



# Endurance Sports Training

## Strength and Power Training for Endurance Athletes

By Ben Wisbey

It is a common belief that endurance athletes don't require strength training in order to perform well. Although this may be the case for many talented individuals, the truth is that appropriate strength training can help improve every endurance athlete's performance.

One recent study, which is soon to be published in the US, concluded that 10-km running performance could be predicted from a combination of 300m time trial performance and plyometric leap distance; both of which have explosive power as a determining aspect. Another study done by highly regarded researchers in Finland several years ago showed that 5-km run time could be significantly improved by supplementing run training with explosive power and speed sessions. The full article can be found on the web at <http://jap.physiology.org/cgi/content/full/86/5/1527>

The benefits of strength training for some endurance sports such as cycling and swimming have long been evident, and these single sport athletes now carry out regular strength training programs.

So why is it that most runners and triathletes steer clear of strength training? Is it due to lack of time? Is it because they believe that endurance athletes don't require strength? Or is it simply because of the age-old myth that strength training equals weight training and weight training means getting big, bulky and muscular?

Well, no matter what the reason for this phobia of strength training, the fact is that strength and power training done in the right fashion can and will help improve triathlon and running performance. It will not lead to the athlete 'bulking up' and in many cases time spent working on strength and power can be just as valuable as time spent running, cycling or swimming. Not only do long distance events such as the Ironman or a marathon require a great deal of strength to perform well, but explosive power training is ideal for athletes competing over all distances; from sprint to Ironman; 800m to the marathon.

So what are the reasons behind the performance improvements from this type of training? There are many reasons why strength and power training benefits your endurance performance, many of these factors are well known and accepted while others are still being investigated.

Obviously strength training helps build strength, which helps minimise the chance of injury, improves resistance to fatigue and improves strength endurance. These aspects

are crucial in all endurance events, especially those that are long in nature. The ability to resist fatigue can allow you to hold a set pace for longer or too increase speed over a given distance. The research highlighting the benefits of strength training to those athletes competing in endurance sports is endless.

However, the concept of explosive power improving endurance performance is a relatively new one and one that is still not well understood. For runners, explosive power developed primarily through plyometric exercises (jumps) and sprints, can help reduce ground contact time. With each stride that you make during running, the foot comes in contact with the ground. During this foot strike braking forces are applied (something that occurs in even the best distance runners). The tendons and muscles of the lower leg absorb the force from the impact. The energy is then stored in the tendons and muscles until the pushoff phase of the stride, where the muscle contracts and the tendons shorten. The stored energy is then used in conjunction with the muscular contraction to push the body forward during the next stride. In order to get the optimal usage of this stored energy, the delay between the absorption and release needs to be just right. In most athletes, especially endurance athletes, this time period is far longer than desired and thus a lot of the stored energy is lost before it can be released as productive energy to move the body forward.

So, imagine now that the absorption and release of this energy could be a lot more efficient by reducing the time lag between these phases. There would then be a shorter period of time spent on the ground and a greater amount of energy driving the body forward.

Hopefully, by now I have convinced you that strength and power training is a crucial element of any triathlon and running program. So what sort of exercises and training sessions can help you achieve both strength improvements and improved explosive power? Well many of these exercises (along with stretching and core stability exercises) will be added to the Endurance Sports Training website on the 20<sup>th</sup> of this month. The address for these exercises will be [www.endurancetraining.com.au/exercises.html](http://www.endurancetraining.com.au/exercises.html)

There are several important things that need to be remembered when training for strength and power. They are:

- strength training should be gradually introduced into the training program, and should not cause excess muscular soreness or detract from key weekly sessions
- strength sessions need only last for 20-30 minutes, and should include 2-3 sets of each exercise with each set comprising of 15-20 reps
- power sessions should only ever be started after a sound strength base has been developed. Power training can be very stressful and should therefore be used cautiously. A great method of starting explosive power training is do short bout of skipping, allowing the body to learn to absorb force without placing too much stress upon the body.
- Power sessions can be completed either in conjunction with a strength or speed session. For example, explosive power sessions can be completed at an oval, with plyometric exercises being used in conjunction with sprint work to help you learn to use your explosive power while running
- strength sessions are also a great method of completing a high intensity session without causing extra impact on the body

Strength and power training can be extremely beneficial to all runners and triathletes when the correct exercises are used in the correct manner. The form of strength and power training used to develop improvements in endurance performance are not the same as many team sport athletes or strength athletes use; it is a very specialised area that is yet to be used to its full potential.

Any strength training benefits can take up to 2 months of consistent training to show through so be sure to give all training time to take effect and don't give up on it early.

These forms of training can a great way to supplement your regular training in order to get performance improvements over all distances of running and triathlon.

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