Dynamic Chiropractic

CHIROPRACTIC (GENERAL)

Muscles Move Bones: Two Views of Muscle Weakness

Marc Heller, DC

Muscles move bones. I know this; you know this. But how do we apply it? Let's discuss two aspects of muscle weakness and inhibition. I'll call the first, for lack of a better term, *neurological weakness*. The second: *weakness with atrophy and true loss of tone*. Pay attention to these two distinct types of muscle weakness. Understand that they require two distinct approaches.

1. Neurological Weakness

I'm not talking about a true pathological weakness like the toe plantar flexors from an S1 nerve root. I am describing a particular phenomenon, tested using isometric manual muscle testing. Like many of our tools, this is an art. You can get inaccurate information easily by overwhelming the patient; by not paying attention to subtle substitution strategies.

Many years ago, most students coming out of chiropractic college had some exposure to applied kinesiology. AK fell out of favor, and I suspect many chiropractors stopped testing muscles. Medicine tends to think a tested muscle weakness indicates pathology. In our world, many weak muscles can often be "turned back on," quickly and simply.

Here are a couple of examples. One is a weakness of the hip flexors, testing at 30 degrees of flexion. If the person is "discy," you need to bend the knee and not elicit a straight-leg-raise stretch of the sciatic nerve in this test. I'm not tweaking the test to focus on the psoas with leg external rotation; or the TFL, with leg internal rotation. Just keep the leg in neutral.

Weakness of the hip flexors can indicate an upper lumbar disc, and you need to rule this out with femoral nerve stretch testing. But an upper lumbar disc is relatively uncommon. What is common is functional hip impingement: the hip living too far forward in its socket. The four indicators of this condition include:

- Less internal rotation than normal
- Tenderness over the head of the femur
- Stiffness of the entire front of the groin area
- Weakness of the hip flexors

I used to use a standard measure for "normal" hip internal rotation. Now, I always compare to the opposite side, scour the hip to assess the patient's genetic hip structure, and recognize that older males have stiffer hips than younger females.[1-2]

This is the kind of neurological weakness you can change instantly with the wishbone adjustment to the hip. (Thanks again to Lucy Whyte Ferguson, DC.) If the problem recurs, the patient needs to avoid end-range stretching into external rotation. They also need to find exercises to reset the hip. My

favorite is the side plank plus, repurposed from the DNS-based low oblique diagonal sit.

A few of your patients are going to continue to have stiff hips despite treatment and exercise. They may be on their way toward a hip replacement, sooner or later.

The second example: A patient came in recently with a new problem. She could not bring her right arm back into horizontal abduction. The arm motion just stopped at the mid-axillary line. No history of trauma. I tried having her use a band to pull backward in that direction. It hurt and did not change the range.

On muscle testing, her right middle trapezius was weak. Her right pecs were mildly tight, but that was not it. On palpation, she had tenderness and restriction all along the right 4-5 and 5-6 intercostal spaces, and restriction of the right fifth rib and right T5.

I released the intercostal area with myofascial work and adjusted the thoracic vertebrae. She immediately had full strength of the middle trap and normal horizontal abduction of the right arm.

2. Muscle Weakness With Atrophy and True Loss of Tone

Not all muscle weaknesses are simply poor software connections. It's important to differentiate. You can assess this by palpating, or by a different kind of endurance-oriented muscle test. I suggest you palpate and assess muscles for weakness and atrophy; for loss of bulk. The glutes, the QL and lumbar extensors, and the oblique abs lend themselves to this kind of assessment. (I recognize that palpating for weakness and atrophy may not be a standard assessment. You already have smart hands; use them!)

Do the muscles, usually primarily on the symptomatic side, feel "gushy" or have too much give when you slowly press into them with a broad contact? It is useful to assess this while the muscle is at rest, and then again when you ask the patient to isometrically activate the muscle. My patients can directly experience this atrophy.

Beyond palpation, I'll assess for endurance and strength. I am not using isometric manual muscle testing for this. For the QL, I will ask the patient to do side planks on one side vs. the other. They usually are much "shakier" on the weak side, and have trouble with even a 10-second hold.

This kind of weakness is likely to correlate with a standard Functional Capacity Assessment, in which you ask the patient to hold the muscle active against gravity and see how long they can hold the position without failure or pain. (P.S.: Weak muscles often are both tight and weak. Stretching is not enough. Often, the ideal is eccentric strengthening.)

You are not going to build back atrophied muscles instantly with an adjustment. It takes time to build muscle, but it takes almost no time, after injury or pain, to lose substantial muscle tone.

Are you coaching patients to strengthen and rehab? If not, they are not going to hold their adjustments or get well. Learn to be the rehab coach, or find a trainer or PT who can do it. I happen to love this part of my practice and notice I attract patients who want to actively participate in their healing.

I get good compliance with exercise programs; especially because I insist patients do them! These patients get better faster and don't expect you to just fix them. Refreshing!

As I age, I appreciate resistance training more and more. Most of your aging patients have some degree of sarcopenia: loss of muscle mass. This naturally occurs with aging, but resistance training and extra protein will at least slow it down. I don't think Jack LaLanne ever developed sarcopenia. Exercise is the closest thing to a perfect anti-aging medicine.

References

1. Heller M. "Functional Hip Impingement, Pt. 1." *Dynamic Chiropractic*, April 15, 2015.
2. Heller M. "Functional Hip Impingement, Pt. 2." *Dynamic Chiropractic*, May 1, 2015.
3. Phillip Snell's video on Stu McGill's version of a functional capacity evaluation for the low back: https://www.youtube.com/watch?v=MpZUTyG41vY.

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