Too Tense
How to Cut Through Muscle Tension
By Darryl Leech

Training in martial arts is a long term commitment and developing proficiency in even the most basic techniques requires much repetition. Because of this it is common for a martial artist to develop some level of muscle tension. Muscle tension develops as a result of many factors; acting as a splint for an injured area, to compensate for weakness, poor technique, faulty biomechanics, or from overtraining. Essentially muscle tightness occurs because of an imbalance of the length/tension relationship between opposing muscle groups. Although repetitive training through the movements of your style is required to condition the muscular and nervous systems, the continual activation of a specific order of muscle recruitment will eventually lead to tightening of the muscles involved and leave the muscles that aren't involved, weakened. The imbalance of length over tension will eventually affect your posture and your mobility. Fortunately, reversing the effects of muscle tension isn't so hard with the right approach. The following article will first show you the negative effects of muscle tension, then ways to prevent it.

Posture

The discomfort from muscle tension is usually your body's way of letting you know that you've pushed it too far. When you've reached the point of pain it's important to realise that there is a lot more going on than just an achy hip, knee or shoulder and that effectively fixing the problem requires a little more than relieving muscular tension. First of all let's take a look at posture. Posture refers to the point at which movement begins and ends. Ideal posture is seen as being in a state of muscular and skeletal balance where the supporting structures of the body are protected against injury or gradual deformity. Any movements made while maintaining ideal posture are referred to as dynamic stability. Poor posture is when the body is in a state of muscular and skeletal imbalance and cannot maintain dynamic stability. There are varying degrees of poor posture where initial stages may mean experiencing slight discomfort or restriction of movement when training, all the way to extreme stages where the body's posture has deviated (excessive spinal curves, forward head posture, hyper extended knees etc) to the point of abnormal appearance in order to compensate for the imbalance. Poor posture is the result of the body attempting to maintain balance and keep moving while suffering from unbalanced length-tension relationships throughout the body and is a common cause of injuries, restriction of movement and decreased performance. As the length-tension imbalance gets worse it causes the joints to deviate from their neutral alignment and disrupts the skeletons ability to bare weight under the force of gravity (figure 1).

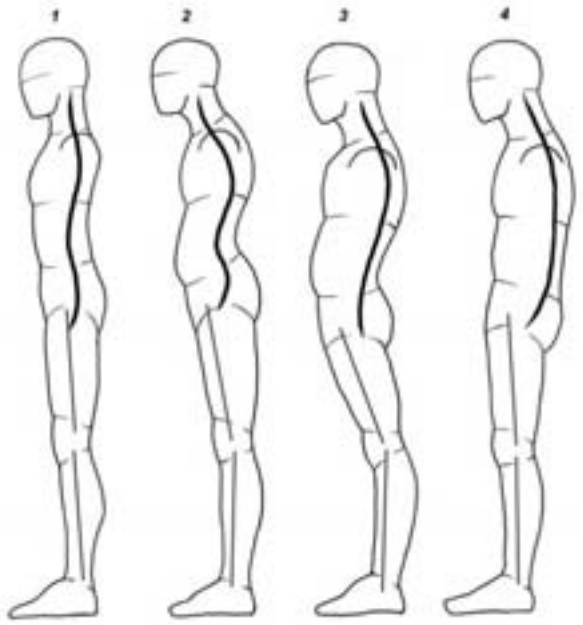


Figure 1:
Ideal posture is seen in image 1. Images 2, 3 and 4 show common postural deviations in attempt to compensate for muscular and skeletal imbalance.

