BMC News

Official Journal of the
British Milers' Club

Volume 4 Issue 3
Spring 2006

The British Milers' Club
Founded 1963

Cover photographs - Front

from top:
Melbourne, 24.3.06 - JO PAVEY

Melbourne, 21.3.06
LISA DOBRISKEY (1357) wins the 1500m, with HAYLEY TULLETT (2191) finishing third and HELEN CLITHEROE (1371) fourth

By Mark Shearman

Cover photographs - Back

Top: Melbourne, 21.3.06
Leaders in the women's 1500m final, left to right; HAYLEY TULLETT (Wales, 2191), HAYLEY OVENS (Scotland, 1983), CARMEN HUSSAR (Canada, 1245), LISA DOBRISKEY (England, 1375) and HELEN CLITHEROE (England, 1371)

Bottom: Manchester, 21.5.05
JOHN LASELLE (Sweden, 305) leads the mens 'A' 1500m from NOEL POLLOCK (175), KRIS BERRY (third from left) and eventual winner PASKER OWOR (166).

By Mark Shearman

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Manchester, 21.5.05. FREYA MURRAY (59) leads from EMILY PIDGEON (60) and ELEANOR BAKER (70) during the women's 5,000m. photograph by Mark Shearman.

From the pen of the Chairman

During most of March 2006 it was my great honour to be one of the England team endurance coaches, along with Dave Sunderland, at the Melbourne Commonwealth Games.

I found Melbourne to be an attractive, clean and modern city. The weather was warm and the locals were friendly and very sports minded. Apart from the one sided commentary/p.a. in the main stadium the Games were very well organised. During the Games a number of the former great Australian athletes and in particular, John Landy, on a number of occasions, were introduced to the crowd. It was a surprise to me that more was not made of Herb Elliott who to me is still the greatest middle distance athlete of all time. I only noticed a short reference to the great man during the opening ceremony.

It was a particular privilege for me to work closely with many of our up and coming and well established endurance athletes. At the risk of sounding patronising I can say that all of them were extremely professional in the way they trained and prepared themselves for the Games and the manner in which they went about their business.

When viewing the overall performance of the UK athletes in the track & field programme at Melbourne opinions of most commentators have been rather mixed. When viewed through endurance

Dr. Norman Poole, Chairman

filtered spectacles the results could be termed 'much better than expected' and many positive indicators for the future were given.

Relative youngsters, Marilyn Okoru and Jemma Simpson, progressed very well through 3 rounds of the womens 800m competition and both set pb's as did Susan Scott with a brilliant Scottish record of 1:59.02 in the Final.
Lisa Dobriskey's gold in the womens 1500m was surely the high point for the endurance events along with the magnificent silver from Jo Pavey in the womens 5k. Helen Pattinson adopted a similarly uncompromising tactical approach to Jo as she front ran most of the womens 1500m only to finish in 4th place. Helen's brave running surely suggests that she has much to offer the event this Summer.

Observing Andy Baddeley in training I know that he was in great shape. The trip from behind, which left him sprawled on the track with 700m of the 1500m Final remaining, was very cruel. With Andy, Nick McCormick (5th in the mens 1500m in Melbourne), Michael East, Tom Lancashire et al the UK's mens 1500m event appears likely to progress significantly during 2006/7.

I have mentioned many of the successful or near successful UK endurance athletes in Melbourne. As you well know there were more and most are BMC members. These include Dan Robinson, Liz Yelling, Mara Yamauchi, Hayley Tullett and others such as Stuart Stokes who have re-established themselves at a high level.

Unfortunately the mens 800m, no UK athlete in the Final, was a low point for the UK endurance events although the rapidly improving Jimmy Watkins may have reversed this situation if he had been included in the Welsh squad. Along with Jimmy we do possess a reasonable talent pool of younger athletes in this event. Our aim is to offer these up and coming athletes more opportunities to run fast times during the 2006 season. This starts at the BMC Nike GP1 at Loughborough on May 20th where, with the support of UKA, we aim to target high quality pacing/competition in the mens 800m. Many other endurance events will include similar support as part of the arrangements offered by UKA to encourage the BMC to stage the BMC Nike GP1 on the Saturday evening, may

continued overleaf....

Subscriptions

Subs were due on 1st Jan.
For those not paying this issue of BMC News will be the last

20th at Loughborough prior to the AAAvLoughborough Match on Sunday May 21st. The highest standard athletes in the endurance events will be encouraged to compete in a shared A-race invitation scheme. For instance the top athletes will be invited to compete in the mens 800m and womens 1500m on the Saturday evening and the womens 800m and mens 1500m which will be held on the Sunday. All of the races below A standard in these events will be included in the BMC Nike GP on the Saturday evening. The aim is to hold the highest possible standard race during this particular weekend and not to dilute the events across 2 venues as has occurred in the recent past. The success or otherwise of these noble aims will, with the cooperation of all parties, be there for all to see but if what you see is George Gandy and I squaring up to each other, re Wenger and Jol, you will know that all did not go according to plan.

Melbourne may have dominated recent athletics news but many other BMC projects have continued to prosper. The BMC Academy, under the direction of Davis Lowes and his team, has continued apace. The Ardingley training weekend, organised for U-20 and younger athletes, had over 150 attendees. It is worth emphasising that Nike have committed themselves to offering a free pair of spikes in 2007 to all members of the BMC Academy who are paid up for 2006.

As you scan the 2006 BMC fixtures please also note that we are once again organising competitions in Northern Ireland. I know that John Glover will receive your best support in this venture.

I am also pleased to report that News of the BMC competitions has reached the dizzy heights of the tv moguls. Such has been the response that sportuk.tv, the dedicated internet sports channel, has committed itself to transmitting the five 2006 BMC Nike GP's and a number of other BMC events. These will be edited versions of the day/evenings competitions and dvd's of each evenings/days events will be made available for a nominal fee. sportuk.tv are hoping to make these available on the day of competition.
If you or your athlete(s) are involved at any of the above venues I hope that yours and their performances merit a starring role with sportuk.tv.

50 years ago...

By 1956 Gordon Pirie had established himself as one of the world's leading distance runners, one who had a more than useful middle-distance pedigree as well. He had beaten Emil Zatopek more than once, had placed in the first five at both 5k and 10k in the 1952 Olympics. In 1953 he was virtually unbeatable, certainly in the UK, in 1954 he lost most of the season with injury and in 1955 came his excellent runs against Zatopek. His 1956 opened with some mediocre performances at 1500m and the mile but he quickly sharpened up over these distances plus good runs over three miles and 5k.

He then went to Norway for a "fishing holiday" where he prepared, over eight days, for his next race. It was to be over 5k and at this time his best was 14:3.8, with a three miles best of 13:29.8, both in 1955. So it was that at 8pm on June 19th at Bergen that he lined up against Vladimir Kuts of Russia, it was raining heavily, the temperature 11c. The cinder track had a reputation of standing up to such conditions. The Russian had held the world record for this event on two previous occasions and was a noted front runner. He took off with k's of 2.36, 2.46 (5.22), 2.47 (8.09), 2.48 (10.57) with less than 300m to go Pirie eventually got by and with a 41.6 last 300 reached the tape in 13:36.8, last k was 2.39.This was a new world record and a very considerable improvement on the old mark.

It would be sixteen months before the Russian bettered this mark...and then only by 1.6 seconds and his performance would stand for eight years giving some further proof of the excellence of Pirie's run. Elsewhere that year the Briton would twice create new world figures for 3k plus new GB figures for 10k and a mile PB of 4:2.2 and of 1500m of 3:43.4.

He went to the Melbourne 1956 Olympics with high hopes but Kuts had revenge, he led the first 5k of the 10 in 14:6.8!!! (with the Briton on his shoulder), only 4/10ths slower than the Olympic 5k record!! Pirie hung on but faded fast with a couple of laps to go and finished 8th but all was not lost as he came back to take silver behind Kuts in the 5k.

For British distance running, and Pirie in particular, this was a year to celebrate.

BRITISH MILERS' CLUB

NATIONAL FIXTURES 2006

See www.britishmilersclub.com for Entries, Timetables, Seedings, Results,Information

Entry Standards

Entry to Grand Prix will be guaranteed for paid up members entering 7 days or more in advance of the meeting provided they have achieved the BMC Senior qualifying times.

M800 1.56.0, W800 2.18.0, M1500 3.56.0, W1500 4.45.0.

EI Standards

M3000 8.30, W3000 10.00, M5000 14.50, W5000 17.30, M10000 30.00, W10000 34.40, M3000S/c 9.20, W3000S/c 11.00.

