Strength Training for Race Walkers by Julian Hopkins (Former Nat Event Coach)

Without doubt one of the most controversial issues in the training of endurance with both runners and race walkers is the use of strength training. Some athletes make considerable use of it whilst others have never even thought of incorporating it into their preparation. It is probably true to say that coaches in these events are just as divided in their opinions. I happen to believe that strength training does have a part to play in the conditioning of race walkers and in this article, I would like to explain my point of view. As strength training is a little more complicated than might be thought at first, I will need to spend some time explaining the background to the various strength training methods.

Firstly it is essential to distinguish between general conditioning and specific conditioning for an event. For example, let us consider a high jumper. For him general conditioning will consist of running training to increase endurance (but only to a limited extent) and speed. Specific conditioning will include jumping techniques work, mobility work with hopping, bounding and weight training for the leg muscles. Now, in the case of a race walker, the situation is essentially reversed. For him, walking to improve endurance and speed represent specific conditioning. General conditioning will consist of strength training and mobility work. In other words, general conditioning should be thought of as providing a solid base of all round fitness upon which specific fitness for the event can be built. It is like improving the quality of a cake by putting in ingredients of a higher quality. A better general condition allows a walker to train more intensively at a later stage without breaking down. It also guards against over-specialisation and the injuries which can result from this.

So we can think of race walkers needing general strength training for the muscle groups not heavily stressed by his event and specific strength training for those groups heavily involved. This means one type of training for the upper body muscles and another type for the leg muscles.

All forms of strength training require muscles to work against a greater resistance than they usually encounter in everyday life. As the muscles grow stronger, the resistance has to be increased (Hence the descriptive name' progressive resistance exercise') so that the muscles are forced to work harder than previously. But there is a little more to it than this. Some events require great strength (usually called Absolute or Gross strength) which is usually associated with considerable body bulk. Hammer, Shot and Discus are the obvious examples here. However great strength even in these events is not enough for the movements must be fast and explosive. So a combination of speed and strength must be developed in the muscles. This is called Fast (or Elastic) strength. It is of great importance also to jumpers, hurdlers and sprinters. Bounding and hopping as well as weight training with fast explosive lifting are used to improve Fast Strength. The third area of strength is where it comes up against endurance. This is the ability of muscles to go on producing strong movements despite increasing fatigue. This is called Strength (or Muscular Endurance and is the type of strength which race walkers; and other endurance athletes require. Very heavy loads can only be moved a few times so they are not necessary for the development of strength endurance. Instead loads which allow more than about twenty repetitions are required. The fatigue in the muscles used must become very high so that the athlete must do so many repetitions in each set that it requires a lot of will power to complete the last few repetitions. Even so, it is necessary to keep a sense of proportion on this type of strength training can become tedious. A maximum of about thirty repetitions would seem to be correct in most cases.

For the general strength training needed by the upper body, the body's own weight can be used to good effect in this first instance. A very large number of exercises suggest

themselves — press ups, chins, dips, sit-ups, chinmies (sit-ups with hands clasped behind the head done with a twist so that the elbow meets the knee of the alternate leg which is raised simultaneously) jack-knifes (simultaneous sit up and leg raise) dorsal raises (front lying, extended arms and legs raised together), back hyperextensions (back lying, back arched up off floor), inverted cycling (with back on floor or raised), squat thrusts etc. Exercises like these represent excellent upper body strength training for most race walkers.

Strength endurance training sessions can be arranged in several ways. One of them is called Stage Training. Firstly, you find the maximum number of repetitions you can do of a particular exercise without stopping. You find one third of that number and it becomes the number of repetitions in one set of that exercise. In training you do three (or more) sets of the exercise with 30-45 seconds recovery between sets. For example, if you can do a maximum of 45 press ups, you will do three sets of 15 with say, 30 seconds between sets. Then you move on to another exercise and repeat the procedure taking care to vary the exercises in such a way that the same muscle groups are not used in consecutive exercises. A complete session might involve five or six different exercises and will not consume a lot of time; The second method is well known circuit training. This time you find half of your maximum for a particular exercise. You complete the required number of repetitions but then move on to another exercise immediately. Six or so exercises can make up the circuit which will be completed 3-4 times as rapidly as possible. It is essential that exercises are chosen to work different muscle groups in turn, e.g. press—ups, sit—ups, dorsal raises, dips, jack-knifes, and back hyperextensions could make up a circuit. In both these training systems, maximum resting must be carried out at regular intervals so that training loads are increased in line with improved levels of strength endurance.

Some athletes are concerned that strength training for the upper body will add unwanted bulk. Several points need to be made with regard to this. Firstly, if the strength training is carried out as outlined above, the overload is not high and the degree of muscle growth (hypertrophy) will not be very noticeable. Indeed, most performers in endurance events are not endowed with a large number of muscle fibres to develop anyway. Secondly, in race walking the body is raised very little on each stride (unlike running). Consequently, it is possible to be quite muscular in the upper body without this being a handicap. Some of the world's best race walkers have been quite muscular and they contrast strongly with the top distance runners with their light upper bodies.

Now I would like to consider the strength training needed for the leg muscles. As mentioned above, this training must be specific for these muscles need to be highly trained to meet the precise demands of the event. By specific I mean that the muscle movements used in this strengthening exercises must closely follow the actual muscle action of the event itself. They must also be carried out at about the same rate. Weight resisted exercises can be devised which fit the bill fairly well (heel raises, knee extensions, straight leg hip extensions) but I think that actually race walking against a resistance would be far more specific and hence beneficial. The extra resistance is probably best supplied by walking fast uphill. The hill must be steep enough, to make walking fast up it very demanding but not too steep as to drastically alter the normal technique. The hills used could be anything from 200 to 800 metres in length. When repetitions are done it is important that the recovery periods are sufficiently long to allow each repetition to be carried out at a high intensity. If this condition not satisfied, the desired training effect will not be obtained, before attempting a session of this kind, the walker should have built up a high level of fitness through general endurance training. So this type of training is best carried out towards the end of the build-up period. Other forms of resisted walking include walking into a strong wind (not always easy to arrange), walking in a weighted jacket (possibly uphill) and walking against the resistance of a training partner. In the latter, the walker wears a simple harness around his waist to which is attached a loop of rope. The partner pulls on the rope and provides

enough resistance to make the walker work very hard to maintain a moderate speed but not so hard as to cause a considerable change in technique. Similar to the uphill walking, the walker has to drive much harder with his legs (and arms to counterbalance) and this is where the strengthening overload comes in. Clearly, there is room for experimentation here for this is an area of training which has been a little neglected to date.