Foam Rolling

The foam roller is one of the newest and best pieces of equipment for relieving muscular tension and increasing mobility. The world's leading health and fitness professionals are prescribing the use of foam rollers in programs tailored for injury prevention and posture correction, which explains why they are showing up in just about every gym, athletic training facility and health care clinic across the country. The foam roller is predominately used as a form of self myofascial release (massage), where an athlete can use the roll to locate tender areas of muscle (trigger points) and decrease their density and deregulate tension. Using the foam roller is easy, simply lay your tender/tight muscle on top of the roll and depending on the sensitivity of the affected area, increase or decrease the amount of body weight you place on top of it. Usually for longer muscle groups (calves, abductors, adductors and quadriceps) long, sweeping strokes of pressure are applied and the user will roll along the full length of the muscle, whereas for smaller muscle groups (TFL, hip rotators, erector spinae and glute medius) direct pressure with little movement is usually used.

Foam rollers can be used before or after a workout. Rolling before a workout can deregulate muscular tension and assist in increasing mobility, whilst rolling after a workout can help with recovery. The amount of time spent on the foam roll and areas that require rolling will vary from person to person, it is common for martial arts practitioners to experience tightness in the calves, quadriceps and low back. Here are some good examples of how you may use the foam roller on those spots:

1. Calf (Gastroc/Soleus)

2. Side Calf (Peronius Group)

3. Side Quad (Iliotibia Tract)

4. Low Back (Erector Spinae)

5. Upper Back (Thoracic Extensors)

Deregulation, Isolation and Integration

As mentioned above, muscle tension is basically your body's way of telling you that something's not working quite right, so fixing the problem should be your top priority – as continuing with the problem will make things worse. Muscle tension, over time, will affect the movement patterns of your body, so before any postural corrections can be made it is important to deregulate that tension so that your body will become more susceptible to manipulation. This is where you jump on the foam roller. Remember that although the foam roller is a great at this point, it should still be coupled with a functional flexibility program. Tension develops in the body when a weakness is present, so it is equally important to address the weakness - seeing a health professional experienced in postural analysis (both static and dynamic) will be the best approach. Locating and exciting those muscles that aren't holding the body's neutral position against the force of the over-activated muscles is what is really going to assist in bringing the body back to ideal posture. Failing to activate the weakened muscles will cause the body to stay in its current state of muscle recruitment. Muscle activation is typically done through isolation exercises, there are too many to list in this article and the exercises will vary from person to person, but here are three great exercises that every martial artist should master and perform periodically:

Supine Fitball Hip Extension:

This exercise is great for core stabilisation and glute activation.

Lay with your upper back supported on the Fitball, hold a neutral spine position, keep your glutes and core stabilisers activated.
Drop your hips towards the floor then make a posterior tilt with your hips (3, figure 2). Tighten your glutes and push your heels into the floor as if you are pushing the floor away from you. Don't think of just lifting hips but rather pushing the floor away from you while tightening your glutes. You should feel your glutes work quite hard with this exercise. No pressure should be felt in the lower back.

Prone Cobra:

This exercise is great for building strength in the thoracic extensors and decreasing thoracic kyphosis.

Lay face down on the floor. Keep core stabilisers turned on and make a posterior tilt (3, figure 2) with your hips.
Lift your chest and hands off the floor, externally rotate your shoulders and retract your shoulder blades. You should feel your thoracic extensors activate and tense up. Hold this position for 30-60sec. No pressure should be felt in the lower back.

Forward Ball Roll:

This exercise is good for core stability and endurance.

Place elbows on Fitball, keep spine in neutral position and turn on core stabilsers. Move your elbows forward and maintain position of spine, if your posture deviates from neutral position then stop and correct your form. Pressure should be felt in the lower abdominals, not the lower back or shoulders.
Note – tension in the shoulders may indicate core dysfunction.

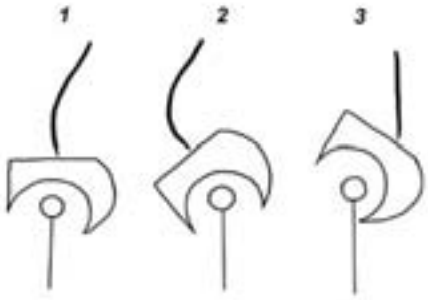


Figure 2:
Hip Deviations; 1 neutral position, 2 anterior tilt and 3 posterior tilt.