10000 metres Trials

Entry to these races are by invitation only based on the above entry standards. If invited enter on BMC website. More details from Ian Hodge email Ian.Hodge@fast-track-events.com

Pacemakers

The BMC is looking for pacemakers for its 2006 race series for men and women's 800m and 1500m events.
BMC is able to pay small fees for pacemakers. Those interested should contact Tim Brennan on 01628 415748 or via the BMC website.
Those interested in pacing EI events should contact Spencer Barden 0870 9986715 or 07917 424567.

Overseas Athletes

The BMC welcomes overseas guests in its Grand Prix races particularly those of an international standard. Contact Tim Brennan on 01628 415748 or enter via the website.

Prizes

See website for full information on prizes. Amongst the many prizes Nike will award a bonus of £1000 to the first British runner to break 4 mins in the Nike Mile and the first British runner to break 4.30 in the Bowerman Mile for women at the BMC GP Final.

BMC NIKE GRAND PRIX and ENDURANCE INITIATIVE

Overall Directors Steve Mosley 029 2030 6733, Tim Brennan 01628 415748

Entry Fee for BMC Members £2, Non Members £12 (U20 £5)

Sat. 20 May	Loughborough	M800	Andrew Osment	07879 678917
		M1500	Phil O'Dell	01234 852038
		W800, W1500	Rupert Waters	07790 767433
		EI M3000 & W5000, M3000S/C	Pat Fitzgerald	01895 811822
Sat. 10 June	Watford	M800	Rupert Waters	07790 767433
		M1500	Phil O'Dell	01234 852038
		W800, W1500	Andrew Osment	07879 678917
		EI M & W 3000S/C	Pat Fitzgerald	01895 811822
		M10000, W10000 Invitation Only	AAA Champs & Trials	See notes.
Sat. 24 June	Solihull	M800, M1500	Steve Mosley	029 2030 6733
		W800, W1500	Steve Mosley	029 2030 6733
		EI M5000, W5000, M3000S/C	Pat Fitzgerald	01895 811822
Sat. 29 July	Cardiff	M800, M1500	Steve Mosley	029 2030 6733
		W800, W1500	Steve Mosley	029 2030 6733
		EI M & W 3000, M & W 3000S/C	Pat Fitzgerald	01895 811822
Sat. 12 August	Sports City	M800, M1500, Nike Mile	Norman Poole	0161 980 8358
	Nike GP Final	W800, W1500, Bowerman Mile	John Davies	0161 611 9065
		EI M3000, W5000, M10000, M & W 3000S/C	Mike Deegan	01457 765416

BMC Nike Grand Prix Final

M and W 800m - Winners of A races in the first 4 Grand Prix are guaranteed an A race.
M and W 1500m - Winners and runners up guaranteed an A race.
Top M & W Under 20 in each Grand Prix to be invited to Final.

Television Recording

It is planned that our major meetings are to be filmed and recorded by sportuk.tv a dedicated internet sports channel. Your entry will confirm your acceptance to be filmed at those meetings.

THE BEST OF BRITISH FROM THE BMC

www.britishmilersclub.com

SPORTS £.£ MATCH

uk:a UK CHALLENGE

BRITISH MILERS' CLUB

PB CLASSICS, GOLD STANDARD, AND REGIONAL FIXTURES 2006

See www.britishmilersclub.com for Entries, Timetables, Seedings, Results,Information

BMC ACADEMY YOUNG ATHLETES PB CLASSICS

Entry Fee for BMC Members £2, Non Members £5.

Mon. 1 May	Millfield	M800, M1500, M3000	Mike Down	0117 973 3407
Mon 1 May	Millfield	W800, W1500, W3000	Steve Mosley	029 2030 6733
Mon 1 May	Trafford	M &W800, M & W1500, M & W3000	Neil Canham	0161 225 5156
Sat. 7 May	Watford	M &W800, M & W1500, M & W3000	Jim Bennett	07971 463452
Sun 28 May	Cardiff	M &W800, M & W1500, M & W3000	Steve Mosley	029 2030 6733

First two fastest of U15, U17, U20 PB Classic races at 800m and 1500m to be invited to the final.

OTHER BMC RACES

DATE		Venue	Events	Contact	Telephone	Standard
APRIL	25	Exeter	800 & 3000 M & W All Ages	John Knowles	01872 263541	Regional
MAY	1	Birmingham Univ	800 M & W Sen. Only	Ollie Wright	0121 580 2184	Regional
	2	Trafford	800 M & W, 1500 M 8pm	Mike Harris	0161 437 9828	Gold Standard
	3	Watford	800, 1500, & 5000 M & W Sen only 7.45pm	Rupert Waters	07790 767433	Gold Standard
	6	Mary Peters	To be confirmed	John Glover	02890 287246	Regional
	16	Trafford	800 M & W, 1500 M 8pm	Mike Harris	0161 437 9828	Gold Standard
	17	Eltham	800, 1500, & 3000 M & W All ages 8pm	David Reader	07968 498706	Regional
	29	Birmingham Univ	800 M & W Sen. Only	Ollie Wright	0121 580 2184	Regional
	30	Exeter	1500 M & W All Ages & 5000 Sen	John Knowles	01872 263541	Regional
	30	Trafford	800 M & W, 1500 M 8pm	Mike Harris	0161 437 9828	Gold Standard
JUNE	13	Trafford	800 M & W, 1500 M 8pm	Mike Harris	0161 437 9828	Gold Standard
	14	Watford	800 M & W 7.45pm	Rupert Waters	07790 767433	Gold Standard
			1500 M & W	Phil O'Dell	01234 852038	Gold Standard
	27	Exeter	800 & 3000 M & W All Ages	John Knowles	01872 263541	Regional
	27	Trafford	800 M & W, 1500 M 8pm	Mike Harris	0161 437 9828	Gold Standard
	28	Eltham	800, 1500, & 3000 M & W All ages 8pm	David Reader	07968 498706	Regional
	28	Birmingham Univ	800 M & W All Ages	Ollie Wright	0121 580 2184	Regional
JULY	11	Trafford	800 M & W, 1500 M 8pm	Mike Harris	0161 437 9828	Gold Standard
	12	Birmingham Univ	800 M & W All Ages	Ollie Wright	0121 580 2184	Regional
	19	Eltham	800, 1500, & 3000 M & W All ages 8pm	David Reader	07968 498706	Regional
	25	Exeter	1500 M & W All Ages & 5000 Sen	John Knowles	01872 263541	Regional
	25	Trafford	800 M & W, 1500 M 8pm	Mike Harris	0161 437 9828	Gold Standard
	26	Watford	800 M & W 7.45pm	Rupert Waters	07790 767433	Gold Standard
			1500 M & W	Phil O'Dell	01234 852038	Gold Standard
AUGUST	2	Antrim	To be confirmed	John Glover	02890 287246	Regional
	8	Trafford	800 M & W, 1500 M 8pm	Mike Harris	0161 437 9828	Gold Standard
	16	Eltham	800, 1500, & 3000 M & W All ages 8pm	David Reader	07968 498706	Regional
	19	Templemore	To be confirmed	John Glover	02890 287246	Regional
	22	Trafford	800 M & W, 1500 M 8pm	Mike Harris	0161 437 9828	Gold Standard
	23	Watford	800 M & W 7.45pm	Rupert Waters	07790 767433	Gold Standard
			1500 M & W	Phil O'Dell	01234 852038	Gold Standard
	29	Exeter	800 & 3000 M & W All Ages	John Knowles	01872 263541	Regional

Additional races may be arranged at other venues. Check website for details or contact your Regional Representative
Please enter by Friday before meeting to avoid disappointment.

THE BEST OF BRITISH FROM THE BMC

www.britishmilersclub.com

SPORTS £.£ MATCH

Achilles tendon trouble

Twelve things you should know about achilles tendon trouble

1) The Achilles tendon is a large thick tendon present in the lower leg that attaches the calf muscles to the heel bone, enabling this to be moved. It is prone to inflammation, partial and complete rupture. Usually, the last two require surgery and sometimes even the first does.

2) Numerous theories have been suggested as to the cause of Achilles trouble and include:-
   a) A second toe that is longer that the first toe.
   b) Constant and direct pressure on the tendon sheath caused by too tight ankle strapping with non-elastic tape or a high shoe back support.
   c) A change in footwear (flats to spikes).
   d) A sudden and excessive change in training routine, particularly a spell of hill running.
   e) Lack of flexibility in the calf muscle.
   f) The wearing of high-heel shoes during the day.

   However, a higher heel shoe is often recommended in the early treatment of this condition.

3) There is now general acceptance that there is no such thing as “an inflamed Achilles”, the injury is due to degeneration not inflammation and does not respond to anti-inflammatory medicine.

