centralised

- **Centralisation** describes the phenomenon by which distal pain originating from the spine is progressively abolished in a distal to proximal direction. This is in response to a specific repeated movement and / or sustained position and this change in location is maintained over time until all pain is abolished. As the pain centralises there is often a significant increase in the central pain. If spinal

pain only is present, this moves from a widespread to a more central location and then is abolished.

- **Centralising** means that during the application of loading strategies distal pain is being abolished. The pain is in the *process* of becoming centralised, but this will only be confirmed once the distal pain remains abolished.
- **Centralised** means that as a result of the application of the appropriate loading strategies the patient reports that all distal pain has abolished and now the patient only has back pain. The central back pain will then continue to decrease and abolish.

❖ Definition of Peripheralisation / Peripheralising / Peripheralised

- **Peripheralisation** describes the phenomenon by which proximal symptoms originating from the spine are progressively produced in a proximal to distal direction. This is in response to a specific repeated movement and/or sustained position and this change in location of symptoms is maintained over time. This may also be associated with a worsening of neurological status.
- **Peripheralising** means that during the application of loading strategies distal symptoms are being produced. Symptoms are in the *process* of becoming peripheralised but this will only be confirmed once the distal symptoms remain.
- **Peripheralised** means that as a result of the application of the inappropriate loading strategies the patient reports that the distal symptoms that have been produced remain.

❖ Directional Preference

Directional Preference describes the clinical phenomenon where a specific direction of repeated movement and/or sustained position results in a clinically relevant improvement in either symptoms and/or mechanics though not always the Centralisation of the symptoms. It is an essential feature of the Derangement Syndrome.

❖ Differences between Centralisation and Directional Preference

Directional Preference encompasses a broader range of responses than Centralisation. **Centralisation** refers to the lasting change in the location of symptoms as a result of loading strategies, whereas **Directional Preference** results in a lasting improvement in symptoms and / or mechanics though not always a change in location of pain. Thus all centralisers have a directional preference **But** not all those who have a Directional Preference are centralisers.