

The Cross-Fitness Craze

ULTRA-FITNESS BREAKTHROUGH OR MEGA-INJURY NIGHTMARE?

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If you have not yet been introduced to the new fitness phenomenon known as "cross-fitness training" (not to be confused with cross-training), you are one of only a few in the world of physical culture who have not. This trend is sweeping across the globe and revolutionizing the way we look at fitness. Cross-fitness is a counterculture movement that departs from the current entrenched fitness training model based mainly on power-lifting, body-building, and running conventions and lore. Cross-fitness shifts to a more diverse form of athleticism. Leading this change are several organizations, [kettlebell promoters](#), sandbag fitness programs, cross-fitness videos and fitness boot camps. One cross-fitness organization has chapters worldwide and has become particularly popular with military service members.

Contrasting Methodologies

In the mainstream fitness world of body-builders, trainers, gyms, runners, and fitness magazines, there is an orthodoxy that prevails. This orthodox standard promotes static stretching, strength training based on muscle isolation, and aerobic fitness based on running, biking or walking slowly for 40 minutes, three to four times per week. Unquestionably, our mainstream fitness culture has been hijacked by the body-building training philosophy of muscle isolation, sets and repetitions.

Muscle isolation is when natural complex functional motion patterns are replaced by attempts to exercise individual muscles. Examples of isolated exercises include preacher curls, triceps extensions, leg extensions, leg curls, calf raises and lateral shoulder raises. The fitness industry for the most part has also bought into the concept of sets and reps for training isolated muscle groups.

This dominant fitness methodology stands in contrast to the current groundswell towards cross-fitness. In truth, we cannot train our muscles with isolated movements and then expect to have them respond synergistically with other muscles when athleticism is required.

[McGill and Santana](#)¹ demonstrated that a static horizontal exercise such as a bench press does not necessarily translate to increased power and performance in an upright athletic stance. Their research concluded that the limiting factor in power output in a standing one-arm cable press was the activation and neuromuscular coordination of torso muscles, not maximal muscle activation of the chest and shoulder muscles. This type of knowledge has led to a resurgence of training that emphasizes functional movements, such as Olympic lifting, gymnastics and kettlebell programs.

Cross-fitness uses compound exercises such as pull-ups, power cleans, plyometrics, agility drills, calisthenics, gymnastic training, medicine ball drills and even tractor tire flipping, to train muscles to work in composite, synchronized motor patterns. Compound exercises are used to emphasize functional movements and are intended to create coordinated athletic patterns of strength, agility and

stamina. The workouts are designed to constantly challenge fitness with varying exercises, patterns of rest and resistance.

Maintaining Physiological Turbulence

The only routine in cross-fitness training is the lack of routine. The goal of most, if not all physical training programs is to increase fitness. This is done through progressive exercise programs that provoke adaptation of the individual's physiology. In orthodox programs, this adaptation is a slow progression through a routine of exercises. In the cross-fitness movement, gains are made by never performing the same workout twice in a row. Physiological confusion and turbulence ensure that the body never fully adapts to an exercise program - resulting, in theory, in increasing levels of fitness.

An Example "Workout of the Day" for Three Days

Day 1

For time: 1 mile run, 100 pull-ups, 200 push-ups, 300 squats, 1 mile run

Day 2

With a continuously running clock, do one 135-pound clean and jerk the first minute, two 135-pound clean and jerks the second minute, three 135-pound clean and jerks the third minute, and so on, continuing the progression as far as possible.

Day 3

Complete four rounds for time: 400-meter run, 15 handstand push-ups, 15ft. rope climb (two ascents)

Source: Crossfit.com, reproduced with permission.

Potential Concerns

With all of the benefits from cross-fitness training, what is the downside? As heard often in physical training, "This exercise is perfectly safe if you use proper technique. However, if improperly performed injury may occur." In cross-fitness culture, improper technique is the problem; in fact, it is rampant. When I observe cross-fitness devotees at the four gyms that I frequent (don't ask why I go to four gyms), I rarely see proper form by the trainers, let alone the layperson. Even when someone does understand the fundamentals of proper form, their form often degrades with exercise-induced fatigue.

For example, when performing sets of timed 50 kettlebell squats, it is common to see fatigue-induced degradation of proper form. The participants' gluteal muscles fatigue so they begin using any means to perform the exercise, including curling the spine in a manner that is potentially injurious to the lumbar disc.

If most cross-fitness devotees are receiving their instruction from an online video clip, it is unlikely they are receiving adequate instruction in proper form. To properly perform these exercises requires knowledgeable coaching, and there are not enough knowledgeable coaches right now to cover all of the groups performing this type of exercise program. We know how hard it is to train one person to perform a proper squat, or even the proper way to rise from a chair. How can we expect tens of thousands to learn form from online video instruction?

A more serious complication of performing any exercise program with too much rigor or without an adequate fitness base is rhabdomyolysis: [the rapid breakdown of skeletal muscle](#) resulting in the release of intracellular material into the plasma. The intracellular material is filtered by the kidneys, resulting in renal damage and, in some cases, death. While rare, exertion-induced rhabdomyolysis has

been linked through the popular press to the cross-fitness trend. [Statin drugs](#) have also been attributed to onset of rhabdomyolysis, and the combination of overexertion and statin use has been linked to cases of rhabdomyolysis. It may be wise for patients taking statins to abstain from rigorous exercise such as cross-fitness programs.

Our Role as Chiropractors

In addition to treating the injuries incurred while performing cross-fitness programs, we should be well-versed in preventing injuries through teaching proper body mechanics. Future articles on this topic will address concepts of form and function for performing compound exercises and specific areas of focus for use of our manual skills, and also address the role of the core stabilizers in athleticism and exercise, the importance of the gluteal muscles, spinal mechanics, the mechanics of the shoulder in compound exercises.

Reference

1. Santana JC, Vera-Garcia FJ; McGill Stuart M. [A kinetic and electromyographic comparison of the standing cable press and bench press.](#) *Journal of Strength and Conditioning Research*, 2007;21(4):1271-7.

The views expressed in this article are those of the authors and do not necessarily reflect the official policy or position of the Department of the Navy, Department of Defense or the U.S. Government. This is the first in a series of articles addressing cross-fitness.

SEPTEMBER 2009