4) C. Bould in his revolutionary book HINTS ON ATHLETIC INJURIES suggests a variety of treatments:-
   a) short wave diathermy.
   b) Ultrasonics.
   c) Anodal galvanism followed by faradism.
   d) Renotin ionisations.
   e) Ultra-violet rays given with the Kromayer lamp.
   f) Strapping.

   Some 40 years later, Khan et al. confirmed that these electrical treatments and laser photo stimulation aided tendon repair when studied in animals.

5) A major innovation in treatment occurred in 1995 when Stanish et al first noted that Achilles tendon ruptures occur most frequently when the tendon is stretched eccentrically (running downhill). It was also noticed that those suffering from tendonitis experienced increased pain when eccentrically stretched.

6) Following total rest for 7 to 21 days (swimming is permitted) during which the painful area is iced for 5-minutes every 4 hours, these exercises should be done for 15-minutes daily:-
   a) Stand with the ball of the foot on the edge of a step with the heel extended over the edge. The heel is gradually lowered to full stretch and returned. Three sets of 10 repetitions each should be done SLOWLY for the first two days, moderately for two days and thereafter quickly. After a week, a disused car tyre filled with sand and tied at each end can be held over the shoulders to increase the gravitational stretch.
   b) Calf raised on a multigym machine.
   c) Stand facing a wall, feet together a foot away. Keeping the heels firmly on the ground bend the knees straight ahead. Return and still keeping the heels down, aim the knees to the left (difficult) and return. Repeat to the right. Repeat the sequence of straight, left and right bends ten times daily.

7) Our muscles are dependent on a good nutritional daily intake. Dr. David Edwards, a nutritionally orientated physician in Fresno, California, believes that Achilles trouble is associated with the lack of the mineral manganese found in tea, avocados, spinach and oatmeal. Prof. Linus Pauling and Gradjean advocated

Manchester, 21.5.05. JOLENE BYRNE (Ireland, 262) wins the women's 'A' 1500m. from RACHEL OGDEN (263). photo by Mark Shearman.

increased vitamin C intake with all injuries starting with 1,000mg of effervescent vitamin C first thing in the morning and repeated at night. Gradjean in particular estimated that damaged tissue healed three times faster in the presence of a high vitamin C intake.

8) The most efficient method of taping for Achilles tendonitis brings the origin of the muscle closer to its insertion, which shortens the tendon and allows one to continue running. The procedure is:-
   a) Place an "anchor" strip of tape (4ins x 2ins) horizontally across the back of the calf where it joins the Achilles tendon. Pace another anchor strip across the bottom of the forefoot.
   b) Connect the anchors with a strip of tape (18ins x 3ins) straight down and two more strips from either side of the calf anchor to the forefoot anchor. Criss-cross them at the heel.
   c) Wrap a non-adhesive bandage loosely over the entire area.

9) Prof.T. Noakes' three-pronged attack on Achilles tendonitis: - Stage 1 – Morning discomfort in the tendon.
   a) Rest for one week.
   b) Stretch calf muscle for 20mins daily.
   c) Try new running shoes which prevent excessive pronation.
   d) Stick on the heel outside 7-15mm heel rise to running and daily shoes.
   e) Elevate leg when at rest.
   f) Ice for 5mins daily.
   g) Continue training as before.
   h) Pinch the calf muscle with the shoe off, if the foot doesn't automatically move, suspect a partial rupture.
   i) See a qualified physiotherapist (M.C.S.P.).

10) Stage 2 of Noakes' attack:- Pain during running but not severe enough to stop.
   a) Repeat Stage 1.
   b) Reduce training load.
   c) Try an orthotic from a recommended practitioner.
   d) Try more physiotherapy.

11) Stage 3 of Noakes' attack: - Pain affecting performance.
   a) Rest three weeks.
   b) Repeat previous procedures.
   c) More physiotherapy in particular cross-frictions.
   d) After 3 weeks of rest do only cycling, swimming and running in water (deep end of baths).
   e) If all the above fails consult a recommended sports surgeon.

12) Contrast baths religiously applied every 4 hours have brought about some spectacular results. The entire tendon is packed with ice bags (frozen bags of peas) for a timed 5-minutes. The entire foot and tendon is submerged in hot as bearable water for 5-minutes (keep the hot tap slightly running throughout to maintain temperature). Repeat the process (20mins total). N.B. It is dangerous to apply ice for more than 5 minutes initially to any muscular injury. This can lead to permanent paralysis of the part. However, 5mins on and 5 mins off is a safe routine.

Hippocrates.

Predictions

Frank Horwill has predicted Commonwealth medals as follows, did he do better than you?

100m	**Men -** Jamaica, Trinidad, Ghana	**Women -** Bahamas, Jamaica, Jamaica
200m	**Men -** Jamaica, Wales, Jamaica	**Women -** Jamaica, Cayman, Jamaica
400m	**Men -** Canada, Bahamas, Wales	**Women -** Bahamas, Bahamas, England
800m	**Men -** Kenya, South Africa, Canada	**Women -** Kenya, Jamaica, Mozambique
1500m	**Men -** Kenya, Kenya, Kenya	**Women -** Canada, Kenya, England
5k	**Men -** Kenya, Kenya, Kenya	**Women -** Kenya, Kenya, England
10k	**Men -** Ugnda, Kenya, Kenya	**Women -** Kenya, England, Kenya
3k S/C	**Men -** Kenya, Kenya, Kenya	**Women -** Uganda, Kenya, Jamaica
Marathon	**Men -** Kenya, Kenya, Kenya	**Women -** England, Kenya, Kenya
4 x 100m	**Men -** Trinidad, Jamaica, England	**Women -** Jamaica, Nigeria, Bahamas
4 x 400m	**Men -** Bahamas, Jamaica, England	**Women -** Jamaica, England, India.

How to develop the 800m specialist

by Liam Cain

Undoubtedly fast 800m running requires sustained sprinting abilities developed through a careful blend of training from both the endurance and sprinting communities. Understanding how to apply strength training and create structured training workouts will unlock the potential for fast 800m running performances.

Before we can look at the specific training workouts and the periodisation of the 800m event, we must encourage our runner to be more athletic. The reason for this is because we must prepare and condition the runner for the demands not only of the 800m event but also the training that is required in the various phases of preparation.

A conditioned athlete will be able to absorb the many varied training sessions without breaking down through injury. Greater athleticism begins with posture, body alignment and muscle balance evaluation. The introduction of mobility in the ankle, hip and shoulder joints coupled with the development of skills and drills contribute to the athletic development of the 800m runner.

Strength and Conditioning is best viewed by understanding a concept called: The Muscle/Tendon Complex. Muscles are trained through resistance work using weight training and are responsible for the production of power. Tendons are trained through jumps or plyometric training and are responsible for reactive strength.

When we understand this concept a clear pathway to conditioning an 800m runner will become evident when we review their physique. We will generally find two types of 800m runner:

- The muscled, mesomorph athlete
- The slight, slender, ectomorph athlete

If we take the mesomorph athlete and introduce weight training the chances are that they will bulk up and become too heavy. If they increase bodyweight too much their aerobic system may not be sufficiently developed to sustain this increased weight and subsequent loss in relative VO2 max. The mesomorph type runs the 800m through muscle power which results in very high lactate production and obvious muscle damage. These athletes need to learn to float around the track and emphasise tendon development through jumps training. Olympic Lifting weight training would not be suitable – power is already there. Circuit based work with 50-100m jogs between work stations would be a more suitable conditioning stimulus for the mesomorph athlete.

The more slightly built ectomorph

Melbourne, 25.3.06. ANDY BADDELEY. photo by Mark Shearman.

athlete who can sprint fast probably has great reactive strength capabilities. Although a jumps programme should be implemented this athlete requires Olympic Lift Strength development to maximise muscular power. The slight increase in bodyweight due to weight training will not affect this athlete but the power gains will drastically improve performance.

Both types of athlete should make use of core or pillar strength training. Lower limb strengthening exercises should be encouraged to avoid 'trainer feet' problems.
Up Skill Running Technique

Fast running is a skill. Therefore it must be taught correctly and practiced regularly. Think about:

- Relaxation in the Face and Shoulders
- Correct placement of the hands
- Compact use of the arms
- Maintain a tall running posture
- Encourage a smooth hip movement through increased mobility
- Develop an active foot strike

Tempo sessions to maintain race pace mechanics should be encouraged to help the athlete maintain form and develop a relaxed sprinting stride. Endurance training will not help the athlete improve running technique. Speed through endurance applies to physiology only – not skill development.

