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Tuning the CrossFit Athlete—Part 1

Can't get into a squat? Lacking power in your snatch?
Aggressive bodywork may be able to help you unlock your full potential.

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Less than ideal posture is a sweeping epidemic afflicting almost every single person in the world.

The sight of a forward head position, rounded shoulders, internally rotated arms and anterior-tilted pelvises is commonplace in gyms, offices and even CrossFit boxes. If these patterns are left unchecked, recovery rates can be impeded, injury rates increased (especially in those new to CrossFit) and performance diminished.

All Crossed Up

Via research, Dr. Vladimir Janda identified a predictable pattern of muscles prone to tightness or shortness and weakness or inhibition (Table 1). He used the terms “upper crossed syndrome” and “lower crossed syndrome” to describe the conditions produced by these patterns.

The muscles that predictably tighten reduce the ability of CrossFitters to adopt ideal postures during the deep squat, clean and jerk and other such exercises. How many times have we seen a person fighting to adopt the set position in the deadlift or trying to get in the “hole” during a squat? Common inhibition patterns can also be detrimental to midline stabilization during heavy axial loading, as well as stability around the shoulder and knee.



Table 1—Vladimir Janda’s patterns of upper and lower crossed syndrome

Typical muscle imbalances in the upper crossed syndrome		Typical muscle imbalances in the lower crossed syndrome	
Tight, facilitated	Weak, inhibited	Tight, facilitated	Weak, inhibited
Pectorals	Longus capitis & colli	Iliopsoas	Rectus abdominis
Upper trapezius	Hyoids	Rectus femoris	Gluteals
Levator scapulae	Serratus anterior	Hamstrings	Vastus medialis
Sternocleidomastoid	Rhomboids	Lumbar erectors	Vastus lateralis
Anterior scalenes	Lower & middle trapezius	Tensor fascia latae	Transversus abdominis
Suboccipitals	Posterior rotator cuff	Thigh adductors	
Subscapularis		Piriformis	
Latissimus dorsi		Quadratus lumborum	

Trainers often see horrible, awkward movements that limit performance and can't be corrected with a simple cue. Why? It can often come down to poor strength and stability levels or poor memorized motor patterns, but it can also result from short, tight, facilitated musculature. Tight muscles—such as the psoas, the rectus femoris and the ankle dorsi flexors—will wreak havoc on virtually every CrossFit lift.

The difficulties associated with upper and lower crossed syndrome go even further. This is well explained by Sherrington's law of reciprocal inhibition, which states that a "hypertonic antagonist muscle may be reflexively inhibiting their agonist. Therefore, in the presence of tight and/or short antagonistic muscles, restoring normal muscle tone and/or length must first be addressed before attempting to strengthen a weakened or inhibited muscle."

In the January 2003 issue of the *CrossFit Journal*, Coach Glassman wrote a piece on muted hip function (*A Postural Error—A Costly Biomechanical Fault: Muted Hip Function*). In his article, Coach stated that muted hip function is present in virtually all CrossFit athletes and that it can take up to three years of quality training to restore explosiveness in the posterior chain.

Access Your Power

I have noticed time and time again that when CrossFitters present with muted hip function they commonly have signs of the dreaded lower crossed syndrome. I have had amazing success resolving this issue through the restoration of muscle balance around the pelvis.

I feel that this nugget of information is so important I'm going to say it again: if you have tight hip flexors, your ability to push press, power clean and snatch will be reduced.

Muscles that have been reflexively inhibited by tight antagonists—e.g., the gluteus maximus by the iliopsoas and rectus femoris—often recover spontaneously after addressing the tightness.



Courtesy of Matt Roy

The therapist is opening up the anterior hip structures. This technique is a great way to increase the length of the psoas and iliacus, both of which inhibit the powerful posterior chain.

This theory has huge implications for what you should be doing on off days and during your warm-up and time spent on the massage table. I feel that this nugget of information is so important I'm going to say it again: if you have tight hip flexors, your ability to push press, power clean and snatch will be reduced.

The iliopsoas is one the key hip flexors and spinal stabilizers, and noted American physician Janet Travell called it the "Hidden Prankster." This single muscle can create a whole host of problems for the CrossFitter.



