BMC NEWS

-official journal of the British Milers' Club

VOLUME 2 ISSUE 1

SPRING 1991

INSIDE:

SUBS/MEMBERSHIP

SUBS UP!

Subs were due on the 1st January. They are £6 for active members and £5 for coaches and are payable to **Pat Fitzgerald,** 47 Station road, Cowley, Uxbridge, Middlesex. Please make cheques payable to BMC. Why not pay by bankers order? Ask Pat for a form and save yourself a lot of trouble each year. Being a fully paid up member gives you certain advantages over non members and BMC members in arrears: 1. Entry fees are waived at BMC races at Stretford. 2. Entry fees for all other BMC races are LESS than for non members and those in arrears. 3. The cost of attending a BMC training day is LESS. 4. The cost of attending a BMC young athletes' course is less. 5. The cost of attending the BMC AGM Residential weekend is LESS. 6. If you are a member fully paid up you will qualify for full expenses in a BMC sponsored race, non members have to pay £6 entry fee for a sponsored event, and they don't get full expenses. 7. If you require coaching advice we can provide you with a coach free, others have to pay a fee. 8. Suppose you live 200 miles from a sponsored race and you are a fully paid up member, your expenses could be as much as £80, that's 13 years' subs repaid in one go! YOU CANNOT AFFORD TO LET YOUR SUBS LAPSE, after all £6 is only 50p a month.

If you are wealthy you can send a donation which will be acknowledged in the BMC *NEWS*. The BMC has made several applications to the governing bodies for the much advertised coaching grants - all have been refused by the Frank Dick controlled coaching panel.

MEMBERSHIP SECRETARY

All applications to join the BMC should be addressed to W. Anderson, 75 Chichester Road, North End, Portsmouth, Hants. Enclose a SAE. If you are a member, why not encourage your friends to join? If your coach is not a member, ask him to join at the reduced subs of £5 and enjoy our Coaches Newsletter packed with tips.✧

The British Milers' Club

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BMC *NEWS* is produced by: FM Consultants in association with Gary Bedford of Contratech Computers

Designed by Diana Penny

Contents

Editorial

NEW BMC *NEWS* Editor

Dave Cocksedge has gone to Bangkok. He has therefore resigned as BMC *NEWS* editor. Dave brought a distinct flair to the magazine in his 12 years as editor. Being a member of the *NUTS* and a member of the *British Athletics Writers Association* he was able to quote facts and figures galore and his prowess as a photographer was on the ascendancy. When *Running Magazine* held a competition for the best club magazine the panel of judges told us that **OUR** magazine would have won it but for the fact that we are a national magazine and not a local club one. The credit for that reputation goes to Dave.

With Dave's departure, this issue has been compiled by **Frank Horwill.** From April 1991, however, we have a new Editor. **Matthew Fraser Moat** is a member of Serpentine Running Club who attended the BMC coaching day at Ealing last September.

In the next issue, we would hope to include more news items relating to BMC members. If you run a good time, or win a race, tell us about it, with a photo if possible. If you are organizing an event, let us publicize it, and don't forget to keep on sending us those letters!

BMC News....News....News....Ne

BMC Junior Course

—Brighton—12/14th April 1991

This course was attended by 40 athletes and coaches and was one of the GREAT courses. The programme started on the Friday night with a dynamic lecture from **Frank Horwill**, later described by **Peter Thompson**, Senior BAAB Coach, "The best lecture I've heard since coming back to England two years ago." Some of the subjects covered by Frank were: coach/athlete relationship, the two types of repetition running (straight through and sets), analysing your event, and the balance between too much and too little.

On the Saturday morning Peter Thompson spoke about Mental Skills Training and stressed the need for feeding athletes with motivation based on why they want to run, eg "to have fun", means that sessions should have a fun element. He also emphasised the practice of goal setting.

The rest of Saturday's itinerary included a stretching session, a demonstration of training by Great Britain steeplechaser, **Mark Rowland**, Olympic bronze medal, 1988, intervals on grass in Withdean Park, lecture on Racing Strategy and Tactics by Frank, introduction to steeplechasing and question time.

On the Sunday, the day started with an interview between Frank and **Alison Wyeth**, GB 3k and CC international, **Mark Howard** (Sub 4 miler) and **Kevin Howard**, (1982 Youths AAA S/C champion and near sub 4 miler). All three did magnificent work on the course acting as team leaders. This was followed by sprint drills, fitness tests and any questions to the coaches. The *Best Female Athlete Award* on the course went to 13-year old **Elaine Wells**, Sussex County 200 and 800m girl's champion, the *Best Male Athlete Award* went to **Philip Hogston** of Faversham, Kent.

Competition!

- see front page photo

A ***free*** pair of Reebok shoes if you identify:

1. The names of the runners in the front row of this photograph.
2. What UK record they broke together
3. What time they did collectively
4. Where they did it

CLUE: The four runners in the front row are all BMC members and were running for the British Milers' Club.

Send your reply on a postcard to Frank Horwill, 4 Capstan House, Glengarnock Avenue, London E14 3DF. State shoe size and preference.

Congratulations!

To BMC members *ROBERT DENMARK* for breaking the UK indoor record 3,000 metres, and *CLAIRE RAVEN* for winning the UK indoor 400 metres.

BMRC Folds

The *British Marathon Runners Club* will be wound up on August 1 after 13 years. The decision to fold follows a club meeting at its Coventry base, which was attended by only 4 out of 1200 members.

The *BMRC* was founded in 1978 as a forum for marathon runners with a pb below the then relatively elite 2:30 mark. With the marathon boom of the early 1980s, however, the club's membership leapt. The qualifying time was relaxed to 3 hours, and many of the early members felt that the *BMRC* had lost its original purpose and relevance.

According to *BMRC* secretary **Dick Hughes**, the club's half-marathon championships at Coventry, and the marathon championships, the Pennine Marathon, both of which are on July 7th, will go ahead.

McCausland's Super Course

Scottish BMC Secretary, **Brian McAusland**, has a superb line-up of subjects and lectures for September 1991 in Glasgow. For every speaker keen on a subject there is one out to prove the opposite. This is going to be a most lively conference!

World Cross Country Flop!

Britain's WCCC results were a disaster apart from the superlative run of **Liz McColgan**. Obviously they haven't heard of **Frank Horwill's** BIG FIVE for cross-country success. Nor have they heard about the correct procedures for altitude training. Frank will set the facts out in the next issue of the BMC *NEWS*.

BMC Clothing!!

Men! Why not let people know you are a member of the world's greatest middle distance club by wearing a BMC tie? **Women!** Make the opposition shudder when you wear a BMC vest.

Ties £5 Vests £8

(Please specify Small/Medium/Large)

To order, write to W. Anderson, 75 Chichester Road, North End, Portsmouth, Hants. Please enclose a large SAE, and enclose cheque payable to BMC.

Achilles Writes...

