
Beyond Our Reach Forever?

Horwill, the author of Obsession for Running and co-author of The Complete Middle Distance Runner, here addresses the notion that Western distance runners will never catch up to the Kenyans. It can be done, he believes, but radical changes—by coach and athlete—are needed.

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At the British National Middle Distance Conference in Cardiff, Wales, in December, 1997, the national event coach for steeplechase stated, “British steeplechasing is in need of major improvement. Forget the Kenyans, we will NEVER close the gap on them.” Hardly the language Winston Churchill used when the Germans were 22 miles away across the Channel during WWII.

The invincibility of Kenyan runners preached by running pundits in Europe and elsewhere needs to be looked at logically.

Let’s take stock of the realities. The world record for 1500 meters—up until a couple of months ago—was held by an Algerian [Noureddine Morceli] for six years. The new record holder [El Guerrouj] is a Moroccan. The world record for 800 meters was held by an Englishman for 16 years (1981-1997). That same Englishman has held the 1000m record since 1981. The new world record for 800 meters, now in the hands of a Kenyan, occurred after he changed nationality. There’s something significant in that fact.

The mile record is also in Algerian

hands. The 3000 and 10,000m records have only recently fallen to the Kenyans; previously they were for four years shared among Algeria and Ethiopia. In the marathon the Kenyans are good, but hardly dominant. In the 5k Kenyans are being challenged.

The writer places much significance on 400-meter times related to 800-meter times. The formula for converting 400 times into potential 800 times, *given maximum endurance as well*, is $400\text{m time} + 4 \text{ seconds} \times 2 = \text{Potential 800m time}$. If this formula is used on USA 400m runners there are three runners in the United States who have the capability of running 1:36 (44 secs + 4 x 2 = 1:36)!

The key to such a time is gaining endurance without losing speed. Juan-torena with 44.26 secs/400m couldn’t do it. His conversion figure was $44.26 + 7.5 \text{ secs} \times 2 = 1:43.44$. Coe could. His 800 time fits into the formula. The concept that 800m world records can be achieved by pure sprinting is no longer valid.

Bruce Tulloh (former European 5k champion), in a tongue-in-cheek article

in 1996, stated that in order to beat the Kenyans we would have to wait 20 years so that their way of life caught up with the decadence of the Western world! By that he meant owning a car, television and taking drugs. “Unfortunately,” this will not occur. Kenya has the fastest growing population in Africa. The average wage is £27 a month. It is a poverty-stricken country. The writer coached young Kenyans for a month there and has first-hand experience.

More to the point is to study their environment and training methods and to draw firm conclusions from the facts. First, there is the question of altitude. The country is not all at altitude and some first class athletes come from non-altitude areas. They do, however, have ready *access* to the altitude training.

In Britain, the approach to altitude training is pathetic. The coaching hierarchy believe that one month at altitude in a year will transform a runner into a world-beater. The ideal is the system used by Russian women runners for the past 30 years—one month at altitude, two months at sea level, repeated throughout the year.

By Frank J. Horwill, Senior British Athletics Federation Coach

How to adapt to altitude training and when to come down before major competition are worthy subjects for an article in their own right. One major error is the belief that *no* race pace work can be done. This is not so. If a 28-minute 10k runner (67 secs/400) were to go to altitude he would certainly have difficulty doing repetition miles in 4:28 with 45 secs recovery. However, he *can* do 25 x 400 in 67 secs with 30 secs recovery. Never to train at a race pace at all at altitude is a foolhardy practice and it will be noticed in performances at sea level on return.

Two work physiologists have studied Kenyan runners in detail—Saltin (Sweden) and Noakes (South Africa). Their findings should be posted in every track & field department in universities and in athletics clubhouses. Briefly, their conclusions were:

1. Many Kenyans (14-17 years) run at least six miles a day, some double that. This is of necessity to get to school or home, since public transport is rudimentary or nonexistent.
2. In high school, a further six miles of running is done on top of that to get to and from school. Of this six miles, half is done at 5k speed—that's 95% VO₂max. Steady running can be between 60 to 75% VO₂max. There is no talk of lactate threshold running here! That sort of running for a 9 minutes 2-miler would be 4:53/mile for 4 miles, and for an 11 minutes 2-miler, 6:13/mile. These boys are running considerably faster than this from an early age.
The other significant point is that the world's leading work physiologists—Astrand, Costill, Saltin and Noakes—state that work at an athlete's 5k speed is the greatest boost to the VO₂max in the book. However, Russian women prefer continual exposure to 3k speed (100% VO₂max). So, from a very early age Kenyan boys are increasing their VO₂max.
3. The Kenyan boys also kill two birds with one stone! The *volume* of training also *improves* the VO₂max.

