

MUSCLES THAT CAN'T BE STRETCHED?

A Negative Ideology That
is Largely Hyperbole

By Dr. Joe Muscolino





It is common in the world of manual and movement therapies for new techniques and ideologies to appear. They are usually touted as heralding in some drastically new idea that has never before been considered. Sometimes this is true, and the wisdom of this new concept catches our imagination and our minds and, in time, becomes part of our shared ideological approach. However, I am generally wary of new techniques, because most are, in the words of a colleague of mine, "previously known fundamental skill sets placed in a sequenced order and then packaged with a fancy name."

HOW TO EVALUATE A NEW TECHNIQUE

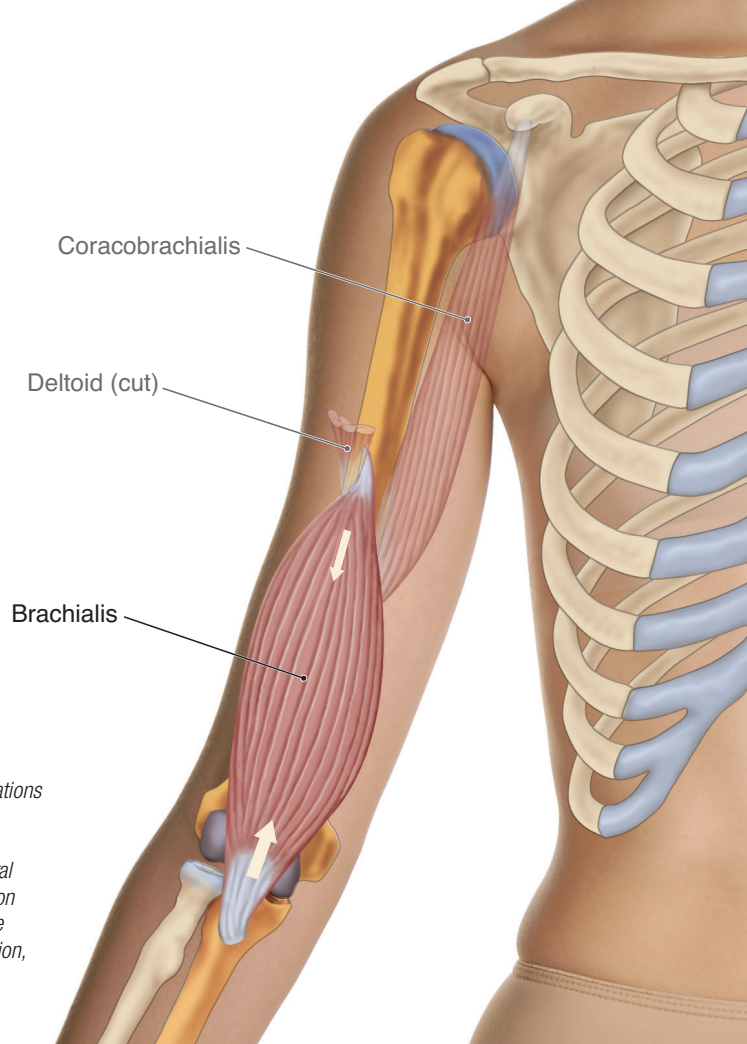
When a new technique or idea appears, I recommend evaluating its fundamental underlying mechanism and comparing it with what is known about human anatomy and physiology. After all, structure and function are pretty constant. Of course, we do not understand fully how the human body works, so if we are unsure how to evaluate the new approach, then perhaps we can give the technique a chance to prove itself with time—perhaps by waiting a few years. If the new technique is still around, then most likely there is some value to it. If it disappears, then perhaps it had no value, or perhaps it simply was not marketed well.