800m Training

Structured Fartlek Sessions

The 800m runner needs to develop oxygen uptake capabilities (VO2 max). This type of runner should perform

repetitions of 1-4 minutes in duration with a recovery of half the repetition duration. By performing this session over undulating parkland, forests or trails you will add a strength endurance component. You will also take away the stress of the track both physically and more importantly mentally so that the athlete feels refreshed. These workouts are utilised extensively in the General Preparation Phases. They are maintained through the Special Preparation Phase and used occasionally in the Pre-Competition and Competition phases to top up the endurance tank.

VO2 max Track Workouts

Performing Fartlek sessions will improve oxygen uptake in a natural way. However having a high VO2 max number is only one part of the equation. You must also consider velocity at VO2 max (vVO2 max) and also VO2 Kinetics (how fast you can access or the rate you can utilise your VO2 max).

To hit all three areas you need to perform track workouts at vVO2 max paces which are roughly 3k/2 mile speed. If you are unsure about the speed to perform these sessions you can run a 6-minute test. Run as hard as you can for 6 minutes around a 400m track. After 6 minutes mark off the distance you have covered. If you cover 2000m in 6 minutes then your velocity at VO2 max is 20 kilometres per hour which means you would run vVO2 max workouts at 72 seconds per 400m lap.

The table below shows distances covered in the 6-minute test and corresponding vVO2 max and training pace. The 6-minute test was devised by the French physiologist, Veronique Billat.

Distance Covered	vVO2 max	Pace per 400m
2200m	22 km/h	65"
2100m	21 km/h	68"
2000m	20 km/h	72"
1900m	19 km/h	75"
1800m	18 km/h	80"
1700m	17 km/h	85"
1600m	16 km/h	90"

Every male sub 1'50" runner I have coached has been able to cover in excess of 2100m on the 6 minute test. Every sub 2.10 female runner I have coached has covered at least 1700m in this test.

Performing 3 x 1000m repetitions at vVO2 max pace would be a standard session. For an athlete with a vVO2 max of 20 km/h this would take 3 minutes to complete the repetition. I would allow a 1:1 work rest ration allowing 3 minutes of recovery.

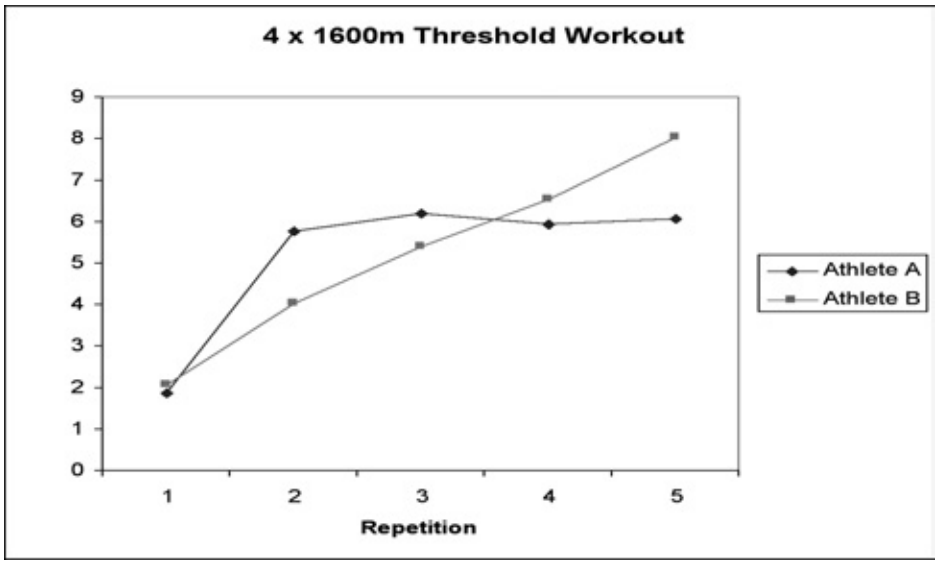
An athlete with 16 km/h vVO2 max pace would take 3'45" to complete the repetition and would have the same amount of time in recovery.

We utilise these durations because they will improve the athlete's VO2 max but also as an 800m runner you need to access your oxygen uptake very quickly to race effectively.

As a coach you are always looking to be creative. I take this 3 x 1000m session and split it up each 1000m repetition like this (based on an athlete who has run 1'48")

- 600m in 1'37" (65" per 400m)
- 100m float recovery in 20"
- 300m in 45" (60" per 400m)

We cover many areas here. To complete the session the overall time of the repetition is 2'43" so we are maintaining our VO2 max, Secondly we are training vVO2 max with the 600m as well as VO2 max kinetics. With the 100m float recovery in 20" (80" per 400m) we introduce something called the lactate shuttle. The athlete having produced lactate (through the 600m repetition) must now clear it quickly through a fast active recovery. The 300m repetition is now run at 1500m pace (3'45") forcing the athlete to inject a pace change. If the first 600m is too quick the athlete will struggle to maintain the float recovery and be unable to up the pace for the 300m repetition. Progression of the session comes from increased pace of the float recovery not by increasing the speed of the fast intervals. This shows the athlete is becoming more aerobic at



these paces. Completing the 1000m distance split-up still produces the overall time of 2,43,, which is an average pace of 65.5" for the distance. Therefore you have averaged vVO2 max pace for the 1000m but run it with a broken up rhythm – just like many 800m races. Therefore this type of session would be introduced in the Special Preparation phase of training and maintained through the Pre-Competition Phase.

Threshold Training

The prescription of the correct threshold pace for the 800m runner is probably the most important factor in developing their endurance capabilities and sustaining the competitive season. The only way to be accurate with the training intensities is to monitor the anaerobic threshold through regular lactate testing. By that we do not mean just laboratory treadmill test but fortnightly field testing over a fixed distance. Generally I use 3-4 x 1600m and I look for a stable lactate production or maximum lactate steady state (MLSS). In the chart below you can see two examples of threshold sessions. Athlete A (a 2'05" female athlete) is running at MLSS pace at 6.00 min mile pace and is producing a very stable lactate curve. This is exactly what we are looking for in this type of workout. Athlete B (a male 1'52" runner) is running at 5.14 minute per mile pace. He feels comfortable. He is misreading his body and is not training his threshold. To produce the flatter more stable curve this athlete had to reduce his pace to 5.30 minutes per mile pace.

The author lactate testing Bram Som of the Netherlands a 1'43" 800m Runner

This type of training is introduced in the latter stages of General Preparation and Developed through the Special Preparation Phase.

After performing a threshold workout we utilise some 100m intervals at 1500m pace with 20" turnaround recovery. This allows the athlete to experience faster running mechanics and improve race specific running economy. It is very similar to the way sprinters utilise tempo endurance workouts.

To monitor the threshold effectively you may need the help of a physiologist or you can buy a lactate meter and perform the tests yourself.

The author lactate testing Bram Som of the Netherlands a 1'43" 800m Runner.

Specific Endurance

The purpose of this training is to prepare the athlete for the lactic tolerance required for the event. It is always wise to start at date pace early in the Special Preparation Phase and reduce this volume as the intensity builds progressing into the Pre-Competition Phase. An example of progressing sessions based on different repetition distances is outlined below:

Session	April	May	June
200m reps	2x5x200m	2x4x200m	2x3x200m
Pace	1'58"	1'57"	1'56"
300m reps	6x300m	5x300m	5x300m
Pace	2'08"	2'07"	2'06"
400m reps	6x400m	5x400m	4x400m
Pace	1'52"	1'51"	1'50"

Towards the end of the Pre-Competition Phase and the Competition phase itself you can schedule long repetition long recovery workouts:

- 3 x 500m + 300m at race pace with 15-20 minute recovery
- 2 x 600m + 200m at race pace with 20-30 minute recovery

It is at this point of the season that the athlete should be conditioned for the event they just need race simulation workouts to help 'put it all together'.

Remember some athletes do not like to run these race simulation workouts preferring to come into the early competition phase at 90-95% race fitness. Using low key races helps them find their full race fitness in time for the main competitive season.

Speed Development

For the 800m Specialist speed development is crucial. A thorough understanding of speed terminology is important. We are not talking about speed in the context of 800m pace – that is specific endurance. Outlined is the speed we need to develop:

Energy System	ATP+CP	ATP+CP +LA	ATP+CP +LA
Terminology	Speed Alactic Power	Speed Endurance Alactic Capacity	Speed Endurance 1 Lactic Power
Duration	6"	6-20"	20-40"
Distance	20-60m	80-150m	150-300m

In the general Preparation Phase short repetitions over 30-100m can be introduced through hill sprinting. As the season progresses fast sprinting must be transferred to the track.