The Times quotes *BMC NEWS*

The Times of 23rd March 1991 quotes from the *BMC NEWS* in the lead-up to the WCCC. In our 1990 edition we stated that **Eamonn Martin** was overrated in world competition. Martin ran the fastest 5 miles on record 3 weeks before the WCCC. In the World CCC he finished 19th - which is the most important?

Tim Hutchings is Britain's most successful cross-country runner within the last 10 years, a silver medal in 1984 and again in 1989. His coach up to 1985 and now his adviser, **Frank Horwill**, made a very bold statement a year ago, " If you cannot run 13:30 for 5k at the time you line up for the World Cross-Country, you are wasting your time. Similarly, if a female cannot run 9 mins. for 3k at the time she toes the World CC line, she too is only there for the trip."

Serpentine God!

A club in London called the Serpentine Club has as its secretary a bearded man who large around the midriff as he is tall. His name is **Godber**, but we believe that he thanks that only the first three letters of his name apply - GOD. He complained in the club magazine that his LRRC dinner was spoiled by Frank Horwill's guest speech about the UK coaching scheme. Frank said that of every hundred athletes taking the Senior Coach examination, 95% of them were for running events. This means there is a shortage of field event coaches, and he suggested that the Senior Coach examination should include a field event PLUS a running event. In other words, you cannot become a Senior Coach in a running event alone. Mr. God also complained in his club journal that he was fed up with frank writing in the LRRC journal, "Who is he anyway?", he enquired - his best athlete he alleged was a has-been. Take a look at the last WCCC, God,–Frank's female athlete (now a mother), was second girl home for Britain. Here is a challenge from a man twice afflicted with cancer in the last three years, "I'll race you anytime over a mile, and beat you. Alternatively, I'll challenge you to a three round supervised boxing match."

The new Editor writes: *" I am pleased to report that there is less of James 'Slimline' Godber than there used to be, and that he has taken the challenge in the spirit that it was intended. Ringside tickets will be available shortly!"*

London Road Runners Club

A certain BMC member was boasting to us that this club obtained £7,000 worth of advertising per issue of its club magazine. In 1990 the club went bankrupt. Who got the advertising money?

Harry Wilson - Sage

Someone ventured the opinion to Frank Horwill that he hated Harry's guts. The questioner got a shock, "My friend, Wilson has more knowledge in his little finger than you will have in a lifetime. I have criticised him, rightly in my view, on a number of issues, but he has the ability to see things that you and I will never see. For instance, "How much do you want success?" - that's a great question to put to any athlete. Also, "What we ask athletes to do is really quite simple, you know" - that's another pearl. Some runners ask so many questions they don't have time to train. And what he said to **Tony Simmons** when he took him over is a classic, "You've been good for a long time; when are you going to be great?" I think that question can be asked of many GB internationals. There is no doubt in my mind that that question stung Simmons into a silver medal in the European 10k Champion-ships. I always remember being on a plane to Northern Ireland with him years ago when a flashy female came on board with the most outlandish sunglasses ever - all the passengers were gaping at her with awe. I asked Harry what he thought, he replied laconically, They're only two bits of celluloid!"

Golden Track Sessions

Here are some track sessions which have stood the test of time in getting athletes fit.

800m specific session:
1 x 600 + 1 x 200, 2 mins rest after 600, and 3 mins rest after 200, then, 1 x 500 + 1 x 300, 1.5 mins rest after 500, and 3 mins rest after 300, then, 2 x 400 with 1 min rest and 3 mins after 2nd 400, then, 2 x 2 x 300 + 1 x 200, with 45 secs rest after 300s and 3 mins rest after 200, then, 4 x 200 with 30 secs rest after each 200.

1500m specific session:
2 x 1 x 400 + 1 x 800 + 1 x 300, 30 secs rest after 400, 1 minute rest after 800 and 3 mins rest after 300 before repeating.

3,000m specific session:
16 x 400 with 30 secs rest after 400.

5,000m specific session:
1 x 2000m + 1 x 1600m + 1200m + 1 x 1000 + 1 x 800 + 1 x 400, with 75 secs rest after 2k, 60 secs rest after 1600, 45 secs rest after 1200 and 30 secs rest after 800.

10,000m specific session:
3 x 5,000m with 2 mins rest after each.

A specific session should be done at least once a week.

Noticeboard

Sportage's women only 10km in Edinburgh on 5th May will now include the Scottish 10k Championships.There will be a programme of 13 races on the day. Organisers hope to attract **Liz McColgan**, but there is a large entry for the race which starts at the **Meadowbank Stadium**.

Cardiff City Council has banned sports events sponsored by tobacco at its venues.

Competing at High Altitude

***The Problems**–Life and exercise at altitude can impose stresses on the body through three major environmental changes:*

•As altitude increases, the barometric pressure falls. At sea level the normal pressure is 760mm Hg, at 1000m it is 680mm Hg, at 3,000m it is about 540mm Hg and at the top of Mount Everest (height 8,848m) it is 250mm Hg. So, high altitude conditions are referred to as low-pressure or hypobaric conditions.

•Ambient temperature drops by about 1C° in every 300m ascent.

•Relative humidity is less, that is the air tends to be drier than at sea level. This results in increased evaporative water loss from the body, so liquid intake should be increased to compensate.

The main problem associated with hypobaric environments is what we term HYPOXIA. Although the proportion of oxygen in the air at any altitude is constant at 20.93%, as ambient pressure decreases (with increases in altitude) the air is less dense. As a result there are fewer oxygen molecules in a given volume of air, and if we were to inspire the same volume of air as at sea-level, less oxygen would be inspired. Thus the uptake of oxygen into the body by the lungs is decreased, and there is a decreased rate of oxygen delivery to the tissues where it is needed. However, the body is able to show some adaptive responses which compensate for the relative lack of oxygen on the air. As described below, although these responses begin immediately on exposure to hypobaric conditions, for some people the full response is not manifested until weeks or months at altitude. It is to be noted, however, that even with complete acclimatisation the sea-level visitor to altitude is never as completely adapted as the individual born and bred altitude. This becomes apparent with endurance events in particular.

For some athletes there will be an advantage to performing at altitude. Because the air is less dense, there will be lowered air resistance, which is of benefit in sprinting, alpine skiing, long-jumping and missile-throwing events (eg shot and discus). On the other hand the lowered air resistance might change ball-flight characteristics, so footballers may be deceived by the greater ball velocity.

Physiological Adaptations to Altitude

An immediate physiological response to exercise in hypobaric (low-pressure) conditions or lack of oxygen (hypoxia) is that breathing compensates. It can do so by an increased tidal volume (depth of breathing) and/or an increased respiratory frequency. An increase in depth of respiration is the main response, especially relevant during sports such as swimming and running where the breathing rate is synchronised with stroke patterns.

