

Go beyond Bones and joints: Discover the missing link in musculoskeletal Diagnosis.

As a chiropractor, you understand that musculoskeletal pain is rarely caused by bones and joints alone. Yet most diagnostic tools in use today focus heavily on static structures, often **overlooking the dynamic neuromuscular system** — a critical player in pain, dysfunction, and recovery.

Let's explore where current diagnostic tools fall short — and how integrating neuromuscular assessments can fill the gap.

Limitations of Current Diagnostic Tools

1. Static Imaging (X-ray, MRI, Ultrasound)

What they do well:

These tools visualise structural changes — bone alignment, joint degeneration, disc herniations, and soft tissue damage. Ultrasound even offers real-time imaging of soft tissue motion.

What they miss:

- **Functional deficits:** They don't show how tissues behave during movement or load.
- **Neuromuscular control:** Muscle activation, nerve inhibition, or altered firing patterns aren't visible on a scan.
- **Pain relevance:** Imaging often reveals abnormalities (e.g., disc bulges) in patients who have no symptoms — making it hard to connect findings with actual dysfunction.
- **Practicality:** X-rays involve radiation; MRIs are expensive and not suited for routine monitoring.

2. Motion Palpation & Range of Motion Testing

Strengths:

Hands-on assessment of joint mobility and movement limitations — fast, low-cost, and widely used.

Drawbacks:

- **Subjectivity:** Highly dependent on clinician skill; low inter-examiner reliability is well-documented (studies show kappa values of 0,2 - 0,4 for spinal palpation).
- **Lacks neuromuscular clarity:** Reduced ROM could be from joint restriction, neural inhibition, or muscle imbalance — but this method can't differentiate.
- **Surface-level:** Doesn't assess motor control, reflex inhibition, or recruitment patterns.

3. Standard Physical Examination

Strengths:

Orthopaedic and neurological testing can detect gross deficits (e.g., sensory loss, muscle weakness).

Limitations:

- **Broad strokes only:** Tools like the straight leg raise or reflex testing indicate nerve involvement but don't localise or explain dysfunction.
- **Misses subtle issues:** Early-stage neuromuscular changes — like poor proprioception or mild inhibition — may go undetected.



Why Is the Focus So Often on Bones and Joints?

This structural bias has deep roots:



Historical Legacy

Chiropractic and orthopaedic models traditionally entered around **structural alignment**, such as subluxations or disc lesions. Early imaging tools like X-rays reinforced this focus.



Ease of Imaging

Bones and joints are visible, measurable, and easy to assess. In contrast, **neuromuscular function is dynamic** and often requires specialised or less accessible tools.



Coding & Curriculum

Clinical protocols, education systems, and reimbursement models prioritise structural diagnoses — which are easier to document and code (e.g., ICD-10).



Tool Limitations

Existing imaging and testing tools are poorly equipped to measure **real-time motor control, reflex inhibition, or muscle recruitment**.



The Risk of Over-Focusing on Structure

1. Incomplete Diagnosis

Pain often stems from **muscle imbalances, nerve entrapment, or altered motor control** — none of which are seen on static images.

Example: Piriformis syndrome may mimic sciatica but is often invisible on MRI.

2. Overinterpretation of Incidental Findings

Many asymptomatic people have “abnormal” scans. For example, MRI studies show:

- 37% of healthy 20-year-olds have disc degeneration
- 96% of asymptomatic 80-year-olds show degenerative disc changes

Yet many of these patients experience no pain — leading to unnecessary interventions when imaging is overemphasised.

3. Neglect of Functional Rehab

Structural diagnosis often leads to passive care — adjustments, medication, or even surgery — without addressing **neuromuscular control, stability, or movement quality**.

4. Delayed or Ineffective Treatment

If neuromuscular deficits go unnoticed, recovery slows down.

A patient with chronic shoulder pain may have perfect imaging but dysfunctional shoulder muscle firing — and needs motor reactivation, not injections.

A Better Approach: Integrate Neuromuscular Assessment

To address what imaging and basic exams can't, consider:



Advanced Tools

- **Surface EMG** to track muscle firing patterns during movement
- **Nerve conduction studies** to detect entrapment or signal loss
- **Dynamic ultrasound** for real-time muscle thickness and activation



Functional Neurological Testing

- **Manual muscle testing (MMT)** to detect inhibition
- **Reflex/sensory exams** for early neural dysfunction
- **Proprioception and balance testing** for motor control deficits



Functional Movement Analysis

Use tools like:

- **NMFT** (Neuro Muscular Function Testing)
- **FMS** (Functional Movement Screen)
These help reveal **compensatory strategies, asymmetries, or motor timing issues** not seen in passive tests.



Interdisciplinary Collaboration

Refer to or consult with:

- Neuro Muscular Function Testing practitioner (NMFT) for advanced testing
- Physical therapists or movement specialists for motor control training
- Sports medicine professionals for performance-related neuromuscular strategies



Patient Education & Targeted Rehab

Empower patients by:

- Explaining how **nerves and muscles work together**
- Prescribing exercises focused on motor control, stability, and proprioception
- Integrating neuromuscular therapies like **dry needling, myofascial release, or NMES**



Why It All Matters

The musculoskeletal system is **more than bones and joints**. Without assessing the neuromuscular component, we risk:

- Misdiagnosis
- Missed treatment opportunities
- Poor long-term outcomes

Chronic neck pain may stem from shoulder-neck muscle inhibited

Low back pain might result from gluteal, TFL or piriformis shutdown — not a disc bulge.



Time to Shift the Diagnostic Paradigm

The future of chiropractic and musculoskeletal care lies in **dynamic, functional diagnostics** that reflect how the body really works — in motion, under load, and in coordination.

By integrating neuromuscular assessments into your clinical process, you can:

- Improve diagnostic accuracy
- Tailor treatments more effectively
- Deliver better, longer-lasting outcomes for your patients

Let's evolve beyond structure — and treat the system as a whole.

Wolff Seminars
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