A useful session in the Special Preparation Phase is to work on 200m

capability using 8 x 100m. The benefit to using this distance is that you can always run with the wind behind you. I split the session into 4 x 2 x 100m with each 100m interval at 200m pace. Have 2 minute recovery between pairs and 5 minute recovery between sets.

This session can be progressed in the Pre Competition Phase to split 200m. Run 200m at 400m pace take 30" recovery and repeat. Generally I use 3 set with 15 minutes recovery between 200m pairs.

In the Competition Phase I would still use the 8 x 100m session but if requiring speed and lactate tolerance I would introduce 300m + 200m + 150m at 400m pace with 15 minute, 10 minute and 5 minute recoveries. The key to speed development is to know when to schedule the higher lactic tolerance sessions. This last workout would be totally inappropriate in the General Preparation Phase.

Periodisation

The training sessions required for 800m running have been discussed. Now we have to look at creating a schedule that develops an 800m runner through the season.

I would generally look to organise training schedules into 3 week blocks or cycles. This would allow for 2 weeks of loading and a one week unloading phase. If you continually repeat a 2 week hard intensive phase for too many weeks invariably the athlete becomes ill or injured. By introducing the regeneration weeks the body is able to adapt to the very demanding training required for high level 800m running.

To understand the schedules detailed below we must also consider adding easy and steady running. For the 800m Specialist one Long run of a maximum duration of 60 minutes and one Medium Long Run to a maximum of 45 minutes should be programmed. The remaining runs should be no longer than 30 minutes.

General Preparation Phase

Saturday
Fartlek – 2'+3'+4'+3'+2' off 2' recovery + 2 x 5 x 100m Hill Sprints

Sunday
60' easy to steady running + circuit training

Monday
30' easy to steady + abdominal and lower limb strengthening exercises

Tuesday
30' easy to steady + circuit or weight training

Wednesday
45' easy to steady + abdominal and lower limb strengthening exercises

Thursday
15' threshold run + 5 x 200m at 1500m pace with 100m easy jog recovery

Friday
Rest

Special Preparation Phase

Saturday
3 x 1000m Split up at vVO2 max pace

Sunday
60' easy to steady running + circuit training or weight training

Monday
30' easy to steady + abdominal and lower limb strengthening exercises

Tuesday
2 x 5 x 200m or 6 x 300m or 6 x 400m at 800m Date Pace

Wednesday
45' easy to steady + abdominal and lower limb strengthening exercises

Thursday
3 x 1600m at Threshold Pace + 10 x 100m at 1500m pace with 20" rec

Friday
Rest

Pre-Competition Phase

Saturday
2 x 600m + 200m at 800m pace or Low Key Race

Sunday
45' easy to steady running + circuit training or weight training

Monday
30' easy to steady + abdominal and lower limb strengthening exercises

Tuesday
3 x 2 x 200m at 400m pace

Wednesday
30' easy to steady + abdominal and lower limb strengthening exercises

Thursday
2 x 1600m at Threshold Pace + 10 x 100m at 1500m pace with 20" rec

Friday
Rest

From this article you should be able to construct your own 800m schedules. If you require further assistance on any aspect of 800m running then please contact us through our website www.middledistancecoach.com for specific help.

Good luck with your 800m running and racing during the 2006 season.

Was anyone better qualified to run the 4-minute mile?

The USA's leading miler of the early 1950s: Don Gehrmann. High-class performances from 440 yards to two miles – was anyone better qualified to run the four-minute mile ?

By Bob Phillips, Editor of the NUTS journal, "Track Stats"

Don Gehrmann was the most consistently successful American miler during the years soon after the end of World War II. At the age of only 20 in 1948, he won the US Olympic Trials 1500 metres and reached the Games final at Wembley. He became the first man to win the NCAA (national collegiate) 1500 metres or mile for three successive years. He won 87 of his 99 races while at college and 39 successive mile events from 1948 to 1951. Yet his opportunities to compete at the highest level and to train properly were limited for much of his career, and lacking full fitness he missed out on qualifying for the Olympics of 1952.

He first emerged in 1947, running 4:12.0 for the mile and 9:12.0 for two miles indoors in a race in Chicago in which he finished close behind one of the country's most experienced distance-men, Forrest Efaw (9:11.4), and a future double AAU 1500 metres champion, John Twomey (9:11.7). Outdoors Gehrmann was a highly promising 3rd in the AAU 1500 to Gerry Karver and Bill Mack (times of 3:52.9, 3:53.3, 3:54.3). As a student at Wisconsin University in 1948 Gehrmann ran 1:52.3 for 800 metres (equal 29th on the World list for the year), won the NCAA 1500 in 3:54.3, and at the Olympic Trials succeeded again in a desperately close finish in 3:52.2 (actually 3:52.41 on automatic timing) ahead of Clem Eischen and Roland Sink, with Karver 4th and the US mile record-holder, Bill Hulse, 5th. At Wembley Eischen and Sink went out in the heats, but Gehrmann was the only non-European to qualify and finished a highly commendable 7th, one place behind Britain's Bill Nankeville. A few days later he made a first appearance at the White City Stadium, in London, in a US team which lost by 35 yards to the British Empire at 4 x 1 mile.

Early the next year Gerhmann began to show the form which would make him such an outstanding indoor runner. Watched by a 16,000 crowd at the Millrose Games in Madison Square Garden, he set the pace in the "Wanamaker Mile" ahead of Willy Slijkhuis, the "Flying Dutchman" who had won the 1500 and 5000 bronze medals at Wembley, was overtaken, and then came back in the last 80 yards to win, 4:09.5 to 4:09.6. Outdoors Gehrmann was a fraction slower, taking the NCAA title in 4:09.6 by a very long way from Bill McGuire (4:12.0), but this was good enough to rank 5th in the World for the year in a list headed by the Swedes, Olle Åberg (4:05.4) and Gösta Bergqvist (4:05.8), from Ireland's John Joe Barry (4:08.6) and Nankeville (4:08.8). Gehrmann also ran 1:52.2 for 880 yards (equal 15th in the World) and the same day was in a winning team at 4 x 440 yards (3:13.9) which included Mal Whitfield on anchor.

The times by the Swedish mile runners were the closest approach yet made since the World record had been set at 4:01.3 by Gunder Hägg, of Sweden, in 1945. In other words, in 1949 the idea of a four-minute mile soon becoming reality could still perhaps have been described as wishful thinking.

During the 1950 indoor season Gehrmann won the "Wanamaker Mile" again, but it was a close-run affair with Fred Wilt given the same time of 4:09.3 and Gehrmann

Melbourne, 20.3.06. CARMEN HUSSAR (Canada, 1245) leads from HAYLEY OVENS (1983).
photo by Mark Shearman.

getting the decision on the deciding vote of the chief judge. At the Michigan State Relays, on a dirt track in East Lansing, the winning margin for Gehrmann was rather greater – all of 100 yards – in a time of 4:12.7. He also won in Chicago in 4:09.5, ran by far the fastest indoor half-mile of 1:51.8, and set a personal best of 9:08.2 for two miles. This was the sort of versatility which now suggested that at only just 22 years of age Gehrmann was as good a candidate as anyone in the World if that four-minute barrier was to be breached.

On June 20, at his home track in Madison, Wisconsin, Gehrmann made his last appearance as a college athlete and thrilled the 10,000 spectators with a veritable tour de force. He began the afternoon by winning the mile in 4:11.1. He then came from behind at 880 yards to beat Bob Chambers in 1:50.7 – note that Chambers had been 6th in the 1948 Olympic 800 metres final – and he completed his afternoon's work with a 440 relay leg in 48.5. Roberto Quercetani, already established as one of the World's foremost athletics statisticians and historians, said of Gehrmann that "these achievements really stamp him as one of the greatest middle-distance talents in the World today". The half-mile time was to rank 3rd in the World for the year behind only the Olympic champion, Mal Whitfield (a World record 1:49.2 for 880 yards), and the Norwegian, Audun Boysen (1:48.7 for 800 metres). However, Gehrmann did not compete in the AAU Championships 1500 metres, which was won instead by John Twomey in 3:51.3, and it was two other young American milers, Jim Newcomb and Bob McMillen, who attracted much attention with their times of 4:07.7 and 4:07.8. Gehrmann's fastest outdoor mile for the year was 4:10.2 and Belgium's Gaston Reiff led the World rankings at exactly four seconds faster.

So the pattern continued in 1951. Gerhmann ran brilliant indoor miles in 4:07.5 and 4:07.9, but his outdoor best was only 4:13.8, ranking equal 27th in the World, six seconds behind Britain's new four-minute-mile hopeful, Roger Bannister.