MARKETING A TECHNIQUE

Unfortunately, much of the success or demise of a technique is based on the ability of its proponents to effectively market it. The downside of marketing, though, is that it often involves excessive hyperbole that makes unrealistic claims to sell the technique, often stating that the new technique is the cure to most everything. The greater the claims are for a technique, the warier we should become. One of my favorite sayings is “Follow the person who seeks truth; beware of the person who has found it.” No one technique works for every client, under every circumstance; if it did, we would all be doing that one technique, and no one would do anything else. My recommendation is to learn as many techniques as possible, take the skill sets of these techniques that resonate with us, and place them into our toolbox of possible approaches. Then, when a client presents, we have more choices to mix and match for effective assessment and treatment.

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The right brachialis muscle. Illustrations permission of Dr. Joe Muscolino. *The Muscle and Bone Palpation Manual, with Trigger Points, Referral Patterns, and Stretching*, 2nd Edition (Elsevier, 2016) or *Kinesiology, The Skeletal System and Muscle Function*, 3rd Edition (Elsevier, 2017).



NEGATIVE IDEOLOGIES

There are other new ideologies that might be described as negative ideologies. These ideologies espouse an argument that negates the value of a particular method of treatment, often negating what has been held as classical wisdom in the field. Unfortunately, these new negative ideologies often use the same excessive hyperbole to negate a treatment method as proponents use to advance it. Of course, if the logic of the negative ideology is accurate, any classically held treatment approach deserves to be discredited, and this new negative ideology serves a valuable purpose to our field. But what if the negative ideology is wrong? Or perhaps overstates its case? What is disconcerting then is that a negative ideology often convinces therapists to stop practicing techniques that do have value, thereby denying their clients what would have been effective treatment modalities.

CERTAIN MUSCLES CANNOT BE STRETCHED?

One such negative ideology that is presently becoming popular is that there are certain muscles that cannot be stretched. This ideology begins from a very reasonable concept, which is that there is a limit to how effectively some muscles can be lengthened and stretched. Based on joint mechanics, some muscles cannot be stretched as well as others; this is true.

Perhaps the starkest example is the brachialis muscle (Image 1). The brachialis crosses only the elbow joint, and as a flexor of the elbow joint, it would be stretched with elbow joint extension. However, anatomic position, which might be considered to be resting length of the brachialis, already has the elbow joint in full extension. There is a bony lock of the olecranon process of the ulna meeting the olecranon fossa of the

humerus, blocking any further extension beyond anatomic position. Therefore, given that the elbow joint has limited extension, there is a limit to how much an elbow flexor muscle (like the brachialis) can be lengthened and stretched.

IT IS CHALLENGING TO STRETCH CERTAIN MUSCLES

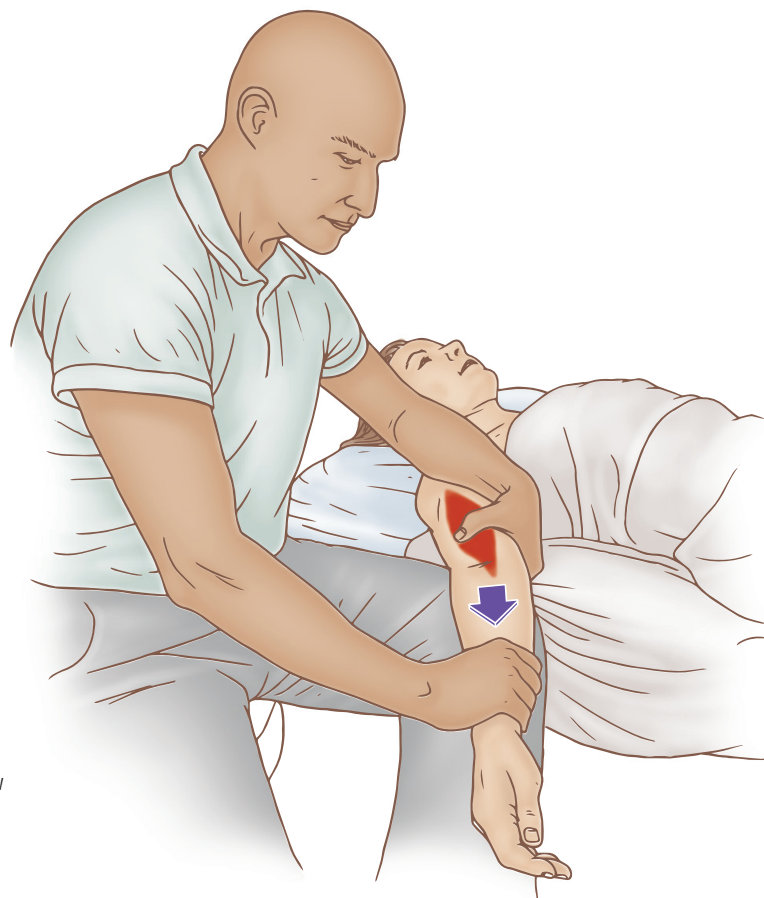
It is fair to say that it is difficult or challenging to effectively stretch some muscles, but to make the absolute statement that a muscle cannot be stretched is excessive hyperbole that is simply not true. The negative ideology that certain muscles cannot be stretched begins with what is essentially a valid concept, but then carries it too far conceptually. This can be damaging to our field because it leads therapists to believe that certain muscles can never be stretched, thereby convincing these therapists to not even attempt to assess or stretch them. Perhaps instead of leading with the misleading statement that there are muscles that cannot be stretched, it would be more accurate to say there are certain muscles in the human body that are challenging to stretch.