The hyperventilation (increase in breathing) that occurs on exposure to altitude causes a problem in that more CO_2 is blown off from blood passing through the lungs. Elimination of CO_2 which is a weak acid in solution in the blood, leaves the blood more alkaline than normal because of an excess of bicarbonate ions. The kidneys compensate by excreting bicarbonate over several days, which helps return the acidity of the blood to normal. The outcome is that the alkaline reserve is decreased, and so the blood has a poorer buffering capacity for tolerating entry of additional acids into it. Consequently lactic acid diffusing from muscle into blood during exercise at altitude will be more difficult to neutralise. High intensity physical performance will decline earlier than at sea-level because of this, and the intensity of training will need to be reduced.

The low oxygen tension (partial pressure) does not significantly affect the uptake of oxygen by the red blood cells until the oxygen pressure declines to a certain point. However, with adaptation to altitude the critical oxygen pressure falls.

This results from increased production of the substance 2,3-DPG by the red blood cells, and is beneficial in that it aids the unloading of oxygen from the red cells at the tissues. The oxygen-carrying capacity of the blood is enhanced by an increase in the number of red blood cells. This process begins within a few days at altitude, and is stimulated by a hormone secreted by the kidneys that later causes increased red blood cell production by the bone marrow. As a result the bone marrow increases its iron uptake to form haemoglobin after about 48 hours at altitude. It takes 2-3 weeks to secure an increase in total body haemoglobin, and red cell count continues to increase for a year or more but does not attain the values observed in high altitude natives. The haemoglobin concentration also increase, and there is a rise in haemotocrit, the percentage of blood volume occupied by red blood cells.

On first exposure to altitude there is an increase in heart rate, but successful adaptation to altitude results in a reduction in the heart rate to near normal levels.

There are also long-term adaptations in skeletal muscles that help in their struggle against hypoxia. The muscle improves its maximum blood-flow capacity and oxidative metabolism, but these changes require a sojourn of many months at altitude. These adaptations will not be of benefit to athletes in strength and anaerobic power events. They will eventually be of most help in aerobic exercise where their adverse effects of altitude on first exposure are most pronounced.◇

(This article first appeared in the Autumn 1988 issue of *Coaching Focus* entitled *The Coach's Guide to Competing Abroad.)*

Tailor-Made Tapers for Better Racing Performance

The next time you're tapering for a week or so before a 5k or 10k race, don't just hit the roads for a little bit of slow, laid-back running. Instead, do a few sizzling intervals and forget about all of the snail like, easy-going miles.

That's the advice given by a group of Canadian scientists who recently completed the first major research on tapering in runners. Until recently, almost all of the scientific investigations concerning tapering had been carried out with swimmers. The swimming studies - primarily conducted by **David Costill** and his research team at **Ball State University** in the USA - suggested that performance could be improved dramatically whenever athletes reduced their training volume by about two-thirds for two weeks before a race. That's a sizable turndown in training - akin to paring weekly running mileage from 30 down to only 10-12 miles for example.

Many runners cringe at the thought of such training cutbacks, fearing expanded waistlines and lethargic legs, but there's little doubt that tapering periods are desirable. Scientific evidence suggests that temporary training reductions bolster leg muscle power, reduce lactic acid production, and carve precious minutes off 10K race times. In contrast, hard workouts just before a race can produce nagging injuries and deplete leg muscles of their key fuel for running - glycogen.

Plus, any positive physiological changes which accrue from a difficult workout take at least 10-14 days to actually appear in your body. That makes it pretty unlikely that strenuous training during the week before a race will give your performance a special boost.

While coaches and exercise physiologists generally agree that it's good to throttle down on training prior to competition, the topic of tapering has been tangled on two key questions: (1) How much should training be reduced during the tapering period? (2) Should selected amounts of speedwork be included in a proper tapering plan, or should fast running be avoided?

Fortunately, the fog surrounding tapering is lifting, thanks to the research of **Duncan MacDougall** and his colleagues at **McMaster University** in Hamilton, Ontario. In their investigations, MacDougall et al. asked a group of well-conditioned harriers who averaged 45-50 miles of running per week to try out three different kinds of one-week tapers. The three tapering strategies involved:

(1) no running at all (we'll call this the "nothing" taper), or

(2) running about 18-19 miles during the week at a relaxed, unhurried pace (a "slow" taper) and then resting completely for one day, or

(3) Doing a very small amount of running with an emphasis on fast-paced intervals. In this "speedy" taper, the athletes scampered through five 500 metre intervals on the first day of the taper, ran 4 x 500m on day two, 3 x 500m on day three, 2 x 500m on day four and 1 x 500m on day five. They then rested completely on day six and were tested the following day. Each 500m intervals was run at about one mile race pace, and since the runners "warmed up" with about 500m of light running before each of the intervals workouts, the total distance for the week was 10,000m (slightly over six miles), quite a drop from the 45-50 mile weeks the athletes were logging before the taper.

Effects of the three tapers

After each type of taper, the runners tried to run as long as possible at one mile race speed. Amazingly, endurance time shot up by 22% after the speedy taper, far superior to the modest 6% gain achieved following the slow taper. The "nothing" taper produced, well, nothing in the way of endurance enhancement.

Why did the speedy taper work so well?

Compared to the slow and nothing tapers, speedy tapering:

- Stockpiled more carbohydrate fuel in the leg muscles of the runners;
- Increased red blood cell density;
- Augmented total blood volume, permitting more blood to gush toward the leg muscles during exercise, and
- Enhanced leg muscle enzyme activity.

The quicksilver taper also helped runners stay in better tune with the

running pace required for actual racing - by running fast, they kept their nerves and muscles "primed" for race conditions. The McMaster University researchers concluded that a taper consisting of small amounts of speedy running is superior to a more traditional taper consisting of slow, easy miles (*"Physiologic Effects of Tapering in Highly Training Athletes"*, Medicine and Science in Sports and Exercise, vol 22(2) Supplement, no801, 1990).

In spite of the great results, MacDougall is not convinced that the Holy Grail of tapering has been found: "We still don't know what the optimal tapering plan actually is - perhaps it's best to rest completely for three days prior to competition," said the Ontario researcher. "But we do know that if you're going to be tapering for a week or so, it's important to keep the intensity of your workouts fairly high as you cut back drastically on your mileage."

Try this tapering schedule

Since a 22% improvement in endurance is highly desirable, let's use the Canadian research as a guide for putting together a potentially great week of tapering.

Nothing could be easier to compute your total interval distance for the tapering week, simply take your usual weekly mileage and multiply by 9%. The result is your total interval distance for the taper week. Here's an example:

Ned, who averages 40 miles of running per week, wants to know how to use the McMaster results to taper during the final week before an important Saturday 10K. He should do the following calculations, 9% x 40 - 3.6 miles of intervals, or about fourteen or fifteen quarter-mile (400-metre) intervals. Here's how his actual schedule would look:

Sunday: A slow half-mile warm-up, followed by five 400m intervals run at 5k race pace. Between each fast interval, Ned walks and relaxes until he feels pretty comfortable and then starts the next interval.