Then early in Olympic year Gehrmann achieved perhaps the finest performances of his career. He won the AAU indoor 1000 yards – incidentally, his one and only AAU title indoors or out – in a World-record 2:08.2, leading from early on in the race to pass the half-mile in 1:51.6, beating Reggie Pearman by 30 yards, and breaking the previous record of 2:08.8 set by John Borican in 1942. This distance was in those days a standard event in US indoor competition. Again at Madison Square Garden Gehrmann set a World indoor best for 880 yards of 1:51.0 - marvellous running on the tight turns of the historic track. He then came as a member of an AAU team to the White City for the British Games at the Whitsun weekend; on the Saturday finishing 3rd at 1500 metres to Bill Nankeville (3:49.0) and Peter Robinson (3:49.8) in 3:50.6 and on the Monday beating Nankeville at 1000 yards, 2:11.0 to 2:11.1 (an English record), and later winning an impromptu 440 yards on a flooded track in 49.2. His 1500 metres time was equivalent to a sub-4:09 mile – faster than he was ever to actually run the distance outdoors.

At the AAU Championships Gehrmann was 6th in a slow-run 800 metres, as Pearman won in 1:53.5 from Len Truex and Bob McMillen. Gehrmann ran the same event at the Olympic Trials the next week and in the home straight it seemed as if he might make the team as he was still in 3rd place, but Pearman came past him and the Olympic chance was gone. Mal Whitfield won very easily in 1:48.6 from John Barnes, Pearman (both 1:50.6) and Gehrmann (1:51.2). The 1500 went to McMillen from Warren Druetzler and Javier Montes (who Gehrmann had beaten easily the year before). At the Helsinki Olympics Whitfield got the 800 gold and McMillen the 1500 silver.
Gehrmann had one final season indoors in 1953, and he finished with a flourish. Though regularly beaten in mile races by the new US stars, Fred Dwyer and Fred Wilt, he ran the great Mal Whitfield close at 880 yards, 1:50.9 to 1:51.4, as Whitfield broke Gehrmann's World record. Whitfield was in irresistible form that winter, setting other records at 500 yards and 600 yards (the latter having also been held by the wartime prodigy, John Borican). At the AAU Championships Gehrmann was narrowly beaten for the 1000 yards title by Heinz Ulzheimer, Germany's Olympic bronze-medallist at 800 metres, 2:09.4 to 2:09.6. Ulzheimer's time was the 4th fastest ever to Gerhmann's 2:08.2 of the previous year, Borican's 2:08.8, and a 2:09.2 by Glenn Cunningham in 1939.

Finally, on March 14, at his home track in Milwaukee, Gehrmann ran his last race – and did it in style, even though he had to give way eventually to the new generation. He led the mile event through a 58.0 quarter and 2:01 half in a "do-or-die" dash for glory before being caught on the 11th and last lap. Another young prospect, Len Truex, was the winner in 4:07.8 – which had only ever been beaten by six other men, including Gehrmann.

As to why it was not Gehrmann winning one or other of those Olympic medals which went instead to Whitfield, Ulzheimer and McMillen, there is no need to conjecture. I contacted Don Gehrmann during the course of research for the book which I wrote in 2004 entitled "3:59.4: The Quest For The Four-Minute Mile", because I believed that he was one of a number of runners who in different circumstances might well have achieved that sort of mythical time before

Bannister. By way of response he sent me a tape-recorded message, and that is reproduced in full here. Don's words give a vivid insight into the problems which American athletes faced after graduating from college in that very different era of more than 50 years ago.

Don Gehrmann looks back on his miling career in the 1940s and 1950s

"In 1948 the Olympic Games came back since they were suspended after 1936, but there was no television and not a lot of people in America knew too much about the Games. They weren't a real big deal here except, of course, in trying to make the Olympic team. The American Olympic team, with three competitors in each event, was particularly difficult to make with the thousands of athletes that we have competing here in the United States. I was only young in 1948, still a sophomore at the university, and I had the opportunity to run in the trials and happened to have enough sprint in order to win the final, and two other fellows – one from Washington state and the other from California – were the athletes with me running the Olympic 1500-meter.

"What was probably the most important thing in my mind with the Olympics of 1948 – really, two things – were the ceremonies, especially the opening ceremony, which were something that was spectacular then, and even more spectacular now, and otherwise the fact that running in the Games was probably not as important back then as making the American team. Therefore I did not quite have the emotion and maybe the motivation that I should have had because the Olympics did not mean as much financially or personally in one's future as they certainly do today.

"You asked whether after the Games I set a target for qualifying again in 1952 – and the answer is that really I did not. I graduated from the University of Wisconsin in June of 1950, and we had our marriage date set for July 15 of that year. So I was married only a few weeks after my graduation. I married my high-school sweetheart who followed me through high school and then four years of college. It was just about 11 months after that we had our first child – a boy – and nine months after that our second child – also a boy. So we had two children already by 1952 and it's very difficult after graduation to compete at the level where you have to be one of the best 1-2-3 in the World when you have other major responsibilities. Because of these responsibilities I did not have much enthusiasm, nor much motivation, to make the 1952 team.

"I did, though, finish two years of indoor running, which was my favourite type of running, and I won 39 straight

Melbourne, 25.3.06. NICK McCORMICK (England, 1346) leads the men's 1500m. final from NICHOLAS WILLIS (New Zealand, 1850), CRAIG MOTTRAM (Australia), ANDY BADDELEY (England, 1319) and KEVIN SULLIVAN (Canada, 1231). photo by Mark Shearman.

mile races against national and international competition. As you pointed out, during my college career I won 87 out of 99 races. Some of them I did not run necessarily to win because I was running three races in our college meets in order to pick up points. I'd run the mile, the half-mile and the two-mile, and sometimes just wanted to place 2nd or 3rd in the two-mile event because it was very difficult to run all three races in some of the larger-scale meets.

"It was very difficult to continue my competition after graduation for the sake of, number one, my family, and of, number two, my job and of, number three, the facilities. In Milwaukee where I had to train we had no indoor facilities. They had a balcony track on top of a gymnasium which was 19 laps to the mile – just a very small track on top of the stadium. So what I did was to drive once a week to Madison where they do have an indoor track which I had run on in my university days. It was very difficult to take the time off because I was conscientious in doing my job as the public relations director and safety director of the Wisconsin division of the American Automobile Association. I did place 4th in the 800 metres at the trials not because I couldn't do it any better but because I wasn't in any better shape than to place 4th. I just didn't get enough practice in order to train for the Olympic team at that time.

"You asked whether the idea of the four-minute mile was a matter of discussion with other athletes and myself. I'd say that during the entire time that I was at the University of Wisconsin we did not discuss the four-minute mile. There were some articles written by some writers regarding the possibility that I might run the four-minute mile because of the times that I was running indoors when I was a junior at the university, but my mile races, my half-miles and my quarter-miles were always run in order to win, not for a time. I established a World's record indoors for the 1000 yards at Madison Square Garden in '52 only because the people who ran against me ran fast enough that the only way I could win was to break the record. The same thing was true outdoors, and that was done in the British Games 1000 yards where if it was going to be won it had to be in a record time because the people running against me were that good. So I did not run at any time to break any records. I found that my sprint could usually win the race.

"I ran that quarter-mile in the British Games at the White City Stadium and won it in 49.2 on a track that was completely flooded. I was up in the stands having something to eat after running the 1000 yards and the English people, the officials, came up and asked me if I could run the quarter-mile so that there would be an American in it. Our quarter-miler had pulled a muscle and wasn't able to run. I said I would do that. I loved to run the 440. I did not run it very often but a few times – especially anchoring the mile relay in very large college events like the Big Ten Conference Championship. I ran the relay setting records both indoors and outdoors. So that was something that I loved to do and was part of competition. I guess that any athlete who is World class is, first of all, a very hard competitor and wants to run really hard.

"I guess that the most important thing that I got from my running is that I loved the competition. Also I had the opportunity to travel throughout the country here and throughout the World, especially in Europe, where I ran in Paris, Brussels, Prague and in Germany a number of times. I really appreciated England and the track people who watched the meets there. They were great spectators. They appreciated a job well done, whether it happened to be an American or not.

Dear sir...

Dear Sir

As I am sure you are aware, there is a serious epidemic affecting many British international middle-distance runners. Since it is obviously akin to Mad Cow Disease, similar drastic action to that required for that condition is required to eradicate it. I refer, of course, to the seemingly incurable action of deliberately dropping to the back of the field within the first 200-300m of a race, irrespective of whether the pace be fast or slow. As in the case of the above-mentioned CJD, shooting, or some equally tough measure, should be introduced, thereby delivering them, and us, from the misery inflicted by their running one stupid race after another.