WHAT DEFINES STRETCHING A MUSCLE?

Before looking at specific muscles that are often touted as not being able to be stretched, let's define what it means to stretch a muscle. The definition of stretching a muscle can vary, but a reasonable definition might be to lengthen a muscle beyond its resting length. A further addendum to the definition of stretching might be that the client can feel the sensation of the lengthening/stretching of the muscle. If we begin with these parameters as our definition, then stretching a muscle requires lengthening it beyond its resting length to its tissue tension barrier, and then a bit farther, to challenge it to stretch and have this stretch be felt by the client.

2

Stretching the elbow joint into extension.



Therefore, the ability to stretch a muscle is dependent on the range of motion (ROM) of the joint that is crossed (or joints that are crossed) to allow one attachment of the muscle to move farther away from the other attachment. And the distance that the two attachments are separated must be sufficient to go beyond the tissue tension barrier of the muscle. Returning to our example of the brachialis, it has little or no ability to lengthen and stretch, if we assume the resting length of the client's brachialis allows the client's elbow joint to be in full extension of anatomic position. For most people, this is the case. But what about those clients who have lost full elbow joint extension? Perhaps this is due to excessive weight training for elbow joint flexor musculature. Or maybe it is due to the immobilization of a casted elbow joint in a position of flexion during rehabilitation after surgery or broken bone of the upper extremity. Prolonged elbow joint flexion can result in adaptive

shortening of the elbow flexors, including the brachialis. For these clients, because the brachialis is adaptively shortened and tight, it can be stretched (Image 2).

MUSCLES THAT ARE CHALLENGING TO STRETCH

The brachialis might be the most extreme example of a muscle that is difficult to stretch. But there are many others that are cited by proponents of the “muscles that cannot be stretched” (MTCBS) ideology. Let's examine and discuss a few of these.

Tibialis Anterior

Proponents of MTCBS state that the tibialis anterior cannot be stretched because there is a limit to the ROM of plantarflexion of the foot at the ankle joint. Yes, there is a limit, but from anatomic position, the foot can plantarflex 50 degrees—an appreciable amount. Also, the tibialis

Myofascial Meridians

We have stated that stretching a muscle involves moving one bony attachment of the muscle away from the other. Based on this, a stretch is wholly determined by the mechanics of the joint that the muscle crosses. But there is another consideration: the inclusion of the muscle in what is known as a myofascial meridian, also known as an anatomy train, a term and concept popularized by Thomas Myers's book *Anatomy Trains*.