Courtesy of Matt Roy

Here the therapist is aiming to accentuate the stretch of the rectus femoris with emphasis on the origin of the muscle, which can be found in the area near the hip bones.

If tightness and trigger points are present in the psoas muscle, it is rarely a single muscle myofascial syndrome. In fact, the quadratus lumborum normally becomes problematic due to its synergistic relationship with the psoas pertaining to spinal stabilization. Other synergists will likely exhibit muscular faulty adoptions, such as the rectus femoris, tensor fasciae latae, pectineus and lumbar paraspinals. Note that virtually all of the above muscles that can become problematic in the presence of psoas dysfunction will further compound the issue of the lower crossed syndrome. In other words, this can seriously jeopardize your maximum snatch and deadlift.

This problem also manifests in the upper body. Commonly, the pectorals inhibit the scapular retractors that are so important, especially when you're trying to complete Isabel, JT or Josh. These WODs require amazing levels of shoulder stability and thoracic and hip mobility in addition to raw strength.



Courtesy of Matt Roy

The stretch demonstrated here will help restore the length of short and tight pectorals, thereby helping to reduce weakness of the scapula retractor muscles.

Physical therapist Shirley Sharmann suggests that athletes whose scapula are in the abducted position concomitant with upper crossed pattern will go on to suffer pain between the scapula and tenderness on the anterior and medial deltoid and have associated impingement of the rotator-cuff tendons. All this will be exacerbated with overhead activities—how many times have you heard these complaints in the local box?

The latissimus dorsi muscles are often overlooked when athletes exhibit the above signs and symptoms. It is integral to ensure that adequate length, and indeed strength, is maintained in this muscle for optimal biomechanics of the shoulder girdle, especially during overhead pressing and pull-ups.

Soft-Tissue Solutions

By implementing corrective measures now, you can achieve long-lasting relief from chronic neck, back and shoulder pain, improving the form of key CrossFit lifts at the same time.

Postural and movement harmony is achieved by utilizing assisted stretching with an emphasis on post-isometric relaxation and myofascial and golgi tendon organ release techniques. Muscle fibre activation techniques are used to create tonus, achieved through stimulation of the dynamic gamma motorneuron system. According to Dr. Erik Dalton in his article [Mobilizing Joints Through Muscle Manipulation](#), “Recent studies have confirmed a noticeable reduction in noxious neural input entering the spinal cord and brain when the postural goals are met.”

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Courtesy of Matt Roy

These soft-tissue techniques are two great ways to add functional length to the large, powerful back muscles that are prone to facilitation.

Dalton goes on to cite the 1979 work of biomechanical researcher J. Gordon Zink, who described common postural patterns in the neuromyofascial-skeletal system with the term “common compensatory patterns.” Zink concluded that stress on postural muscles can lead to chronic problems. For example, irritation of the central nervous system can be initiated by certain sensory receptors.

One particular treatment that has proven to have considerable benefits is Myoskeletal Alignment Technique, pioneered by Dr. Dalton, executive director of the [Freedom From Pain Institute](#). The idea behind Myoskeletal Alignment Technique is that back and neck pain are caused by fundamental problems with the musculoskeletal system. Tight, stressed muscles contribute to pain by limiting freedom of movement, while weak muscles provide inadequate support for the body. This in turn leads to posture problems, stiffness and other symptoms that create an endless cycle of pain.

By addressing the fundamental issues in the muscles and fascia, practitioners hope to eliminate the associated symptoms and help improve athletic performance.

Let's look at an example of the concept in practice. For those of us who have the postural traits of lower crossed syndrome, the most commonly given advice for back pain is to just stretch out the low back and hamstrings first thing in the morning. These actions, although well intended, will not greatly help your back and may well even worsen the problem in the long term.

Treating pain without improving posture is generally regarded as a quick fix and at best only a temporary solution for helping CrossFitters in need. In such cases, we should aim to improve pelvic balance and muscle tone by incorporating the techniques described above. In other words: strengthen what is weak and stretch what is tight (see Table 1 for common patterns).