Monday: Same warm-up and then 4 x 400 at 5K race pace, with similar rest intervals.

Tuesday: Warm-up and then 3 x 400

Wednesday: Warm-up and 2 x 400

Thursday: Warm-up and 1 x 400

Friday: Absolute, complete rest from running

That's all! Ned would complete fifteen 400m intervals during the taper. A 25 mile per week person would be entitled to 9% x 25 = 2.25 miles of intervals, or nine 400m intervals. The nine could be broken down as 3-2-2-1-1 over five days (Sunday to Thursday leading up to a Saturday race, for example).

Please don't lose track of the fact that one of the keys to the success of this taper is to hold junk mileage to an absolute minimum. That means that you shouldn't try to add some additional, slow-paced miles to the schedule - the slow running you do during warm-ups is enough. Don't worry - you won't "detrain" at all during your strange tapering week. In fact, you will be itching to race hard on Saturday, and you will probably be fresh and sharp enough to blaze your way through your 5K or 10K race with an amazing amount of newly discovered speed and endurance.✧

Owen Anderson, Ph.D.

BRITISH MILERS CLUB

Magnesium: the case for supplements

Distance runners could benefit from daily magnesium supplements; that's the conclusion of an Italian study which indicates that endurance exercise causes magnesium deficiency which may in turn impair performance. Blood concentrations of magnesium (mg) were measured in a group of 11 well trained male athletes before and after a 25k race and compared with a group of 30 sedentary controls. The control subjects were found to have significantly higher concentrations than the athletes both before and after the race, suggesting that exercise depletes magnesium stores.

Magnesium is important for a number of enzyme activities including those related to exercise - and an increase in magnesium content has been demonstrated in exercising muscles. But at the same time significant amounts of magnesium are lost in sweat during intense activity while long-distance running resets the kidney's filtration mechanisms so that more magnesium than usual is excreted in urine. "If exercise causes a loss of magnesium, a supplementation ....should result in better physical performance," the authors conclude, "probably by allowing a proper activity of the Mg-dependent enzymes." They suggest a supplement of up to 500mg per day; such supplements are available in tablet form from chemists and health food shops.

▲Another Italian study reaches similar conclusions in relation to copper: researchers measured blood copper levels in 41 trained male runners and found them low. Copper deficiency is also likely to be associated with impaired performance since copper helps carry oxygen in the blood and is crucial to energy metabolism. Supplements are not recommended, but good dietary sources of copper include red meats, poultry and oysters.✧

Don't Back Down on **Hill Training**

by Bob Glover

From the novice plodder to hardened racing veterans, all runners talk about hills. They brag about conquering them, but complain about how hills can slow down the course. Either way, here's a "running commandment" of which I'm sure if you're going to race on hills, you need to train on hills.

But hills can benefit all runners, even non-racers and those racers who specialise in those fast, flat course that now seem to be so popular. Running hills can hone your form and speed, strengthen your legs and mind, and add fun and variety to your running routine.

With all those rewards to be reaped, it's tempting to go wild when introducing or reintroducing hills to your running regime. Don't do it. Ease into hill training, particularly speed sessions. If your legs begin to wobble or your breathing becomes extremely laboured, alternate walking with running. A walking break will help you regain control of your leg muscles, breathing and body temperature, especially on a hot day. The phrase "don't be a hero" becomes magnified when you're talking hills. Even downhill running, which might appear easy, demands both experience and good form.

If you are a beginning runner, not yet up to running 20 minutes nonstop, my advice is stick to the flats. Running uphill will dramatically raise your heat rate and make you feel uncomfortable if you're not yet accustomed to rigorous training. Once you can handle 20 to 30 minutes on level land, then you may feel strong and confident enough to explore some hills.

If you are nursing lower leg injuries, such as shinsplints or Achilles tendritis, running hills will only aggravate the problem. Until your injury is healed, you are much better off on level surfaces.

But if you're feeling fit and feisty, head for the hills.

Hidden Speed:

Believe it or not, there's speed in them thar hills! Hill running is speedwork in disguise. It can be used in place of track workouts to improve your anaerobic efficiency (your ability to perform while in oxygen debt). Because your heart and lungs work harder when you run uphill, you can rapidly stimulate race pace intensity. Briskly running a few hills can also prove mentally easier than pushing yourself all alone on a tack, and you don't necessarily need a stopwatch to know that you're having a challenging run.

Improved form:

Running uphill forces you to improve your form. It takes concentration, but the very nature of the act will require you to find a rhythm, lift your knees, and pump your arms - all of which are valuable assets for your racing or fitness running.

Learn to switch gears on a hill, just as you would if you were driving a car up a steep mountain. As you start uphill, adjust your stride (think of slightly shorter, quicker steps) and lift your knees. Land more on the front of the foot and push off. Lean slightly forward, but keep your back straight, hips in, chest out, and head up. Pump your arms forward and downward - similar to cross-country skiing - not across your body. Breathe from the belly and stay relaxed. Keep a steady pace up the hill, or, if you feel good, get slightly faster near the top. Remember to work past the crest of the hill so you don't lose momentum.

Downhill running can be tricky and involves more injury risk than uphill running since there can be increased pounding to the body. Take it easy on downhills unless you're an experienced racer. When running downhill, hold the arms low and lean slightly forward to keep your body perpendicular to the slope. Allow your stride to stretch out a little but don't overstride. (If you find yourself "reaching" with your heels, chances are you're overstriding). Don't lean backward or land hard on your heels; this braking action only makes down hill running more difficult and stressful. Try to relax and flow with the hill, landing gently and maintaining good form and control.

Mental Toughness:

The secret to successful hill running, whether in practice or races, is to be confident and aggressive. Running tough hills in practice at a strong pace will improve your tenacity when you confront them in a race since you'll be familiar with the demands. With practice, you'll begin to see hills as a positive part of your race (or run) instead of a negative one.

Stronger Legs:

Hill running really works the quadriceps—the big muscles in the front of the thighs, which don't get tested too much on the flats. Strong quads can minimise knee injury and improve your ability to pick up your knees at the end of a race, especially a marathon. Those more interested in merely toning the thighs can achieve that with some gentle hill running just a few times a week - leaving the hill racing to others.

The Long and the Short of it:

You can reap benefits from doing short hills, long hills, fartlek hills, or by incorporating some challenging upgrades into your daily running routes. Here's how:

Short Hills — Find a short fairly steep (but not sheer) hill of about 50 to 100 yards. After a warm up run of at least 2 miles, charge up the hill at faster than race pace, again concentrating on good racing form. Jog or walk back down and go again. Run four to eight repetitions depending on your fitness level. This is a good workout to help you prepare for a race of 10 K or less.