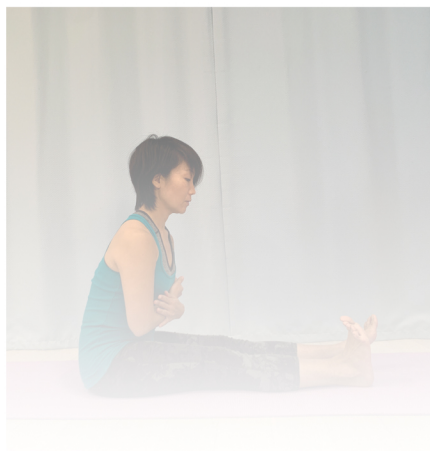
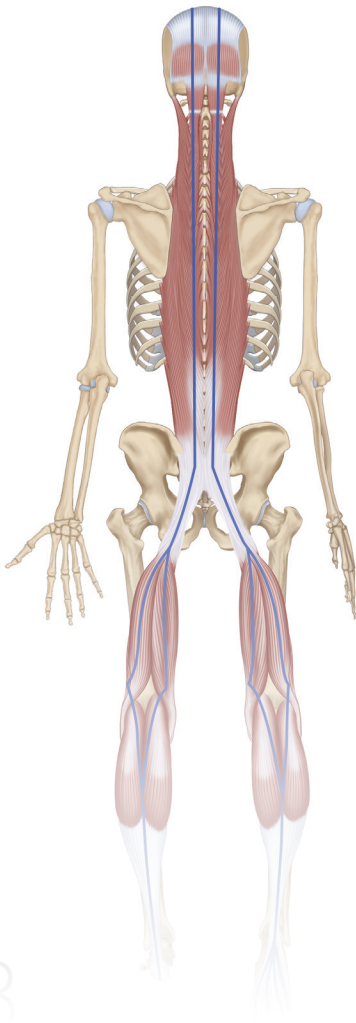
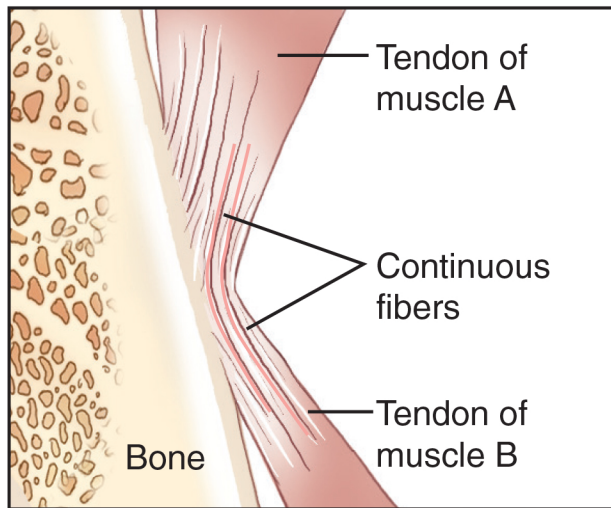
A myofascial meridian is a chain of muscles whose tendons attach and interconnect into each other. Certainly, not all of the muscle's tendinous fibers attach into each other; some do end in the bony attachment. But some of their fibers do extend beyond the bony attachment and are continuous with fibers of the adjacent muscle in the myofascial meridian (Image A).

One example of a myofascial meridian is the posterior superficial line meridian (Image B). Via this inter-tendinous attachment, lengthening and stretching one muscle in a myofascial meridian would transmit that tension stretch force into the fibers of the next muscle in the meridian. Therefore, a target muscle that is challenging to stretch by joint mechanics alone might be further stretched by considering the entirety of the myofascial meridian in which it is located.

One easy example to illustrate how consideration of a myofascial meridian might inform how we stretch a target muscle is the hamstrings in the posterior superficial line myofascial meridian (Image B). The hamstrings cross the hip and knee joints. Therefore, by joint mechanics alone, it should be irrelevant what we do across the ankle joint. But given that the hamstrings have a myofascial continuity into the gastrocnemius, if we dorsiflex the foot at the ankle joint to stretch the gastrocnemius, we will

A

The myofascial meridian.



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