How to Assess and Fix *Length Tension Relationships* —To Eliminate Pain, Reduce the Chance of Injury and Enhance Your Athletic Performance

By Mark Reifkind, Senior RKC

When I first took **Paul Chek's** *Scientific Back* training course I learned about length tension relationships and how critical they were to dealing with and preventing injuries. Easily the most interesting section to me was the assessment. Chek called it a Comparative Range of Motion assessment (CROM) and it focused on assessing not only each joint's ability to move in normal ranges but also how each joint fared compared to the opposite side of the body. This simple series of range of motion tests gave me a simple template for discovering asymmetries before I loaded the body with a workout.

It was much better, from a structural view, to be symmetrically tight in the both ankles, for example, than to have one ankle have normal range of motion, and the other side lock up with only half the normal ROM (this is common by the way). Uneven joint ranges of motion and or flexibility limitations can easily create rotational torques and, as we all know too well, everything is connected to everything.

If the ankle doesn't move fully and/or is misaligned at rest, the tension's rotation—and the mechanical compensations that can occur—will likely roll up through the rest of the body. Expect knee, hip, back and even shoulder and neck issues to develop as a result.

This, of course, can be greatly exacerbated by loading the body with these imbalances, either with heavy resistance or high-rep, cyclical motions such as running, cycling or swimming. And most often it is not just one joint and its surrounding musculature that is not capable of a normal ROM, but a group or chain of them. This is where things can get really 'interesting'. The CROM has a trainer or training partner assessing (through basic, easily done stretches) each of the joints and noticing what has normal ROM and what doesn't that day. These muscles' tightness's can vary day by day according to what was done the preceding days. Sitting for hours on end, traveling and/or heavy workouts (or a combination of the above!) can create muscle tightness's that, if left unattended, can 'solidify' and over time become semi-permanent, from a postural viewpoint.

Remember that we are all constantly battling gravity and its 24/7 desire to push us into a ball of tight flexor muscles! Small restrictions in the joint ROM can really add up over time. Add in tightness and compensations from injuries old or new) and you can get stiff and tight in places you wouldn't suspect.

Remember also that flexor muscles, known as tonic muscles, LOVE to get short and tight and contract with low-level force for long periods of time. That's why when you wake up in the morning after either too much sitting or too much training your hamstrings and hip flexors or shoulders don't spring up and let you achieve great flexibility and mobility right off the bat. These tightened muscles sometimes have to be convinced to open up and let the joints have normal ROM. And this is very important if one is going to load the body safely.

Chek's progression of training went like this:

1) Mobility/flexibility
2) Stability
3) Strength
4) Endurance
5) Power

Skipping any of these steps, or being deficient in one and trying to jump ahead would result in problems or deficiencies eventually. So before a workout I would always stretch each client assessing each joint's ROM to the norm as well as to its opposite side. Joints and muscles that were not up to normal ROM would get stretched while joints that had normal or their usual ROM would be left alone. This is not stretching for its own sake but for achieving as square and neutral a body as possible BEFORE loading occurs. The idea is that loading a bent frame just perpetuates the imbalances. Continually working to 'straighten the frame' prior to loading, helps create as square and neutral a body over time as is possible.

This is not to say that one must stay with just flexibility training until they are 'perfect', before one can go to stability or strength training per se but that all these variables must be worked on consistently and progressively.

If your hips are really crooked with one tight psoas and one tight hamstring and you insist on loading them with heavy squats or deadlifts don't be surprised if your back gets tweaked pretty quickly.
Many times it is NOT the training that is twisting the body into a muscle pretzel but the day-to-day activities done with poor posture and motor patterns. Sitting is the worst culprit imo and most peoples sitting posture is this side of horrible.

Training for an hour or so, and/or stretching for the same amount of time even daily cannot possibly compensate for poor posture and movement mechanics for the rest of your waking hours.

