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Postural Alignment for the CrossFit Athlete

Daily life can create imbalances in your body. Peter A. Chamis suggests a few places you can start making alignment corrections.

By Peter A. Chamis **December 2010**

All images courtesy of Peter A. Chamis

In the design of almost any musculoskeletal fitness program, elements such as strength training, flexibility and cardiovascular activity are universal. CrossFit is no exception.

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But when implementing any exercise program, it's important to assure the body has a correct structural foundation that's balanced and aligned. If this is not the case, strength gains will potentially enhance and further develop these areas that are misaligned and structurally lacking. Therefore, as CrossFit athletes (recreational or elite) strive to improve their overall fitness levels, it's critical to break the cycle of poor posture and consider implementing postural-alignment exercises into their daily routine.

Before this can be achieved, it's important to understand how poor posture develops, what ideal posture is, and what can be done to correct misalignment.

How Poor Posture Develops

Posture can be defined as the structural alignment of the body. It can further be broken down into two categories: static posture (alignment while not moving) and dynamic posture (alignment while moving). Over the course of time, when our bodies engage in standing or moving postures that are not congruent with correct alignment, the kinetic chain can become altered, leading to poor postural-distortion patterns.

The National Academy of Sports Medicine (NASM) has defined postural-distortion patterns as predictable patterns of tissue overload and dysfunction that lead to decreased neuromuscular control, thus initiating the cumulative injury cycle (1). Essentially, this means over time our bodies have adapted to constant structural misalignment, which causes injuries such as muscle strains, spasm and imbalances. These injuries are a result of other muscles compensating for the prime movers, which leads to synergistic dominance. If these movement patterns are not corrected, the injury cycle continues with the entire kinetic chain being altered and functioning at less than optimal.

Let's use the example of a CrossFit athlete whose day job requires him to sit at a desk for eight hours. If this athlete is like most people, it will be very difficult to maintain an anatomically sound seated position for the entire day. Fatigue will most likely set in, and this athlete will assume a slouched position. As a result, the lumbar spine flexes, as opposed to maintaining its normal lordosis, and the head protracts forward, causing increased external flexion torque on the cervical column (2). Over a period of time, if this athlete does not correct this posture, a dysfunctional pattern will develop.

Using a table, box or other waist-high platform, place feet shoulder width apart. Lean forward and place your hands, palms down, on the platform. Adjust your position so that your legs and torso form a 90-degree angle. Let your head fall forward and relax your shoulders. Hold for 2 minutes. You should feel this in the hamstrings, back and shoulders, and it's great for realignment of forward-rolled shoulders.

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When this athlete goes to the local CrossFit gym to train, any fitness gains made are done so with a foundation that is structurally misaligned. This creates breakdowns in the kinetic chain through altered length-tension and force-couple relationships, as muscles are compensating to support movements that are inefficient and distorted.

Ideal Posture

Ideal posture is simply defined as posture that allows for the structural integrity and optimal alignment of each component of the kinetic chain (1). This refers to the proper length-tension relationships of the muscles as well as the force-couple relationships of the muscle groups. While this definition seems rather simple, maintaining proper posture is actually very difficult to achieve. Because of the numerous activities people engage in each day, misalignment is inevitable without conscious effort and frequent training.

Nevertheless, the goal is to obtain as close to ideal posture as possible, and understanding what that entails helps this goal become a reality. Table 1 at the right summarizes ideal posture.

Table 1: Ideal Posture

Structure	Ideal Posture
Head	Neutral, neither forward nor backward
Cervical Spine	Normal curve, convex to anterior
Shoulders	Level, not elevated or depressed
Scapulae	Flat against upper back
Thoracic Spine	Normal curve, convex to posterior
Lumbar Spine	Normal curve, convex to anterior
Pelvis	Neutral, no anterior/posterior tilt
Hip Joints	Neutral, neither fixed or extended
Lower Extremities	Straight
Feet	Parallel

You can also use resistance bands for this stretch if a box or platform is not available.

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On the floor, place one leg on top of a box or other platform to create a 90-degree angle. With your ground leg, point your toes to the ceiling and stretch the leg so your torso is in line with your hips. Keep bottom close to platform and arms straight out with palms up. Relax. Gravity will stretch and align the groin and hips while the back and shoulders assume an anatomically aligned position. Do this for 5 minutes per side.

How to Achieve Ideal Posture

Just as it takes quite some time for our bodies to develop poor movement patterns and become structurally misaligned, the same is true for correcting these issues. Slow, gradual steps must be made to achieve optimal posture, always keeping in mind that perfect posture is often unattainable as people age, get injured, etc. That being said, Dr. Paul D'Arezzo, an expert in the field of postural alignment, has designed a series of exercises that can be used to correct misalignment. Dr. D'Arezzo has broken down these techniques into three distinct groups: stretching exercises, strengthening exercises and gravity exercises (3).

Stretching and strengthening exercises are fairly common to anyone involved in CrossFit, and the same exercises are used in Dr. D'Arezzo's program. The one caveat is that each stretching and strengthening exercise is to be completed with excellent static and dynamic posture so the body can adapt to correct patterns as opposed to incorrect ones. To perform this successfully, the athlete must be conscious of his/her posture and strive to maintain the ideal posture outlined earlier during each movement. The goal is to retrain the body to perform movements anatomically correctly so that postural-distortion patterns can be eliminated and gains in strength and flexibility can occur on a proper foundation.

The last technique Dr. D'Arezzo recommends for postural alignment training is the use of gravity exercises. These are typically less common knowledge for the average CrossFit enthusiast. However, they are simple to learn and use gravity to restore correct alignment. Pages 2 and 4 show illustrations and explanations of two very simple gravity stretches that use the body weight of an individual to achieve alignment.

Conscious Living

In addition to stretching, strengthening and gravity exercises, simply being conscious of your posture throughout the day can lead to improvements. For example, if seated in a chair, strive to maintain a posture where the lumbar spine is in normal lordosis with the chin in. This assures your body weight is distributed equally from the head through the spine. If standing, maintain symmetry with the right and left side of your body while aligning the shoulders, hips, knees, ankles and feet on top of one another.

By being aware of your posture throughout the day and performing basic corrective exercises in addition to the standard workouts of the day, correct structural alignment can be accomplished and a foundation for future training achieved.

This is only a brief introduction to correcting alignment. For more information, please see the list below.

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Additional Resources

The Egoscue Method of Health Through Motion
by Pete Egoscue

MobilityWOD by Kelly Starrett

Three Popular Corrective Exercises by Justin Price

Perfect Posture by Vern Gambetta

Eric Beard's Corrective Exercise and Success Blog
by Eric Beard

Footnotes and Sources

1. Clark M, Russell A. *Postural considerations*. National Academy of Sports Medicine, 2007. pp 4-7, 23.
2. Neumann DA. Kinesiology of the musculoskeletal system. *Foundations for Physical Rehabilitation*. Mosby, 2002. pp. 301-303.
3. D'Arezzo P. *Posture Alignment: The Missing Link in Health and Fitness*. Marcellina Mountain Press, 2003. pp. 9-11, 43, 47.
4. Sarhmann S. *Posture and Muscle Imbalance: Faulty Lumbo-Pelvic Alignment and Associated Musculoskeletal Pain Syndromes*. Orthopedic Division of the Canadian Physiotherapy Association 12: 13-20, 1992.

About the Author

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