Joint dysfunction creates protective muscle spasm and dysfunctional strain patterns, such as forward head postures, slumped shoulders and scoliosis. The reflexogenic relationship between muscles and joints is the foundation of Myoskeletal Alignment Technique.

So how do you go about reducing reflexively inhibited muscles, normalizing upper and lower crossed patterns *and* getting the most of your WODs? I would strongly suggest that you visit a structural massage therapist, or better still, try to find a myoskeletal trained therapist.

In a session of Myoskeletal Alignment Technique, the practitioner works to lengthen tight, strained muscles with the goal of releasing tension and allowing those muscles to function more normally. Sessions are tailored to the individual, typically combining the use of deep-tissue work with assisted stretching.

Myoskeletal Alignment Technique aims to restore muscle balance. Ideal muscle tone surrounding the joints needs to be re-established in order to provide an advantageous environment in which the soft tissues of the body can repair after the rigors of your WOD.

More Than a Massage

But can't I just see my local masseur who does standard Swedish massage? Well, not really.

When people ask how I train, I reply with "CrossFit." A common retort is that it's like boot camp or circuit training. I respond by saying, "No, it's CrossFit!" To



Courtesy of Matt Roy

Stretching the levator scapula can help improve range of motion of the neck and reduce forward head posture.



Courtesy of Matt Roy

This image shows golgi tendon organ release for the right sternocleidomastoid to help alleviate pain caused by forward head posture.

the layman, the two may look alike until he or she tries CrossFit. The same misconceptions exist when it comes to soft-tissue and structural bodywork. Swedish massage is to boot-camp-style training as myoskeletal work is to CrossFit.

If you can't find a therapist with adequate training and qualifications, I suggest that you print this article and ask the therapist to perform the techniques described in it. Specific myoskeletal protocols will aim to normalize postural deviations and range-of-motion deficits and tonify weak phasic musculature. This type of approach can help you to become a fully tuned CrossFitter who will perform better and recover quicker, while reducing your likelihood of overuse injuries.

The idea behind structural integration is that if someone's body can be aligned properly, his or her health problems can be dramatically reduced, because the body will work as a whole. The muscles and fascia will also be manipulated to release pain and to encourage

proper musculoskeletal alignment and ideal movement patterns.

I have worked closely with CrossFit affiliates both in the United States and the U.K., and my experience has proven that these techniques can really make a difference.

Rick Gutierrez of [CrossFit Weston](#) in Florida was one such athlete. Rick is also the model featured in the pictures that accompany the article.

"Myoskeletal Alignment Technique helped alleviate most of the pain almost immediately that typically hinders me during my WODs," Gutierrez said. "These methods literally put my muscles back in place, which allowed me to move more smoothly than I had in a long time.

"With continuing therapy, I am now able to recover faster after the WODs. I no longer feel tension and tightness from simply sitting around. After my positive experience working with Danny, I have had several of my clients use his methods with great success."



Courtesy of Matt Roy



Here the therapist is activating the commonly inhibited scapula retractors and gluteal musculature. Inhibition of this very important musculature will limit strength potential and decrease athletic performance.

You can put this into practice yourself. Endeavor to stretch the muscles that are tight and strengthen the muscles prone to weakness. Generally, most CrossFitters exhibit the common traits depicted in Table 1. Most of us will greatly improve our CrossFit performance by simply adding several stretches to our daily routine (focus on the muscles described as “Tight, facilitated” in Table 1).

I would also suggest seeking out the services of a suitably qualified, experienced therapist who can work with you to develop a tailored plan and correct your muscle imbalances.

In part 2 of this article I will illustrate several highly effective self-stretches and soft-tissue techniques to help with the muscular-imbalance issues highlighted here.

For more information regarding Myoskeletal Alignment Technique, please visit erikdalton.com.



About the Author

Danny Christie is a graduate sports therapist from England. He now lives and works in Miami, Fla., where he continues to attend many manual therapy seminars and trains at I Am CrossFit in Doral. Danny is an advanced myoskeletal therapist and avid student of Erik Dalton's teachings. Visit his website at dannychristie.com, or e-mail him at danny@dannychristie.com.