

# **S – t – r – e – t – c – h – i – n – g**

**Peter Sandery Level IV ATFCA Coach**

To stretch or not to stretch? Runners often receive conflicting advice that doesn't help to answer this question. Some recent research studies indicate that the real issues are when to stretch a group of muscles, and what type of stretching to do to gain benefits from that action. There is no clear evidence that stretching improves running performance. It may have other benefits, but there may also be negative outcomes.

The contractile and connective tissue of a muscle has built in mechanisms that serve to monitor the state of that muscle as it performs its function of moving the skeleton and hence protect it from damage from motion outside safe limits. Within muscles there are structures that sense how far a group of fibres has been stretched and act to minimise the chance of over stretching and hence tearing of the muscle. A stretch reflex acts to contract the muscle if it is stretched near its limit. When a muscle contracts after being stretched in normal use, there is an elastic response that adds to the force generated by the contractile tissue of the muscle fibres. If a runner does extended, heavy stretching of muscle groups prior to a race, it is likely that the force that those muscles will subsequently be able to generate will be lowered. Over stretching a rubber band lowers its subsequent elasticity and the outcome with muscles is similar. Short periods of light static stretching may be done, but there is no reliable research evidence that this improves performance.

A general rule is never to stretch muscles unless you have done a warm up routine first. If you do carry out static stretching it should also be done with the stretch intensity increased slowly so that the stretch is applied to a relaxed muscle. If this is not done, the stretch reflex acts to contract the muscle, acting against the stretch. Stretching a newly injured muscle is not a good idea. The muscle tissue is already damaged and probably swollen and you are likely to do further damage.

If you want to prepare muscles for a race (after warming up), a good way of doing this is to put those muscles through similar ranges of motion and actions that the race will require so that the muscles are stretched while executing a similar neuro-muscular pattern to that of the race. Dynamic stretching exercises include high knee lift jogging, high heel lifts, etc. What you do prior to a race should prepare you for what is to follow and there is nothing static about a race.

Light static stretching after a race may have beneficial effects provided that care is taken not to over stretch. After a demanding race, muscles will be fatigued, there will be some damage to muscle fibres and the normal internal sensing mechanisms will not be functioning as well as when you are fresh. Unless you are careful, you could tear muscle tissue. Research done on chickens showed that passive stretching of muscle tissue after exercise stimulated the movement of amino acids into muscles and hence contributed to protein reconstruction in muscle cells. Flapping your arms while stretching is not required. Static stretching after a race or training session also provides a mental and physical transition to more passive activities. If you do stretch a group of muscles, do so using a technique that does not place strain elsewhere such as on the back.

If you want to use a stretching program to maintain or increase flexibility, make that program one of your regular activities rather than doing it before or after running training. As for running, flexibility involves movement and you should train the movement rather than just one group of muscles. Warm up first and then carry out a structured and graded program of stretching incorporating groups of opposing muscles that power a range of movements.