Assisted partner stretching with my clients—while effective in assessing and then opening up their restrictions—did not teach them how to be aware of their unique tightness patterns and learn how to unravel themselves. So I came up with a very simple stretch routine for them that virtually everyone can do safely. It covers all the key flexor muscles and is done prior to training, immediately after or as a separate session. As you go through

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"These are possibly the best fitness/performance related DVDs that I have come across. Rif presents some vital concepts which have never before been brought together and explains how you can identify and treat the postural causes of many aches and pains." — *Chris H., Edinburgh, Scotland*

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A series of brutal injuries ended Mark Reifkind's Olympic hopes in gymnastics, in champion powerlifting, in ultra-marathons and in Ironman triathlons. A resurgent Mark battled back to become one of the premier kettlebell trainers in the US.

No one has delved more deeply than Mark into what it takes to beat pain at its own game—and remain resiliently functional in the face of the most egregious challenges.

Having heard of Mark's success at restoring his lost physical functioning, we begged him to share his personal discoveries and methods with our elite RKC kettlebell trainers at the recent RKC II certification workshop.

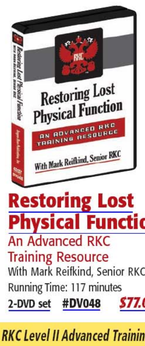
Mark's secrets for restoring physical function would clearly be of immense value to our RKCs, for themselves, but more importantly for their clients.

And Mark did not disappoint! In a brilliant, inspiring, impassioned, fascinating and highly practical seminar, Mark blew the assembled RKCs away with his methods for understanding, pinpointing and then releasing blocks in the body.

I am so glad we got it all on tape! No way would anyone be able to remember one-tenth of all the methods Mark shared with us in those two hours! Now, you too can benefit from this treasure trove of methods to keep you and your clients in optimal condition.

Contents include:

- What are ***Length Tension*** relationships—and why they are important to your muscular and joint health?
- The importance of neutral positioning to the joints—and how the muscles help or hinder you in achieving this balanced posture.
- ***Tonic*** and ***Phasic*** muscles in the body—and how training or lack of training affects them.
- How your length/tension relationships determine which muscles to stretch and which to strengthen—and when to do which.
- How improper L/T relationships can cause injury—and how to work around and through them with proper program design.
- How everyday activities and postures can seriously disrupt these L/T relationships.
- Simple stretches and strengtheners to balance out the musculature.
- The critical areas that NEED to be addressed—to avoid back pain and injury.
- How to use the KB to address these imbalances—and build back strength and resilience in the muscles and joints.
- What is fascia—and why does it matter to you?
- The difference between muscles and fascia—and how they are linked in ways most don't recognize.
- Why fascial restrictions are more prevalent than previously thought—and how they affect parts of the body seemingly unrelated to the painful area.
- Why professional massage is usually NOT enough to deal with myofascial problems.
- How to use ***myofascial self release*** to deal with length tension relationship imbalances.
- How to use the foam roller to identify and release myofascial restrictions in ANY muscle in the body.
- When and where you should NOT use the foam roller.
- Myofascial self release as workout modality. Engage and work the ribs, back and shoulders while opening up the restricted muscles.
- Other techniques to release myofascial restrictions using sticks, thumbs and vibration massagers.



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Building on the work of Chek and Janda he explains how the muscles need to be balanced to maintain function and how you must stretch what is tight and strengthen what is weak. The tools presented here will allow you to identify what you need to work on and equip you to start to put things right. I would recommend these DVDs to anyone." —Chris H., Edinburgh, Scotland

Learn from Rif's mistakes!

"The tools for assessment are excellent, well worth the price of admission. When a guy like Rif, who has been there, done that, got the Doctor bill speaks on injury prevention and repair, I listen. The info on this DVD was earned through a LOT of mileage." —David Whitley, Senior RKC, TN

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the simple poses it becomes very apparent if something is tight and restricting and needs more stretching or it is fine and you can move on. It also works key extensor muscles at the same time, making it a very efficient way to proceed.

1) PRONE COBRA:
this is the same as a Yoga upward facing dog stretch except the weight in held on the knees and it's not a full plank. This opens up the flexors of the hip, the abdominals, the wrist and hand flexors a common problem) as well as the chest. It also simultaneously works the very important serratus muscles of the ribs, the triceps, teaches one to keep the traps down and realigns the spine.