Long Hills – A long, steady climb at race pace or slight faster up a moderately steep hill of 220 to 880 yards will toughen your mind and body. These are helpful to prepare for long hills in a marathon. Run back down at an easy pace and repeat. Do three to six repetitions.

Fartlek Hills – Instead of doing the hills on daily distance runs at the same steady clip, pick up the pace when you confront an upgrade. You can go at race pace or slightly faster, concentrating on good form and cresting the hill. Then back off to your training pace. This is a workout that can give you just about everything: hills, speed, form, distance, and confidence. If you are in shape and ready for a challenging workout, shoot for 1 to 5 minute pickups, with 2 to 3 minutes of easy running in between before repeating on the next hill (or flat, if a hill isn't soon available). Repeat for six to eight surges.

Daily Runs – Include hills in your route a few times a week. Don't do a hilly course every day, because you'll have trouble bounding back between runs.

Fun and Variety – Yes, hills can add fun and variety to your running. Running on the flats al the time can become boring, and if you wish to make a lifetime fitness commitment, boredom is a major pitfall. When I have to travel, my favourite training routine is to run to the top of the nearest bit gill. I don't race it, I take it as a tourist would - casually, with an interest in my surroundings. At the top of the hill, I'm rewarded with a scenic view.

Similarly, you can be rewarded with a "view from the top" if you include hills in your overall running regimen. When you conquer hills on daily fitness runs you gain both strength and confidence. In races, outperforming foes on the tough hills adds to your personal victories. But the key to being "king of the hill" is to rule them in practice.✧

No Frills Exercise of the Season

Step Ups

Strong hips, buttocks and legs work together to make nasty hill climbs a little less painful, whether you're on foot or on a bike. To strengthen the climbing muscles - the gluteals and quadriceps and, to a lesser extent, the hamstrings and calves—you need only a knee-high bench and strong knees.

While performing step-ups, concentrate on maintaining slow controlled motions. Begin with one 10-repetition set and add more sets as your body becomes accustomed to the stress. Exhale on the way up and inhale on the way down, following this sequence:

- **Step up with the left leg**
- **Step up with the right leg**
- **Step down with the left leg**
- **Step down with the right leg**

For variety, step up and down 10 times on the left leg only (without alternating legs). Then switch and repeat with the right leg.

Once you can perform 30 step-ups with each leg, increase the resistance to continue to build strength. Place a light bar (20 to 45 pounds) on your shoulders and perform the exercise as before. Be careful to maintain balance and proper form throughout the exercise.✧

Medical Matters

Iron and 'sports anaemia'

Iron deficiency is one of the commonest nutritional disorders in the Western world. Endurance athletes have been identified as being at particularly high risk. But why should this be? A number of factors are thought to contribute to increased losses of iron in distance runners.

- the action of running may stress the bladder and kidneys and lead to small amounts of bleeding, with resultant loss of iron in the urine.
- high sweat losses can mean increased iron loss. Sweating 2-3 litres a day can double normal iron loss.
- runners may have some bleeding from the gut - this may be because of constant jarring of the colon.
- direct trauma to muscles (eg the foot muscles being pounded) leads to some destruction of blood cells.
- it is thought that endurance runners don't absorb iron so well from the gut.

Iron is a crucial nutrient for exercise, as it's intimately involved with the processes that provide energy. In red blood cells, it forms part of the proteins which transport oxygen from the lungs around the body (haemoglobin and myoglobin). Inside the body's cells, it's also involve din the process of burning fuels to provide energy. It's not surprising therefore that the symptoms of iron deficiency include a loss of strength and endurance capacity, and easy fatigability. Headaches, cramps, breathing difficulties and dimness of vision can also occur in more severe cases.

Three progressive stages of iron deficiency have been identified; firstly, stores of iron become low, secondly, haemoglobin levels decrease, and thirdly, once haemoglobin gets below a certain defined level (12g/dl for women, 10g/dl for men), anaemia is diagnosed. Medically the emphasis is put on treating anaemia rather than the earlier stages of iron deficiency. But recent evidence has shown that athletes with low iron levels can suffer from impaired performance even before their haemoglobin has dropped below the critical values. This may be because of reduced iron levels available for the cellular fuel burning process.

So, what can you do to remedy the situation if you suspect that you're iron deficient? Iron supplements are available, and taking some for a few days to see if you notice any improvement may help to identify whether you really are deficient. However, supplements are commonly associated with side-effects such as nausea, heartburn and stomach discomfort, so your bets bet is to try and boost your iron intake by dietary means.

The best sources of iron are organ meat (eg liver) and red meat. There are vegetable sources of iron too (see below), but these are less easily absorbed. Absorption from these sources increases if you eat them at the same time as meat. But if you don't eat meat, don't despair, because there is another way to help raise vegetable iron absorption, and that's to eat something rich in vitamin C at the same time (see 5 below).

Tips to boost your iron intake

1. Tea and coffee interfere with the absorption of iron, so it's best to avoid drinking these at mealtimes.
2. Include small amounts of red meat and/or organ meat in your diet. Eat dark poultry meat.
3. Vegetable sources include green vegetables, wholegrain cereals (this includes bread, pasta, flour), pulses (eg red kidney beans, chickpeas, peas), and cocoa!
4. Avoid unprocessed bran, as this inhibits iron absorption.
5. Eat vegetable sources with a food rich in vitamin C to help iron absorption. Vitamin C is found in fresh fruits and vegetables, so for example, include sliced tomato in sandwiches, eat a side salad of raw vegetables or drink a glass of orange juice with meals.
6. Select breakfast cereals that are fortified with iron.

Janet Pidcock

The heart–damage undone?

It's true! Major changes in diet and lifestyle can prevent heart attacks and actually reverse atherosclerosis, the dangerous hardening of the arteries that leads to heart attacks.

That encouraging news, revealed at the 1989 annual meeting of the **American Heart Association**, comes from the first study to show that arterial blockage can be reversed without using cholesterol-lowering drugs or surgery. Researchers from the **University of California** at San Francisco studied 412 men and women who had complained of chest pains or who had taken treadmill stress tests that indicated abnormalities.

About half of the group followed a programme of comprehensive lifestyle changes. They are an extremely low fat vegetarian diet (8 per cent fat), practised stress management techniques (yoga, stretching and meditation) for an hour a day and exercised for an hour three times a week primarily walking). The rest of the group followed standard medical recommendation, including losing weight, quitting smoking, exercising for 30 minutes three times a week and limiting dietary fat intake in 30 percent of calories.

After one year, 18 of the 22 in the aggressive treatment group showed an overall improvement in their athero sclerosis. In comparison 10 of the 19 in the standard treatment group got worse.

"Adherence to the diet was directly correlated with reversal in heart disease", says **Dean Ornish, MD**,

director of the study. "Our study set out to determine if comprehensive lifestyle changes would reverse heart disease. They did. Whether or not people choose to make these changes is up to the individual."

