

LENGTH TENSION RELATIONSHIPS AND HOW TO RESTORE LOST FUNCTION

BY MARK REIFKIND, SENIOR RKC

Virtually everyone comes to training to get better. Whether you choose to train with kettlebells, barbells or bodyweight the common denominator in most people's minds is improvement of their physical state.

Some of us are looking for ultimate performance, some of us are interested in more modest achievements and some of us are interested in getting out of pain and back to our original functionality. But we all want our training to improve us, not injure us.

Most approaches to training begin with the basic exercises, stretches and protocols that will help deliver the results people are searching for. But have you made sure your structure is up to the task of dealing with the overloads that training must impose on the body, in order for positive adaptations to occur? This is one of the most overlooked aspects of the training model.

It's easy to forget that our bodies are under a constant source of pressure from gravity at all times. Gravity is always trying to bend us over, push us down and return us to the fetal position we started from. Many of the muscles in our body are all too happy to 'go with the flow' and bend us over into a ball. Our modern seated lives do not help this at all. It's easy to go from bed, to chair, to car seat, to office seat, back to car seat to couch to bed every day. And then we wonder why our backs or

necks hurt or why the exercise routine is not working as well as it should.

Posture is the beginning and end of movement and if our starting postures are not square, plumb and neutral at the start—especially movements that are weighted or done many thousands of times—chances are they will not be square, plumb and neutral at the end.

Gravity, weighted exercises and the daily, repetitive movements we do all day long have very specific effects on our muscles. Certain muscles, referred to as *tonic*, respond to too much loading or too much inactivity by getting, and staying shorter. Examples of tonic muscles are the hamstrings, calves, the deep muscles in the glutes and the flexors of the upper arm. Tonic muscles are mostly postural, slow twitch fibers that can get and stay tight very easily.

On the other side of the coin (and the joint) are *phasic* muscles such as quadriceps, triceps, the muscles between the shoulder blades (rhomboids) that are prone to getting weak and stretched out with too much or too little use.

The balance of tensions between these two types of muscles is known as a Length Tension relationship.

Since all muscles exert force on the bones they attach to, *all the time* (known as resting level of tension) too much or too little force creates an imbalance that can cause pain, and if out of balance enough, serious injury. This is especially true if that imbalanced joint is loaded heavily or for too long a time.

A house with an uneven foundation will not support the house very well and neither will the body. Chiropractic addresses this by manipulating the joints into place and hoping the musculature will relax as the joints return to 'neutral'. This can work but muscle memory and old patterns of movement can recreate the same issue very quickly.

Just 'stretching out' doesn't solve the issue either, as some muscles (tonic) need to be stretched in order to get us to neutral and others (phasic) need to be strengthened in order to get us to postural 'square and plumb'.

It's important to be able to assess where you are posturally and address those imbalances before loading the body with weights or cyclic exercises (running, cycling, etc.) in order to not further create or magnify existing problems.

If one is already in pain from muscle imbalances, selective application of specific stretches—and tools such as the foam roller—can really help relieve the pressure on the muscles and joints and help bring the body back to square, plumb and neutral. Opening up these tight areas

prior to exercising is a great way to slowly but surely address the issues that are tightening you up and delaying your training progress, or keeping you injured.

Many ankle, knee, IT band, lower back shoulder and neck 'injuries' are not as much permanent injuries as pain resulting from length tension relationship imbalances. Getting the body back into balance with a focus on not only restoring lost function but preventing further imbalance with a proactive approach is key to many years of productive, injury free training.

Mark Reifkind's 2-DVD set *Restoring Lost Physical Function* (See opposite page) offers a complete program for addressing the issues raised in this article—Ed.



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