Now that the tight muscles have been switched off and the weak muscles have been turned on it's time to integrate this into your body's movement patterns. It's only after teaching your body correct muscle recruitment that you will truly fix muscle tension and achieve ideal posture.

Practical Application

The most common postural deviations experienced by martial arts practitioners are kypho-lordotic and sway back (figure 1; images 2 and 3), these deviations generally occur from an over dominance of the calves, quads, hip flexors and shoulders. When you consider that a lot of martial art styles contain much springiness of the feet, many kicking techniques and hand/arm techniques, it's easy to see how these postural deviations can evolve. As mentioned earlier, it is important to train continuously through the movements of your style to allow for muscle conditioning and neural awareness, but remember that it is also important to balance your martial arts training with corrective exercise to ensure that you avoid overuse injuries and are able to maintain dynamic stability. The following is a basic example of how you may put the above exercises into a workout:

Foam Roll Exercises 1 & 2 (from above)
This will begin deregulation of muscle tension.
Spend enough time to relax the calves.

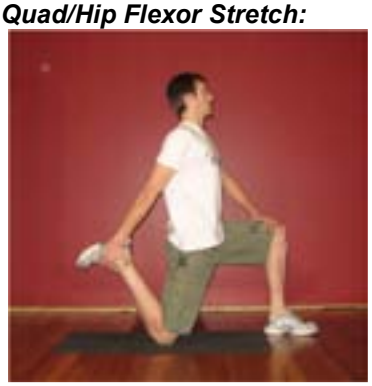
3D Calf Stretch:

Perform a standard calf stretch while twisting through the hips.

Because the body goes through many rotations while practicing martial arts it's important to stretch through those ranges of motion not just through a single plane of movement like your traditional calf stretch.
Spend about 30-45sec on each leg.

Foam Roll Exercise 3.

Quad/Hip Flexor Stretch:



Standard quadriceps stretch, make sure you have something soft under your knee.
When in position, make a posterior tilt with you hips (figure 2, image 3) to create more of a stretch.

Foam Roll Exercise 4.

Supine Fitball Hip Extension

Forward Ball Roll

Kneeling on Fitball:

This exercise is great for activating the core and hip stabilisers.
If you find that you're quite shaky to start with, hold onto something for support. If it's too easy start moving your knees from side to side or in circular motions. This exercise is great to include in a warm-up for a kicking workout.

Foam Roll Exercise 5

Prone Cobra

Standard Squats:

Performing squats at this point will work as a means to integrate the newly activated muscles and reprogram the movement pattern of your body – squats are a natural/functional human movement and are a great way to reprogram muscle recruitment. When squatting use your heels to push the floor away from you, not to push yourself up. Make sure you are conscious of activating your core and glutes.

The above program is a basic example of how you could go about reprogramming your muscle recruitment patterns through deregulating tension, exciting weakness and then integrating into movement (squats for this example). The process of reprogramming a recruitment pattern is gradual, so it is recommended that sufficient time is blocked out to allow for anatomical adaptation (4-6weeks), this is where the importance of periodisation is realised (but more on that at another time). By maintaining ideal posture and dynamic stability you are not only eliminating muscle tension but also significantly reducing the risk of injury.

Conclusion

Muscle tension is not hard to avoid, it just takes the right approach and an understanding of how your body reacts to training loads. The approach to treating muscle tension will vary from person to person because everyone uses their bodies differently, but the principles will remain the same - deregulation, isolation and integration. Mastering a martial art style can take a lifetime so maintaining a strong and functional body should be at the top of your 'to do' lists.

If you currently suffer from muscle tension and are unsure about how to correct it or would like to know more about functional/corrective training for your martial art style please contact me through my website – www.activered.com.au