2) DOWNWARD FACING DOG:
Again, my non-yoga variation is to stretch each leg separately and alternately. This opens up tight calves, hamstrings (at both origin and insertion), lumbar spine, glutes and wrist flexors and strengthens the serratus and triceps from a different angle. It's very easy to find out which calf is tight and which is normal in this pose—and follow that tightness all the way up the leg though the hamstring into the glute and sacrum. A very key movement.

3) BENT KNEE CALF STRETCH:
Hold the arms straight while you bend your knees and lower them slowly to the ground, keeping the heels as low as you can while still allowing the knees to descend. This is a great stretch for the hard-to-reach soleus muscles of the lower calf. When your knees reach the floor hold the end position to fully stretch the muscles of the feet and ankle. This end position Chek called a Horse Stance and is another excellent position to assess pelvic, lower back shoulder and hip symmetry.

4) KNEELING SHOULDER STRETCH:
From the kneeling position you just ended up in, extend the arms out in front, and with hips over knees and elbows straight, lower the armpits to the floor, keeping the head in neutral. This assesses and stretches the lats, serratus, intercostals, external obliques, many times the tight muscles holding back one's overhead shoulder ROM. This also allows you to assess your thoracic spine ROM—a very important area for overhead work as well.

These four simple stretches, if done with intent and concentration, can assess and stretch virtually all the tight flexor areas that people struggle with everyday. Most notably: hamstrings, calves, abdominals, hip flexors and lats.

As **Pavel** wrote regarding his 'Waiting out the tension' technique in ***Relax into Stretch***, most people don't have the patience to really let the tension drop from the stretch and end up stretching too hard, inadvertently making the muscle tighter, not looser. I teach people to use a pulsing stretch technique where one only tries to advance the stretch on the out breath and then 'back off' the stretch for the in breath. So it's: "breath in, back off; exhale, advance". This technique keeps one focused on breathing for every part of the stretch as well as not pushing the stretch too hard. Do not allow this to become "bouncy" as this defeats the purpose of the stretch. I inhale for four counts and exhale for the same time.

The prolonged time spent on one's straight arms with the shoulder packed in the socket going through these simple poses also really strengthens key scapulo-thoracic muscles. I spend as much time as necessary in each of the poses trying to assess front to back squareness and symmetry as well as left to right. Sometimes I go through each pose just once for a short time and sometimes I repeat the sequence three or more times holding each pose for a minute or more if I am particularly tight or twisted in some way. This routine blends particularly well with foam roller work as well—as a prelude or after the roller.

I do these stretches every morning before I start work. They can be done right before the workout as well but I use this as my 'getup and go' routine. Otherwise I am one tight puppy for most of the day. This also shows me exactly what has tightened up without my permission from the day before and allows me to address it before it really has a chance to accumulate and cause serious problems.

So often I hear people say, "I didn't even know I was tight there!" when they start to stretch or get on the foam roller. Having a basic protocol in place as well as the concept of a regular assessment to make sure you are not locking up joints or losing basic ROMs is critical, imo. So often it's the repetitive stress and accumulated micro trauma that goes unnoticed that is the source of many serious and irritating injuries.

This is the simplest way I've found to really assess and address those tight flexors that the modern world—with its over-reliance on chairs and sitting—forces us to accumulate. The perfect prelude just prior to using the perfect solution to 'Life Seated': the Kettlebell. Now get on the floor and get those flexors open!

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

Mark Reifkind, *Sr. RKC* has been a competitive athlete, coach and student of physical culture for the last 35 years. A former national level gymnast, Mark spent 15 years training, competing in powerlifting, achieving a Masters Rating and a Top 100 ranked bench press. Mark was also Head Coach for team USA at the IPF World Championship in 1995 as well as the 2000 IPF Pan Am Championships. A writer for *Muscle Mag International*, as well as a published book author, Mark now owns Girya Kettlebell Training in Palo Alto, Ca. Girya was one of the first studios in the country devoted solely to kettlebell training. Mark works one on one with clients at Girya as well as online, offering instruction for powerlifters, mixed martial artists, and kettlebell enthusiasts of all ages. Visit www.Giryastrength.com