Rather worryingly, on reflection I find that I am not 100% sure that I am joking.

Yours, with little or no faith,
Stan Greenberg

The golden pace

by Frank Horwill

In a lecture, given thirty years ago, at a national BMC residential training week-end in Kent, Peter Coe, father and mentor of Sebastian Coe (twelve world records within four years plus Olympic medals) stated " Training at 5k pace in the winter is golden". We have to remember that, unlike Steve Ovett, Seb Coe did not compete at cross-country in the winterafter his days at school. There is a danger in not being "competitive" for six months in the winter and becoming complacent. In fact, Gordon Pirie caused outrage in the 1960's when he suggested, in AW, that all field event exponents virtually went to sleep in the winter and relied on on their natural talent to see them through the summer season. To back his remarks he observed that during the winter the only people he saw at the track were distance runners and sprinters. Gordon did not frequent indoor facilities.

Obviously, Peter Coe had in mind that his son must work tpwards the track season fully charged up. The then popular concept was to do big mileage, a policy Steve Ovett embraced. The latter approach paid off in the Moscow 800 which he was not favourite, but not in the 1500, where he was.

A clue to the Coe approach was another statement from Peter, "If speed is the name of the game, never get very far from it." Whilst some mileage was vital, there were other important neds not to be sacrificed on the volume altar. These were weight-training every other day, hill-work, speed-work, and something that could maintain a high level of endurance without absorbing overmuch time. This last requirement led to 5k pace work. According to A.V.Hill's analysis in 1932, racing 5k involves it being run 80% aerobically and 20% anaerobically. Note the second part which pays homage to to the more anaerobic events of 800 and 1500 metres. In fact, some athletes in the past only achieved their best mile times after they became 5k runners (Ian Stewart and Tim HUtchings).

In 1976 the physiologists , Fox and Matthews, went in for a more specific analysis of 5k speed, stating that it was 10% ATP-PC and LA, 20% LA-02 and 70%02. This suggests that a 5k specialist should do seven training sessions out of ten performing work-outs like 5x1200; two out of ten on 800's, in sets of two and one outing of 16x400, in sets of four.

The physiologists also tell us that 5k speed is run at 95% of the VO2 max and will reach the same percentage of maximum heart rate (MHR). That's some work workout. The world's greatest physiologists also agree endurance is more efficiently accrued when wwork is done between 80 and 100% of the VO2 max (88 to 100%MHR).

So, if we never raced 5k how do we know what pace to start with? Well, we have some conflicting suggestions. At world class, females can run 3-seconds per 400 metres slower than per 400 metres in their best 3k time. Men have a 1.5 sec differentail. Club athletes should add 8 seconds to the average 400 metres time their best 1500 metres. Thus, a female with a time of 4:30/1500 (72.400), would attempt a 5k pace session at 80/400(16:40).

Now, there is an important point to remember when training at any speed relevant to a distance - THE SESSION MUST REPLICATE THE CONDITIONS OF THE RACE DISTANCE. There is not much point in running one 400 metres at 80 secs and having a cup of tea and a bun before running the next one. There are no feding stations in a 5k race. A good rule- of- thumb recovery routine is to jog one-eighth distance of the rep, e.g. 4x1600 in 5:20, jog 200(90secs). Another technique is to use variable pace where the repetition distance is repeated is repeated without rest 8 seconds a lap slower, for example : 1x1600 in 5:20 and straight into 1x1600 in 5:52-6:00 repeated again without respite.

Conquer 5k sessions and you will improve your 10k time, 1500 metres time and cross-country status. Here are some introductory sessions for a 4mins/1500 performance:-

a) 13x400 in 72 secs, 20 secs stationary recovery.
b) 7x800 in 2:24, with 150 jog (45 seconds)
c) 5x1200 in 3:36 with 100 walk (60 seconds)
d) 4x1600 in 4:48 with 200 jog (90 seconds)
e) 3x2k in 6:00 with 200 walk (2 mins)
f) 1x800 in 2:24 and straight into 1x800 in 2:40 repeated.

Seb Coe , in a 5k pace session conducted by Frank Horwill, did 7x800 in 2:02 with 100m (30secs) jog recovery. Not bad for an 800/1500 runner...thats sub 12:50 pace for 5k.

Melbourne, 20.3.06. MO FARAH (1331) leads from CHRIS DAVIES in the 5km. photo by Mark Shearman.

Press the panic button

At the peak of the jogging boom there appeared in an American newspaper an article titled "JOGGERS WILL BECOME CRIPPLES." More recently, the fact that thousands had completed the Great North Run without harm was obliterated by the news that four competitors had died on the run. A special conference was called in the Midlands a few years ago to discuss the increasing numbers of women endurance runners who suffered from osteoporosis (a loss of bone tissues because of its being resorbed, resulting in bones that become brittle and likely to fracture), which is more prevalent in middle-aged people. This was followed shortly after by another conference to discuss anorexia (loss of appetite) in female runners. If this wasn't enough we were told in some medical papers that we could die if we drank too much water in a marathon (hyponatraemic encephalopathy). To get all these dire afflictions into context, more people are killed daily in road accidents than the above may affect in a decade. A recent article in an athletics journal suggested that very young people coming into athletics didn't know their left foot from their right one and were almost spastics. The several thousand P.E. teachers in the country might not take too kindly to that assertion which infers they are almost useless.

The accusation that running causes arthritic problems later in life and should be avoided is offset that if one avoids all weight-bearing propulsion one has a good chance of dropping dead from a coronary in one's middle age.

It's true that many young female runners, who are ten per cent lighter for their height than non-active women, do suffer from amenorrhoea (an absence of menstruation) and this can lead to osteoporosis. However, three things if attended to in the diet will avoid this: -

1. Vitamin C containing foods (oranges, orange juice, all fruits and most vegetables).

2. Boron containing foods (nuts, apples, grapes and broccoli). This mineral prevents calcium loss by boosting blood levels of the hormone oestrogen.

3. Calcium containing foods (milk, yoghurt, ricotta cheese and salmon).

There are some odd views about runner's weights. One opinion by a former nutritionist to the governing body stated, "Runners should not be significantly underweight compared to non active people of the same height." Well, the medical profession suggest that a man who is 6ft tall (1.829m) is healthy with a weight of 176 pounds (79.8 kg); a female of the same height should weigh no more than 160lbs (72.5kg). But, the late Dr. George Sheehan, a famous sports doctor opinions, "The KEY factor in distance running is the weight relative to height." He used the Still man Table and for the above heights it worked out like this: -

Males
5% less for 800/1500 metres
10% less for 3k to 10k
15% less for half marathon to marathon

Females
The same

So, 6ft tall male wanting to run 800/1500 should weigh not more than 169.5 lbs (76kg), for the 3k to 10k – 159lbs (72kg) and for the half marathon to marathon – 150lbs (68kg).

The equivalent weights for a 6ft female respectively would be: - 152lbs (68.9kg), 144lbs (65kg) and 136lbs (61.6kg).

No male standing 5ft.6ins (1.676m) weighing 143lbs (64.8kg) is going to win the London Marathon nor a female of the same height weighing 130lbs (58.9kg). Grete Waitz at the peak of her marathon fame weighed 115lbs (52kg) and was 5ft 8ins (1.727m) tall. That's nearly 20% less weight than the considered healthy figure of 140lbs (63.5kg) for the average female.

Some years ago there appeared in AW an article by a female runner who was suffering from anorexia who blamed her coach for the condition because he had said to her, "You need to lose weight." Her immediate reaction was not to eat which landed her in hospital. Runners need to eat a wholesome meal every four hours: muscles need protein and the body needs fuel. Losing weight comes about by doing more running in the mornings, which will elevate the metabolic rate for several hours afterwards. High fat foods should be avoided and include: - beef burger, roast pork, bolognaise, frankfurters, roast beef, bacon and cheddar cheese. Most fast food and take-away establishments are purveyors of high-fat foods.

It was convenient for the athlete in the AW to blame her coach for nearly starving herself to death; however, he assumed she would respond intelligently. Assumptions should be avoided in health matters. Most athletes require precise guidance lines. Severe sufferers of anorexia require specialist medical treatment.

