

Though coaches usually separate their strength training and conditioning programs, during the course of competition, many athletes will be required to integrate their muscular strength and cardiovascular or aerobic conditioning.

The athlete's metabolic system is, unfortunately, rarely addressed. Though it essentially combines both strength training and aerobic conditioning, it may be improved simply by strength training with very little rest between exercises.

Performed in this fashion, the exercise of the muscular and cardiovascular systems will create a metabolic conditioning effect that cannot be approached by the traditional methods of training.

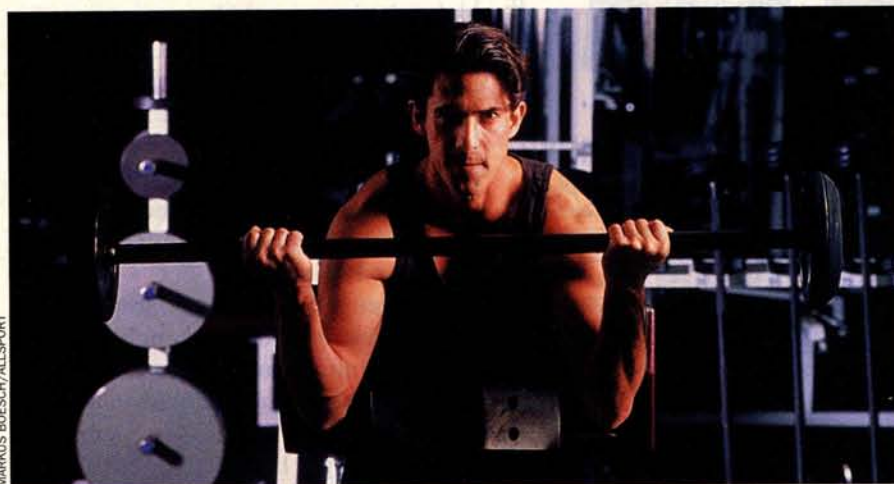
ENTER THE "3X3"

Last June, I had brunch with John "JT" Thomas, the Penn State strength coach. Our conversation drifted to the toughest exercises we had ever seen or done.

JT chose a workout that he had done several years ago as an assistant strength coach at the U.S. Military Academy. Bob Rogucki, his head coach at the time (he currently coaches the Arizona Cardinals), referred to it as a "3x3", and it required an astonishing amount of metabolic conditioning.

At roughly the same time, oddly enough, one of my colleagues, Tony Alexander, was going through a version of the "3x3", as follows:

EXERCISE	WEIGHT	REPS
Leg Press	450	16
Dip	BW+25	10
Chin	BW+25	8
Leg Press	450	8
Dip	BW+10	8
Chin	BW+10	5
Leg Press	225	8
Dip	BW	4
Chin	BW	4



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Metabolic Conditioning with "The 3x3 Workout"

The workout may "kill" you but it is time-efficient... and it works!

After doing this "3x3", Tony collapsed into a chair numb from neck to calves. One hour later, his heart rate was still 100 beats per minute (bpm). Note: His normal resting heart was about 60 bpm.

Notice that Tony used exceptionally heavy weights during this workout. For example, at a bodyweight of about 230 pounds, he performed his first set of reps and chins with an extra 25 pounds of resistance.

The herculean workload placed upon both his muscular and aerobic systems simultaneously translates into a tremendous metabolic conditioning effect.

"3X3" DESIGN

The sample routine shown above is just one of many possible versions

of a "3x3" workout. The workout can actually be modified in countless ways, but the athlete must perform every set to muscle failure.

It's also important for the athlete to move quickly between exercises with as little rest as possible. The length of the recovery between exercises will depend upon the athlete's present level of metabolic conditioning.

A "3x3" workout is basically a multiple-joint hip movement followed by a multiple-joint chest movement followed by a multiple-joint upper back movement and repeated two more times with as little rest between exercises as possible.

The use of these three movements will address every major muscle in the body including the hips, quadriceps, hamstrings, chest, upper back, shoulders, biceps, triceps, and forearms.

The most demanding exercises

by Matt Brzycki, Strength Coach, Princeton University



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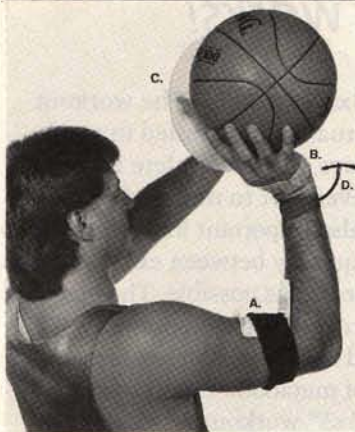
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TRAINING CONTINUED

for the hips would be some type of squat, deadlift (with an Olympic bar or a trap bar) or leg press. Though dips and chins represent the most challenging selections for the chest and upper back, certain athletes (because of their bodyweight) will be forced to perform them in a negative-only fashion.

Three other exercise options for the chest include the bench press, incline press, and pushups. Any type of pulling movement—such as lat pulldowns or rows—are suitable for the upper back.

The first time through the movements, the athlete should reach muscle failure at about 20 reps for the hip exercise, 12 for the chest exercise, and 12 for the upper back exercise.

When the sequence is repeated the second time, the repetition goals would be 15 for the hip exercise, 10 for the chest exercise, and 10 for the upper back exercise.

The third time through the movements will call for goals of 12 for the hip exercise, 8 for the chest exercise, and 8 for the upper back exercises.

In summary, the repetition goals for these movements should be 20, 15, and 12 for the hip exercise and 12, 10, and 8 for the chest and upper back exercises.

ANOTHER APPLICATION

I tried a "3x3" workout similar to the above on June 7. Though I may have done more demanding workouts at one time or another, this one ranked right up there with the most challenging.

From a muscle fatigue standpoint, the "3x3" workout was brutally effective. Though I had experienced far greater muscular soreness from numerous workouts, I had never experienced a workout that compared to this one as far as the high level of metabolic stress was concerned.

First, let me say this about the muscle fatigue from this workout: I didn't

use wrist straps for chins (in order to save time). For more than 5 minutes following the workout, my forearms were engorged with so much blood that it felt like they would explode.

I couldn't even close my hand to make a fist.

The fatigue in my biceps and triceps was also very evident almost immediately after the workout.

The next area I noticed was my hips and legs. After about 3 hours, my upper back started to tighten up. About 4 hours, I could feel my abs start to stiffen, while my upper back was getting more numb by the hour.

Oddly enough, I had very little muscle soreness the next day.

Getting back to the metabolic stress: From the standpoint of total systemic fatigue—that is, my muscles, heart, lungs and so on—a "3x3" workout was incredibly demanding. After the first set of leg presses, I was already inhaling and exhaling as though I had just sprinted a quarter-mile. My lungs were on fire and I was gasping for air.

After performing my dips, I went right into chins, only pausing long enough to change the weight I used that was around my waist. Needless to say, the second and third times around were progressively more difficult.

It took me only 20 minutes to perform this particular "3x3" workout...and I was panting the entire time. When I finished my last exercise (the third set of chins), my heart was pounding like crazy and my pulse was 150 bpm. As I was taking my pulse, my hand and fingers started to cramp from simply pressing on my carotid artery.

In short, a "3x3" workout places an incredible demand upon every major muscle in the body and, at the same time, stresses the cardiovascular pathways. It thus can be used to improve an athlete's metabolic conditioning in a time-efficient manner.

COACH & ATHLETIC DIRECTOR