Runner's World

Swim or run: the diet consequences

If you want to keep your weight down, stay out of the water. Swimming makes you hungrier than running, so if you're watching your waist, stick to a running programme.

Researchers from the **University of Missouri-Columbia** compared the effects of exercise and diet on weight loss in four groups of regular, but slightly overweight, exercisers for a 10 week period. One group ran and dieted; and other ran without dieting; a third group swam and dieted; and a fourth group swam without dieting.

"While running and swimming are both very good exercises for developing cardiovascular fitness," says **Randall Smith**, a clinical assistant professor of physical therapy and the principal researcher, "my study found that you can use running more efficiently than swimming to reduce your body fat."

Although the run only and swim only participants were told to eat normally, they spontaneously reduced their calorific intakes without realising it. The swimmers consumed an average of 81 calories less per week, while the runners cut back by 366 calories per week.

"We noticed that swimmers are a lot hungrier than runners after workouts," says Smith. "In fact, runners don't have much of an appetite after finishing their workouts."

Smith believes that the difference in appetites stems from the hypothalamus, the part of the brain that regulates temperature and appetite. As water conducts heat away from the body more effectively than air, a swimmer's body temperature remains lower during a workout than a runner's. Smith believes that the increased temperature in runners causes the hypothalamus to 'turn off' the desire to eat anything.

If losing weight is your goal, stick with running. If an injury or other condition prevents you from running and you find yourself in the pool, be careful about your diet.

Smith says: "If you swim, you're going to be hungry afterwards." Be sure to eat a high carbohydrate low fat diet every day to avoid the post workout, junk food binges that can result in weight gain.

Runner's World

Water–running gets the okay

Water running is as useful as land running for boosting aerobic and anaerobic fitness - and it is particularly suitable for injured runners and those considered 'at risk' on account of age or such health problems as obesity, asthma and heart disease.

Nine sedentary men, aged 18-30 followed an eight week interval training programme which involved running in water one metre deep. Their fitness levels were measured during water exercise and were compared with those of eight non exercising controls immediately before and after the programme.

After completing the programme, the exercise group showed significant increases in aerobic and anaerobic capacity and significant decreases in maximal heart rate compared with the control group. And, contrary to the evidence of previous studies, which have suggested that water exercise is risky for victims of heart disease, this study found that heart rates were consistently lower during water running tests than during treadmill tests, indicating reduced cardiovascular strain.

The authors, from the **University of Western Australia**, conclude; water running can thus be used with confidence in either short term or long term substitution of land based running particularly for those populations needing to reduce or avoid the impact stresses of land based running activities... Furthermore the reduced cardiovascular strain evident during standardised sub maximal workloads while running in the water may have beneficial effect for 'at risk' populations.

Australian Journal of Science and Medicine in Sport

Split sessions boost weight loss

Two short exercise sessions separated by a rest are likely to shed more calories than one long, uninterrupted session, according to sports scientists from Chicago.

Six women had metabolic measurements taken at rest after a 50 minute treadmill run and after two 25 minute runs separated by a rest of at least 30 minutes. After exercise, their oxygen consumption was significantly raised for up to 10 minutes and returned to baseline within 20 minutes for all three exercise periods.

Consequently the combined magnitude of the excess post exercise oxygen consumption (EPOC) from the two 25 minute runs was significantly greater than that of the continuous 50 minute run. However, the overall magnitude on the increase was small at 13.88 versus 6.39 calories.

British Journal of Sports Medecine.

Factors Associated With **Shin Soreness in Athletes**

by
Kathryn H. Myburgh, BSc,
Nicola Grobler, BSc,
Timothy D. Noakes, MD

In brief: *Twenty five exercisers suffering from shin soreness were interviewed, examined, and monitored to identify factors associated with this injury. Twenty five uninjured persons who matched the injured subjects in age, sex, and activities served as controls. Injured subjects had a greater range of subtalar joint motion and increased ankle dorsiflexion, reported a significantly lower calcium intake, had raised their training intensity before injury, and were using worn or poorly made shoes when injured. Factors not associated with injury included number of months subjects had participated in weight bearing exercise, exercise surface, amount of stretching, height weight ratio, and menstrual status. This study is the first to indicate a possible relationship between nutrition and shin soreness.*

Shin soreness is defined as tenderness around the anteromedial or posterolateral borders of the tibia or along the lateral side of the fibula. The symptoms develop gradually as a result of repetitive minor trauma over weeks or months. Clinical features include extreme tenderness localised to bone; a corrugated texture at the site of injury, due to the periosteal reaction, and mild swelling.

Training errors and anatomical and physiological factors are the suspected causes of this injury. Training errors include increasing training duration or frequency too rapidly, resuming heavy training too soon after a rest, changing to a less desirable exercise surface overstriding, and training in worn or hard shoes. Suspect anatomical and physiological factors include excessive subtalar joint pronation, leg length inequality, a high arched foot, muscular imbalance and inflexibility, elevated intramuscular pressure in the posterior compartment of the calf, and a decrease in bone density due to lower circulation estrogen levels in amenorrheic athletes.

However a few of these suspected causes have been identified in studies that include an adequate control group. Furthermore no previous study has considered the role of nutrition nor has any study included accurate measurements of the range of motion of the talar and subtalar joints. Therefore the aim of this study was to identify possible etiological factors for shin soreness that are more prevalent in the injured athletic population than in an uninjured control group matched by sex, age and sport.

Methods and Materials

The injured subjects were 25 athletes with shin soreness who were seen at the University of Cape Town South African Breweries Sports Injury Clinic. Their activities included running, aerobic dance, ballet, racquetball, field hockey, and basketball. Fifteen of the subjects were female; the mean age was 24.6 years (ST>8.8). Each injured subject was asked to select a corresponding control subject who had never had shin soreness and who matched the injured subject in age, sex and sports participation. The two groups were evaluated and the findings were compared.

The diagnosis of shin soreness was made by a physician on the basis of the appropriate history and clinical features. Each patient graded his or her symptoms according to the classification presented in table 1.

Each subject completed a standard questionnaire (available from the authors) regarding symptoms, training methods, and the type of sports shoes worn during the period of injury. Questions regarding training dealt with the total time spent in weight bearing activities each week, months of participation in specific sports activities, recent changes in the duration, frequency or intensity of exercise, conditions of exercise shoes worn at the time of injury, and the frequency and duration of stretching exercises. Female subjects completed an additional questionnaire regarding their menstrual histories.

For one week, the subjects recorded their daily intake of dairy products, canned pilchard and salmon, and vegetables with high calcium content (spinach and broccoli), along with any meal replacements (liquid meal preparations) or supplements taken.

Table 1. Distribution of Injury Grades in Subjects With Shin Soreness

Injury Grade	Sympton Description	Athletes with Unilateral Injuries	Athletes With Bilateral Injuries
1	Vague discomfort develops after exercise	1	2
2	Discomfort during exercise does not affect training	1	6
3	Pain during exercise limits training and performance	4	5
4	Pain prevents exercise	4	2

Using local food composition tables, we calculated the calcium content of an average portion of each product and estimated the daily calcium intake for each individual.

