

Is it Time to Rethink Your Strength Routine?

Triathletes, as a general rule, don't seem to mind spending time in the gym. Runners on the other hand, not so much. In fact, in the running world there is a hot debate (and to a lesser extent this debate exists in the triathlon world) over whether you should spend time in the gym at all. Critics of strength training argue that the Kenyans don't lift weights and they are pretty decent runners. Advocates of strength training counter by saying, it is true the Kenyans don't lift weights, but they run thousands of miles on hills, and that is strength training. So what should you do?

Well, first of all, we don't live where Kenyans live or live like Kenyans live. It is not an option for us to run three times a day at altitude in hilly and mountainous terrain on uneven dirt roads. So our strength training has to come from somewhere else.

We simply can't get all of our strength training from running (or swimming and biking) alone. Besides our environmental constraints, we have time constraints. As age group triathletes we can swim, bike and run only 3-4 times per week. This is simply not enough time at the sport to develop significant strength. Strength must be augmented by gym work. The question is, what should I do in the gym?

Scientific studies have shown pretty dramatic increases in athletic performance through the use of both maximal effort lifting and explosive exercises. Researchers found combining the two types of exercises to be particularly effective in improving times in all sorts of sports, not just swimming, biking and running.

However, most triathlon strength routines don't use either of these methods. A typical strength routine involves 5-10 different exercises consisting of up to 3 sets of ten repetitions per exercise. Generally, rest between the sets and exercises are minimal. While typical, this routine is neither maximal nor explosive. Hence the results are typically nonexistent (by results I mean improvement in swim, bike and running times. I don't really care if you can lift more weight). Basically this type of strength training ends up being a waste of time. In this case, the critics of strength training are correct.

Instead of the typical routine, I suggest the use of maximal weight training and explosive strength exercises. I will describe both of them in this article.

Maximal Training

When you mention maximal weight training to endurance athletes, it does not jump right out to them how lifting heavy weights, slowly, for just a few repetitions will make them faster. It seems quite counter intuitive. However, not all is what it seems. Maximal Weight training teaches the body to recruit all available fibers for a short period of time. In scientific studies, maximal weight training has been shown to improve economy, max speed, speed at VO2 max, and overall performance for endurance athletes. (*"Maximal Strength Training Improves Aerobic Endurance Performance," Scandinavian Journal of Medicine & Science in Sports, Vol. 12, pp. 288-295, 2002, "Maximal Strength Training Improves Work Economy in Trained Female Cross-Country Skiers," Medicine & Science in Sports & Exercise, Vol. 31(6), pp. 870-877, 1999*)

Maximal Weight training is based on the concept of 1RM (one rep max). This is basically the most weight you can move for that exercise one time. Pretty simple. You will do variations off that number. For example, you might do a set of 5 reps at 85% 1RM or 3 reps of 90% 1RM. The rules for maximal weight training are pretty simple: 1) never do less than 85% of your 1RM; 2) never do more than 5 reps per set; 3) never do more than 10 total reps per session; and 4) completely rest for 5 minutes between each set.

The exercises I typically use for maximal weight training are the dead lift and the squat (standing with your weight on the ball of the foot, not your heels). These exercises are complex which stimulates the use of your whole body while also mimicking the demands of running and cycling.

The hardest part about performing the maximal strength routine is completely resting for 5 minutes between each set. It will drive you crazy. However, the reason for this is the type of energy system we employ on these efforts of less than 10 seconds. We get our energy from the phosphagen cycle. This cycle only has enough energy for 10 seconds of work, but can recycle itself in 5 minutes. It is kind of like a battery that discharges and recharges. But unlike the ATP cycle which kicks in after 10 seconds, there is no release of lactate acid or hydrogen ions which are the culprits that produce muscle soreness. So, if you keep your sets under 10 seconds and rest 5 full minutes, you do not get sore from this type of routine, even though you are lifting much more than normal. This allows you to continue to train as normal.

The other interesting thing to note about this type of training is that if the above rules are followed, you will not build bulk, only strength. Without going into too much detail, your muscles are not stimulated to grow bigger, only stronger, if you keep the repetitions less than 5 per set and 10 total per session.

Explosive Training

Explosive training consists of body weight exercises that minimize ground contact time and maximize height. Typical exercises include jumping rope, short sprints, hops, jumps, box jumps, hurdles, bounding etc.....Adding these types of exercises into your strength routine have been shown to decrease ground contact time when running, improve running economy, maximal speed and 5k times. (*Explosive Strength Training Improves 5-Km Running Time by Improving Running Economy and Muscle Power,* *Journal of Applied Physiology, Vol. 86 (5), pp. 1527-1533, 1999*). Explosive exercises train your body to quickly recruit muscle fibers and to "fire" them fast. Clearly these types of exercise need to be included into your overall routine.

Typically you can add 5-6 different types of explosive exercises, starting with one set of 5-10 reps. Take a day off and see how the legs feel. Slowly add sets and repetitions until you are performing 3 sets of 20 reps, for a total of about 300 reps. Rest 30 seconds between sets and 1 minute between exercises.

The key to remember when performing these types of exercises is to try and 1) maximize height and distance of jumps, while at the same time 2) minimizing ground contact time. As soon as your feet hit the ground, you want to explode back up into the air as high and far as you can.

Combine the Two Types of Exercises

Some evidence exists that while maximal weight training and explosive exercise training alone improve athletic performance, combining the two one after the other produces even better results. For example, you may want to perform your dead lifts (2 reps at 95% 1RM, for example) then immediately do a set of box jumps of up to 20 reps, then take your 5 minute rest and repeat the set.

Injury

Of course, most triathletes look at these routines and think, "That is a great way to get injured." In fact it is a great way to become injury proof. You are making your body much stronger and teaching it to handle quite explosive movements and enhancing your muscles' abilities to handle high, sudden force loads. However, as with everything new, go slow. If you have not been training this way, give yourself plenty of to acclimate to the new routine. Use light weights and/or just a few repetitions, but concentrate on excellent form. Do not sacrifice form at any time. Perform the maximal strength work 3 times a week; the same for explosive exercises. Give yourself 4-6 weeks to slowly work into the routine.