



DIAGNOSIS & DIAGNOSTIC EQUIP

Seeing the Forest From the Trees: Are We Too Quick to Treat "Abnormal" Findings?

Jasper Sidhu, BSc, DC

As chiropractors, we're trained to detect abnormal findings on physical examination and administer the appropriate treatment. If a patient may have a disc herniation on an MRI, we may end up basing our treatment around disc herniation protocols. A patient may have asymmetrical scapula positioning. We may then initiate a mid-back stabilization treatment strategy with the goal of normalizing scapular asymmetry. If we see limited range of motion in the hamstring muscles, we may end up working on increasing flexibility with the thought that it may prevent hamstring injuries in the future.

All these findings may appear to be abnormal on examination. However, the question to ask is, are the areas of examination really abnormal findings? Or are they simply "normal" for the given patient? These questions arose as I was having a conversation on physical examination strategies with [Dr. Andreo Spina](#), creator of Functional Anatomy Seminars. Let's review some of the key points of that discussion and outline clinical research that questions the "abnormal examination finding," such as range-of-motion findings, muscle asymmetry and radiological findings.

Do Abnormal Findings Dictate Treatment?

As clinicians, we're constantly searching for an abnormal finding we can use to justify treatments. However, the focus needs to be on the assessment. According to Dr. Spina, "The focus of an assessment is based on two steps: get to the histological diagnosis and expand the assessment globally. If we rely solely on a histological diagnosis, we may not be focusing on the real source of the problem."



An excellent example of this is the reliance on radiological and imaging findings. When assessing the low back, we've been taught to assess the source of pain and administer the appropriate treatment strategy. Several studies focused on non-contractile structures as the source of pain have found very limited correlation with diagnostic imaging. Studies have shown that 52 -81 percent of asymptomatic individuals have evidence of a bulging disc.¹⁻² The percentage of asymptomatic individuals with evidence of [Schmorl's nodes](#) is between 13-19 percent.^{1,3}

Unfortunately, these findings increase as we age. Disc degeneration, facet joint osteoarthritis or osteophytes are present in nearly 90 percent of subjects over the age of 64.⁴

Preliminary research on contractile elements doesn't fare much better. An interesting study looked at the correlation between muscle damage and pain intensity, finding that there wasn't much correlation, contrary to the researchers' initial hypothesis. Although it was a small sample and the subjects had no previous history of low back pain, the study supports the assertion that relating a tender spot in a muscle as the cause of low back pain should be interpreted with caution.⁵

How Do We Define "Normal"?

Another key issue with the assessment process is defining exactly what is normal to begin with. According to Dr. Spina, "We often tend to comment that someone has a 'tight muscle' or 'poor posture' without really understanding the definition of normal. What's normal for one group of patients may not be normal for another. For example, flexibility or strength norms may be drastically different when comparing a ballerina to an office worker."

These simple "scientific analogies" (as we'll see in the research on muscle asymmetry and range of motion a bit later) don't always explain the reality. Dr. Spina agrees:

"To say that a muscle is 'tight' has various problems. What does one mean by 'tight'? Does that mean there is aberrant neurological signalling? Or that there is a mechanical problem like fibrotic development? The word *tight* doesn't provide enough information to properly select a course of management. It has to be further defined in order to ensure that our treatment selection mirrors the histological issue."

An interesting example that highlights this issue is muscle asymmetry. Static posture exams are often done to assess normal versus abnormal asymmetry. However, current research suggests little correlation between asymmetry and pain.

A recent study looked at correlation with various factors and paraspinal asymmetry - occupational demands, handedness, [disk height narrowing](#), and age, among other potential contributors. Investigators found associations were inconsistent and explained little of the variance in muscle asymmetry.⁶

Another study found no correlation between asymmetry of the multifidus muscle and severity or duration of nerve root compression.⁷ Some muscle asymmetry may be due more to participation in a specific sport, such as soccer or tennis, rather than an abnormality requiring intervention / treatment.⁸

That leads us to the question on whether static muscle asymmetry alone should dictate our treatment goals. A study conducted in 2012 assessed whether asymmetrical resting scapular position should be used to help us decide what "normal" motion is. The study looked at professional baseball pitchers and concluded that scapular asymmetry may not be due to a pathology, but instead due to normal adaptation of the pitching shoulder.⁹

A systematic review for assessing the diagnostic accuracy of scapular physical examination tests for shoulder disorders couldn't find a useful physical examination that predicts shoulder dysfunction.¹⁰ Dr. Spina's experience validates that conclusion:

"People evolved in various environments. So the idea that there is one 'good' posture is severely flawed. The research would suggest that the best posture is one that is constantly changing."

Avoid Falling Into the Pattern Trap in Practice

The aforementioned research findings are excellent examples of the tendency to get set in comfortable patterns in practice. According to Dr. Spina, "We tend to get stuck in this 'everyone has this problem' mindset. We are always looking for the most common patterns and / or force patients into patterns, as opposed to relying on our assessment findings on each patient individually."

Our discussion reinforced the idea that as chiropractors, we need to continue maintaining our palpation skills. "We sometimes are taught to only look for something," Dr. Spina said. "We move away from training our tactile system to identify the feeling of normal." A good example is the overreliance on [range-of-motion](#) findings.

Range of motion is often assessed upon the initial examination to establish a baseline to treatment. However, by itself, does it really affect treatment outcome or predict future injury? A review study debates the use of hamstring flexibility as a predictive screening tool. The same study states that studies can't agree on whether range of motion of the hamstrings can be a predictive tool for groin injury, either.¹¹

Another study questioned whether range-of-motion findings lead to a prediction of an injury or disability. The study found that active lumbar range of motion and disability were poorly correlated.¹²

This also leads to the question of exactly what "normal" range of motion is. A recent study involving an asymptomatic population looked at normal values of cervical range of motion across age groups. The study found that normal active cervical range of motion decreased significantly after the age of 50.¹³

Another study assessed the prevalence and severity of lumbar spine motion in normal subjects.¹⁴ Eighty percent to 86 percent of normal subjects had spine impairments due to loss of range of lumbar motion according to the *AMA Guides to the Evaluation of Permanent Impairment*.

Does all this mean we should abandon the examination findings just discussed? Not at all. What it does entail is challenging our notion that relying on one single assessment finding dictates treatment. Assessment should involve exploring several different factors, correlated with the treatment outcomes; and having the ability / willingness to abandon our pattern of treatments if results are not being accomplished.

We need to continue using our palpation skills as an asset, further validating our assumptions on what is abnormal. By expanding our assessment from histological findings to globally assessing dysfunctions, we can continue to see the forest from the trees.

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JULY 2014