In addition, we tested all subjects for range of ankle motion and recorded their heights and weights. The subjects also were interviewed to verify the date from the questionnaires and diet records. An electronic ankle goniometer constructed by the Biomedical Engineering Department of the University of Cape Town was used to quantify the range of inversion and eversion at the subtalar joint and the range of dorsiflexion and plantar flexion at the talar joint. Ninety degrees of ankle dorsiflexion with the knee fully extended was used as the zero position from which the ranges of dorsiflexion, inversion, and eversion were measured. The ration of weight (in kilograms) to height (in metres) was calculated using the Quetlet scale.

Fishers exact test, the chi-square test, Bartholomew's test for gradients, and Student's t-test were used for statistical analysis of differences between the groups. Throughout the analysis a value of $p<.05$ was regarded as significant and $p<.01$ as highly significant.

Table 2. Daily Calcium Intake of Subjects

Calcium Intake (mg)	Injured Subjects (No.)	Controls (No.)
>800	3	15
400–799	12	8
<399	10	2

$p<.005$, Bartholomew's test for gradients

Results

Table 1 presents the classification of injury severity and the distribution of subjects by injury severity and unilateral vs bilateral injury. Six of the nine subjects with grade 3 injuries had been able to exercise for three to eight weeks after the onset of symptoms before pain limited training. In five subjects, the grade 3 injury progressed further over seven to eight weeks to a grade 4 injury (stress fracture).

Figure 1 illustrates the distribution of the sites of injury expressed as a percentage of all injuries. Half of the injured subjects had bone pain at more than one site.

Diet analysis revealed that only three injured subjects consumed the recommended dietary allowance (RDA) of calcium (800mg), whereas 15 controls met the RDA (table 2). Ten patients and two controls consumed less than half the RDA. Analysis by Bartholomew's test for gradients indicated that low calcium intake was significantly ($p<.005$) related to shin soreness.

Our finding of a lower reported calcium intake in the injured group (table 2) is novel. Because subjects reported only their intake of dairy products and calcium rich fish and vegetables, the total dietary intake of calcium was not calculated. But we believe our method of assessing daily calcium intake is acceptable, based on the proportional calcium contribution from dairy products in a typical diet. (For example in a 1250 kcal diet recommended by Williams as a balanced foundation diet, the two portions of dairy products (250 ml of milk and 30 gm of cheddar cheese) provided 78% of the calcium) ◆

Different Types of Rep. Running

by *Achilles*

The basis of running reps is this: suppose you ran a mile in 4 minutes, then on another day you ran 4 x 440 yds. in 60 secs. with 1 minute rest after each, you would have performed the same amount of work at the same intensity intermittently as you did in the 4 min. mile, i.e 4 runs of 440 yds at 60 secs each equals a 4 mins mile. However, the degree of fatigue following intermittent running would be considerably less because there will be less lactic acid and less fatigue as a consequence. We can, therefore, run two 4 min. miles in this way, e.g. 8 x 440 yds with 1 minute rest.

Now, there are two types of rep. running:
(1) Straight-through reps.
(2) Sets of reps.

An example of (1) at 800m pace might be: 8 x 200m in 28 secs with 200 jog (90 secs. max.).

A specimen of (2) is where number of reps. per set equals the distance of the race (not in all cases) i.e 4 x 200, which is followed by a 400m jog before the set is repeated. This would be written as such: 2 x 4 x 200 with 100 jog and 400 jog after the set.

With straight-through reps. the recovery is longer because the total number of reps. is double the distance of the race. This is a test of endurance. When doing sets, because the total distance of the reps. equals the distance of the race, the rest is less and the speed is greater because the athlete knows he will have a long rest after the set. This is speed endurance. It is now recommended that runners do one week of straight-through reps. and then a week of sets of reps.

For the 1500m runner this could be:6 x 500 in 75 secs. (male), 80 secs. (female), with 250m jog recovery (2mins max) one week, and the following week 2 x 3 x 500 with 1 min. rest after 500s and 400m jog after the 1st set.

The 3k runner could try: 6 x 600 in 96 secs (male) and 104 secs (female) with 150 jog (1 min. max.), and the next week 2 x 3 x 600 with 30 secs rest after 600s and 400m jog after the 1st set.

Different rep.distances

We are conditioned to dividing track distances in training into quarters and halves, e.g 200, 400, 600, 800 or 100, 200 and 300. However, our spies in **Kenya** say that Kenyan aces do not adhere to this measurement of their reps. They train at one-third and two-thirds the distance of races, seldom less. This is a major revelation, and apart from the advantage of being born and bred at altitude may be a major factor in their rise to supremacy. The distances are:

800m pace - 267m (1 third of 800), 534 (2 thirds of 800),
1500m pace - 500m (1 third of 1500), 1,000m (2thirds of 1500)
3,000m pace -1000m (1 third of 3k), 2,000m (2 thirds of 3k)
5,000m pace -1600m (1third), 3,200m (2 thirds)
10,000m pace - 2 miles (1third), 4 miles (2 thirds)

The advantages of these distances are apparent. Compare the psychology of doing 3 x 267m at 800m speed and doing 4 x 200m. The first does three and the distance is covered, the second does 4 reps. before the distance is covered, one is holding 800m speed longer and is correlating with the event. Take a look at the 1000m rep. in the 1500m. There are 26 weeks in the track season, using these two distances (500 and 1,000m) on a weekly alternating basis the runner will experience 13 sessions of 1,000m reps. We all know that the third lap of a 1500/mile tends to be the slowest but in doing 1,000m reps at 1500m pace regularly this fear of the third lap is being conquered. Perhaps our 10k men should take special note of this; 3 x 2 miles with 200 jog recovery and 2 x 4 miles with 400 jog might start getting some respectable times.

Although the 2 x 4 miles seems severe, I wonder how many of our 10k men actually run a really fast 4 miles in training. They could start with trying to run world record pace for 4 miles, knowing that the Mexican ace kept going for 6 miles. Aim for 4:22 a mile, boys x 4 = 21 mins 28 secs., the 5k time would be 13:32.5, and until you can do that your future in the 10k is strictly limited.

***

QUOTE
A Crawley AC Senior BAAB Coach to **Tim Hutchings** just after his 1984 WCCC silver medal, "Your training is all wrong." **He MEANT it.**

Planning your Programme

Once a performer is involved in training throughout the year, it is important to give consideration to the various phases of training. These are: off-season training/the recuperation phase, of approximately one mesocycle's (4 weeks) duration; pre-season training (varies according to the sport), and peak season training/the competitive phase (varies according to the sport).

