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CAUSE AND PREVENTION OF THE ACHILLES PERITENDONITIS

IN MIDDLE AND LONG DISTANCE RUNNERS

The treatment of established chronic Achilles peritendonitis is uniformly unsatisfactory and despite more or less exaggerated claims by various practitioners there does not yet seem to be any definitive treatment available for this more recalcitrant condition. It should therefore be regarded as one to which the adage "prevention is better than cure" is particularly appropriate.

In Great Britain chronic Achilles peritendonitis is especially common among middle and long distance track athletes and the careers of some of our most promising runners have been brought to a premature conclusion by its development.

A study of the history in these cases gives a clue to the aetiology of the condition, and the application of biomechanical principles suggests a means of prevention. Any claim that the technique to be described has been responsible for the non-appearance of this condition is its practitioners and must of course be treated with circumspection, since such a claim is very much "post hoc ergo propter hoc". Nevertheless the practice of this technique, simple as it is, seems both on a priori grounds as well as those of experience to be soundly based.

While a number of cases of Achilles peritendonitis in athletes progress relentlessly from the initial onset of the acute phase, most appear to start as a series of intermittent acute episodes which keep recurring and finally become chronic and constant.

It is almost a rule that the first attack(s) occur in the Spring, and those that do not are invariably associated with some alteration of the normal training pattern. Further study of these cases indicates that the initial attack is associated with the resumption of track running towards the end of the cross-country and road running season. Occasionally onset is earlier and this appears to be associated with running on frozen ground after one of the sudden sharp frosts experienced in Great Britain in February and March.

The Techniques of cross-country and road running are significantly different from middle and long distance (but not very long distance) track running. In the former, the athlete grounds the heel first at the start of each stride, his body weight then comes over the forefoot and he begins to drive through the toes. In the second type of running, however, especially when spikes are worn, the athlete by contrast grounds the

toes first, dips the heel as the weight comes over and then drives as before.

The significance of this difference in the present context may now be apparent. In heel and toe running the triceps surae (gastrocnemius, soleus and plantaris) contracts powerfully once only in each stride, plantar flexing the ankle joint during the drive phase. In forefoot running, however, it must contract twice during each stride, first of all excentrically as the forefoot landing is cushioned and the heel is lowered and then during the drive phase as in heel and toe running.

Now it is well known that one of the most important predisposing causes to any form of peritendonitis is unaccustomed use. It must be clear, therefore, that a sudden change from heel and toe to forefoot running effectively doubles the work of the Achilles tendon and its excursion in the paratendon for each unit of distance run.. Surely here must be a patent cause of the condition.

On this basis middle and long distance track athletes are advised to make this change from cross country and/or road to track running gradually. To this end a "transition technique" has been developed, which is based on maintaining during this phase of training a constant level in terms of distance run per day. Against this constant distance background the athlete progressively diminishes his cross country running, at the same time progressively increasing his track running. A typical schedule (the actual figures are only given as an example) is as follows:-

Day 1 & 2	6 miles cross-country + 1 mile on track.
Day 3 & 4	5 miles cross-country + 2 mile on track.
Day 5 & 6	4 miles cross-country + 3 mile on track.
Day 7 & 8	3 miles cross-country + 4 mile on track.
Day 9 & 10	2 miles cross-country + 5 mile on track.
Day 11 & 12	1 mile cross-country + 6 mile on track.

Since the athlete will probably still be taking part in cross-country or road racing during this period the ratios cannot be rigidly enforced but they do serve as an effective guide.

Should any symptoms referable to the heel supervene on this regime the athlete must go back to the beginning and start again, this time changing his ratio every third instead of every second day.

No cases of Achilles peritendinitis have presented in athletes using this "transition technique" but the author does not know how many athletes do, in fact, use this technique, so that the population at risk cannot be calculated. It does seem reasonable on the grounds outlined above to advise athletes to follow this regime since any inconvenience occasioned thereby is but a small price to pay for the protection apparently obtained.