Any runner who starts off with 30 minutes of steady running a day and increases it by 5 minutes a day per week to 60 minutes (12 weeks later) will improve his VO₂max by 10%, and if he continues in that fashion to 1½ hours a day, he will improve a further 5%. After this (about 80 miles), improvement in the VO₂max rapidly tapers off. They must either make the 80 miles plus *faster*, or *some* of the 80 miles *faster*. It will be noted that the Kenyans at school are doing the latter.

4. When it comes to the proportion of aerobic work and fast aerobic running in adult Kenyan runners compared to Western runners, it is clear that the latter are way behind in a year's calculations. Fast aerobic running is that which is done between 80 to 100% of the VO₂max. Or—put another way—half-marathon speed through to 2-mile speed. The Kenyans devote *one-third* of their running to this work. Western runners devote a mere 10%. So, a Western runner who covers ten miles a day, six days a week—a total of 3,120 miles annually—will only do 312 miles of fast aerobic work, while his Kenyan counterpart will be doing 936 miles in the 80 to 100% VO₂max zone. Little wonder that the Kenyans at present are superior!
5. The findings in (4) are confirmed by muscle biopsies carried out by Saltin on leading Kenyan runners. He found that in the thigh (rectus femoris) they contained the greatest amount of aerobic enzyme he had ever seen. And he's seen a good many world-class runners in his time. This meant that they could alter pace without tiring easily. He also thought that daily exposure to undulating terrain contributed to this condition.
6. The height/body ratio of Kenyan runners was superior to Caucasian runners. Give two athletes six feet tall, the Kenyan would weight 142 lbs. on average, while Caucasian runners weighed 159 lbs. That extra 17 lbs. will take its toll in any

race beyond a mile. The weight difference is probably due to the faster proportion of running using up more calories and to their diet which is higher in fruit, vegetables and carbohydrates, and lower in meat than Caucasian runners.

7. Finally, and a big factor, running is an opportunity to escape poverty. For every great Kenyan runner, there are ten schoolboys waiting to fill his shoes.

So, what's the bottom line? Many Western coaches are loath to change their ways. We have in England coaches who believe that trotting around the countryside in the winter, notching up 100 miles a week, is going to make a great cross country runner. Great Britain's results in the last World Cross Country Championships were the worst for a decade in the men's division.

We also have coaches who believe that young athletes should never exceed four miles a day up to the age of 18 years. This seems to be a standard more or less approved of officially, because Great Britain does not have entrants in the World Junior Championships 10k, while some Kenyan juniors are recording world-class times at that age.

The British coaching examination places great emphasis on periodization. There isn't a world-class runner who adheres to periodization in its original form. When the writer spoke to a leading Kenyan about microcycles, macrocycles and mesocycles, he thought the subject was about new Japanese motorcycles!

Invented by a Russian, periodization has failed to produce a truly world-class performer in the men's division for a long time. Periodization is basically aimed at *one* peak performance. No top-class runner can *afford* one peak in a year. It's dead, and should be buried. It's results that count, and periodization has not brought results in Britain—in fact, the opposite.

Now, let's clarify this VO₂max percentage business. If a runner has never raced 3k, 5k, 10k or the half-marathon, how does he know what speeds to train at? Well, a *starting* point is to take the 1500m time per 400m and keep add-

ing 4 seconds per 400 meters for each increasing distance. See table below.

Here are typical Kenyan sessions at those speeds based on 4 mins/1500m:

- 3k—3x1500 meters at 68 secs/400 with 3 mins recovery.
- 5k—6x1,000 meters at 72 secs/400 with 60 secs recovery.
- 10k—4x2 miles at 76 secs/400 with 90 secs recovery.
- Half-Marathon—Either run

13 miles at 5:20/mile or 4x4 miles at 5:20/mile with 90 secs recovery.

Looks tough? It is! Don't expect to register the times on first, second or third outings. Usually it's the sixth effort which brings rewards. And don't take longer recoveries to register the times. Anyone can run fast repetitions and have a cup of tea and a doughnut after each repetition! Distance running revolves around *sustained speed*.

In 1984 and 1989, the author's protégé, Tim Hutchings, won silver medals in the World Cross Country Championships training regularly between 80 and 100% of his VO₂max using all the above types of sessions over a 14-day cycle. In 1989, he defeated all but one of strong Kenyan team. He spent three separate months at altitude in Kenya in one year as part of the preparation. It can be done again by a Western athlete.

Best 1500 meters 4 mins (64 secs/400)	3k/2 miles pace 68 secs/400	5k pace 72 secs/400	10k pace 76 secs/400	Half-Marathon 80 secs/400
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