Off-season phase

This phase should not be seen as an interval in training but rather as an 'active rest' phase. The main purposed is to keep performers involved in moderate activity thereby avoiding possible weight gain and any loss of developmental gains that they may have achieved in the previous season. The activity should be varied with plenty of choice so that this recuperation phase is fun.

- It should include some muscular fitness and aerobic fitness training
- It may be a time for identifying and strengthening weaknesses both in terms of fitness and technique
- You may wish to encourage participation in other sports or recreational activities
- It is also an ideal time for developing new mental skills - i.e. well away from competition.

Pre-season phase

For most sports, the pre-season phase begins between 8 and 10 weeks prior to the start of the competitive season. It is a general preparatory phase. It would normally include:

- muscular fitness training to develop the strength base which should focus on improving strength in the major muscle groups and those specifically required for the sport. It is a time for eliminating individual deficiencies and strengthening weaknesses (eg speed, explosive leg power, upper body strength, etc). Three training sessions per week are usually sufficient for muscular fitness gains to be made.
- aerobic fitness training which provides the foundation of the training pyramid and is the springboard for more intensive activity. Typical activities might include long continuous running, fartlek training, easy-paced interval training and circuit work. If the session is of relatively low intensity, it may be possible to carry out this session on the same day as a muscular fitness training session
- muscular endurance training, if this is a key quality in your sport. Pre-season training should include a variety of speed and endurance training sessions.
- time for working on individual technical skills
- general mental skills training.

Early-season phase

This phase is usually of about 4-6 weeks duration.

- Technically it is the time to work on individual skills (and unit, team and tactical training if appropriate to your sport).
- In terms of fitness it is the time to work on sport-specific power and speed training. High intensity training should be planned to build up to the important competitive phase. This is complicated in some sports (eg team games) in which performers are expected to perform to high levels over a period of several weeks or even months. Weekly training must be designed to prepare performers to peak regularly on game days.

In other sports (eg athletics), athletes typically train to peak for major competitions. The build up is therefore more gradual and early-season competitions are used for training purposes.

- If anaerobic fitness is critical to your sport, around six weeks of high intensity anaerobic work-outs 2-3 times per week should be sufficient to enable your performers to meet their anaerobic training goals. If, during this period, your performers are involved in early competitions, you should count these as high-intensity sessions. Interval training and a selection of various sprint training drills will ensure training is focused on anaerobic development.
- Mental skills training should be included and integrated into the training sessions.

Peak-season training (competitive phase)

The duration of this phase will depend on the sport. In team games where there is a long competitive season it is likely to be the equivalent of two macro-cycles. Mesocycles need to be identified to allow peaking at the various intervals to coincide with important competitions or selections.

- Technical and tactical work continues and you should try and integrate the various components of training with competition.
- As you approach the height of the competitive season, muscular energy fitness training typically culminate in an emphasis on quality and speed. Speed training also prepares the body for the intensity and quality of late season competition. During this phase, performers in most sports should concentrate on high speed/low resistance movements and sprints. In addition to using weights and variable resistance training devices, specialised sport-specific speed training should be included.
- Fitness maintenance should not be forgotten even though the competitive schedules become more intense and the bulk of training will probably be spent on skill refinement. Research has shown that regular competition and competitive practice drills are usually insufficient to maintain the muscular and energy fitness gains obtained in the early, more intensive training cycles. the answer is to select sufficient but not excessive exercise to maintain the performer's competitive peak. One or two fitness sessions per week should be sufficient to maintain fitness level. Alternatively, if competitive drills and activities that simulate typical competitive conditions are integrated into training, these may substitute for for specific fitness sessions.
- Mental skills should be incorporated into all training and competitions.◇

This information has been adapted from the resource pack accompanying the NCF key course, 'Planning your Programme'. For details of this course, call the NCF on 0532 744802.

Ron Pickering

Ron Pickering, who died on February 13, aged 60, was one of the most charismatic and widely respected figures in British sport. Over several decades he brought a level of energy, commitment and enthusiasm to athletics which helped transform the sport into its modern form.

Born in Hackney, East London, Pickering showed talent as a decathlete during national service in the King's Own Regiment, but on leaving the army he began to concentrate on coaching. After several years under the wing of top English coach **Geoff Dyson**, he became Welsh national athletics coach in 1960 at the age of 30.

Widely admired for the enthusiasm he brought to the job, his greatest triumph as a coach came with **Lynn Davies'** Olympic gold in the long jump at Tokyo in 1964. Pickering had nurtured Davies since his days as a schoolboy triple jumper, and Davies has frequently credited Pickering with giving him the confidence to compete at top level.

As President of **Haringey AC**, Ron Pickering showed his love of and feel for grass roots by building the club from obscurity to greatness, partly through encouraging young black athletes to realise their potential.

But it was as a broadcaster that Ron Pickering will be best remembered. A BBC television commentator for 25 years, it was his voice which accompanied some of the greatest moments in televised athletics, and which could add flavour and drama to any athletic competition. His knowledge of athletics, along with several other sports, was almost encyclopaedic, and together with fellow presenter **David Coleman**, he set the high standards for television coverage of athletics which have helped bring to the sport the huge audiences it enjoys today.

A man of strong convictions and combative nature, he worked tirelessly against the threats he perceived to sport in the modern age - notably drugs and apartheid. Both on-screen and at speaking engagements, he was in the fullest sense a commentator on the sport, and was frequently critical of its administrators. He was awarded the OBE for services to sport.

Married to **Jean Desforges**, who became European long jump champion, Pickering leaves a son, **Shaun**, and daughter **Kim**.✧

Red tape set to delay SA return

The readmission of South Africa to international sport continues to draw closer as political momentum towards the abolition of apartheid grows.

But bureaucratic and constitutional obstacles may prevent South African athletes from competing at the 1992 Barcelona Olympics, even if political objections are soon lifted.

At the end of March, the International Olympic committee's anti-apartheid commission will visit South Africa - the first official IOC visit since 1961. Recent changes in government policy, and the reform of many sporting federations have led some commentators to predict that South Africa will be effectively cleared for readmission to the Olympic movement.

But re-election by the International Amateur Athletic Federation must be carried at the *IAAF* meeting at Tokyo in August to be effective in time for 1992.

As the application deadline for inclusion on the congress agenda expired in February, hopes for an early return to international track and field competition may be premature.

Zola on track for comeback

The return of **Zola Budd** (now Pieterse) to international competition could mark one of the most dramatic comebacks in athletics history, if the 24-year-old South African's recent form is any guide to her potential.

In a 3000m race at Stellenbosch in February, the new-look Zola,now markedly more adult in build than in her ill-fated days as a British

international, won with a world-class 8:42.26–a time which would have ranked her third in the world in 1990.

Now working with coach **Nauder van Zyl**, Zola is reportedly looking forward to again competing at international level, once the boycott on sporting contact with South Africa is lifted. According to a recent report in *The Observer* newspaper, Zola's long-term ambition is to run the London Marathon!✧