Because one or two endurance runners have died allegedly of drinking too much water during competition, there

has been of late a plethora of articles in some running periodicals suggesting that the intake of water in a marathon is almost unnecessary. However, in one carefully conducted bit of research carried out on experienced marathoners on a treadmill who were water-boosted beforehand resulted in ALL of them making spectacular improvements (more about this later). So, let us clear this matter up once and for all. Here are some guidelines: -

1. Study the temperature on the day of the race.

2. Study the humidity on race day.

3. Take note of your water needs during long training runs.

4. At the famous Human Performance Laboratory at Ball State University, Indiana, Dr. David Costill et al dehydrated athletes by just 2-3 percent. That's 3-5 pounds for a 165 pounds man. This is not much you may think, since marathoners are known to lose 7 to 10 pounds, even with regular drinking en route, but when these lightly dehydrated athletes were given test runs at 1500m, 5k and 10k, their performances were 3% slower for the shorter distances and 7% in the 10k; a 30 minute 10k runner was 2 minutes slower. So, runners need to top up their water intake continually.

5. Careful carbohydrate boosting for the marathon pulls in 2.7 grammes of extra water per gramme of glycogen.

6. Prehydration could be more important than taking in fluid on the run because numerous studies have shown that the practice yields lower performance temperatures and smaller weight losses. The rule is: drink extra water for two days before the race. Then, between 4 hours and 1 hour before the start, drink an 8oz glass every 15 minutes. Drink another two glasses between 30 minutes and 20 minutes before the start, because the stomach requires that much time to nearly empty. Practise this procedure in training.

7. In the 4 hours before competition intake will be around 90 oz one will lose around 50 oz in urine, leaving a net prehydration of 40oz. This, coupled with carb boosting yielding slightly more, one will have around 85oz of extra water available for sweating.

8. A common sweat rate in a marathon is 6oz/mile, a total 160oz for the distance. Subtract paper-cup drinks of around 40oz (if you're lucky!) and you get a deficit of 120oz.

9. Costill ran subjects on a treadmill for 2 hours, some with no water and some given 3.5oz every 5 minutes for the first 100 minutes, 70oz in all. Despite the heavy water intake, that group still lost an average of 4lbs. The non-water group had a continuous rise in body temperature after 60 minutes while in the other group it remained static.

10. Twenty-three marathoners (mixed) were measured on a treadmill for the full marathon distance with and without water loading; water was taken on the run. All water-loaded marathoners ran personal best times at the Colgan Institute of Sports Nutrition, San Diego, U.S.A. Some ran 20 sec/mile faster.

11. Carb. Drinks are preferable to water in races up to the half-marathon distance. One study using water only at shorter distances proved to be detrimental to performance.

Training in very hot conditions depletes the body of potassium, iron and salt via sweat. The first is the more serious as it has a direct affect on heart efficiency. Oranges are a good source of potassium and also helps in the absorption of iron.

The biggest danger to runners is the motorised vehicle; if they miss you their fumes will get you. The other perils given wide publicity are trivial by comparison.

Moscow, 10.3.06. KAREN HAREWOOD (109) and HASNA BENHASSI (Morocco, 177). photograph by Mark Shearman.

Peter Elliott

by Mel Watman

He may not have won global titles or set individual world records like Seb Coe, Steve Ovett and Steve Cram, but Peter Elliott – who endeared himself to the British public with his no-nonsense attitude to racing – went closer than anyone since to attaining the very pinnacle of middle distance endeavour. He was also among the last athletes to hold down a manual job while training and racing at world class level.

Born at Rawmarsh (Rotherham) on 9 October 1962 and a member of Rotherham Harriers, Elliott was something of an infant prodigy. He scored his first important win at 14 in the Northern Boys cross country championship and later that year (1977) became English Schools Junior 800m champion. The following season he set a UK age-15 best of 1:52.1 and in 1979 he carried all before him in his age group, winning the English Schools Intermediate and AAA Youth titles and clocking 1:50.7 for a UK age-16 best. The 1980 season was notable for his victory in the English National Youth cross country, while on the track he raced against Seb Coe for the first time, placing sixth in 1:51.3 as Coe won the Northern title in a blistering 1:44.7.

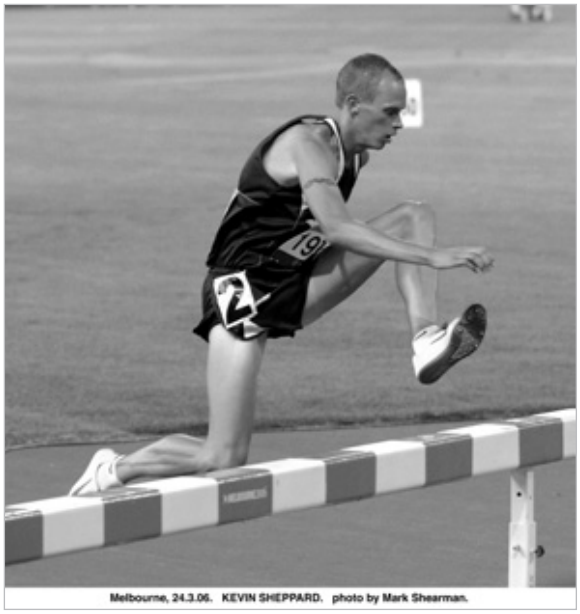
This combination of cross country and 800m success as a youngster was unusual. When, in an interview in Athletics Today in 1991, I asked if his career had mirrored Coe's in that instead of moving straight to 1500m he had first concentrated on building speed over 800m, he replied: "That's right. There can't be many people who have won English Schools titles at 800m and cross country. Two years ago Brendan Foster told me I had been running the wrong event, 800m, for years. Maybe, but at least by serving an apprenticeship at 800m I believe it made me a better athlete at 1500m and the mile. If I had stepped up to the 1500m earlier in my career maybe I would have been running 5000 and 10,000m by now, and believe me I would much rather run three and three-quarter laps than twelve and a half!"

Coached by Wilf Paish, the man who guided Tessa Sanderson to Olympic gold in 1984, he improved substantially in 1981 to 1:47.35 for fourth in the European Junior Championships. Having previously reduced his quickest time to 1:46.76, he scored a glorious victory in the 1982 AAA 800m in 1:45.61, breaking Ovett's UK teenage best of 1:45.77 from 1974. It takes nerve to lead all the way in a major championship against rivals with more impressive credentials than yourself, but he never relinquished the lead and even succeeded in kicking away at the end.

It was to prove a season of contrasting fortunes for Elliott. He was bitterly disappointed when the England selectors failed to pick him for the Commonwealth Games and at the same time he incurred an injury. Disillusioned and confused, he went on holiday to Spain at the time of the British Board's European Championships 800m trial – only to discover on his return that not only had he been chosen for Athens but that he was due to run the first leg in a 4x800m world record relay attempt! Still heavily suntanned and way below peak fitness, he began struggling after 600m. With strain, pain and frustration written all over his face, he handed over 10m behind the 'B' team's Rob Harrison in 1:49.14. Happily, Garry Cook (1:46.20), Cram (1:44.54) and Coe (1:44.01) made up the lost time and the British team's 7:03.89 remains the world record to this day.

Elliott withdrew from the team for Athens but didn't have long to wait for his chance of a European medal. In March 1983 he struck silver at the European Indoor Championships and that set him up well for a breakthrough that summer into world class. He improved to 1:45.49 winning the UK title and to 1:44.98 when finishing third in Oslo, a race won by Coe in 1:43.80. At this stage of his career making the final of the first World Championships in Helsinki would have been a meritorious achievement, but Elliott ran his finest race to date by finishing fourth in 1:44.87. That it was such a quick race, with West Germany's Willi Wülbeck the winner in 1:43.65, was down to Elliott and Joaquim Cruz of Brazil. Both noted front runners, they waged a tremendous duel. Cruz blazed the first 200m in 24.4 with Elliott ahead at 400m in 50.58. Along the back straight Elliott fought like a tiger to hold off Cruz but at 600m the Brazilian drew level with Wülbeck a menacing third. In the final straight, as the two pacesetters tired, the German turned on the power. Dutchman Rob Druppers came through from fourth to second in the final few strides, while Cruz held on for third. Later in the month, in Oslo, Elliott moved to third on the UK all-time list with 1:43.98 behind Cram's 1:43.61, becoming at 20 the world's youngest sub-1:44 performer.

It was in January 1984 that Elliott began racing seriously at 1500m, winning a race in New Zealand in 3:38.13, followed two days later by 3:58.54 in his first ever mile. At around this time, in an Athletics Weekly interview conducted by Nigel Whitefield, Elliott offered an illuminating insight into his lifestyle as a world class athlete who was also a joiner employed by British Steel. "I feel much happier



Melbourne, 24.3.06. KEVIN SHEPPARD. photo by Mark Shearman.

at work because although it gets pretty hard as a joiner rolling around in muck all the time it does hammer home your priorities. Athletics is very important to me but it's not everything; it could all be finished tomorrow if you get an unlucky break. There's no time to get bored when you're doing a 7.30am-4pm shift and trying to fit in two or three training sessions as well." Fans of the fictitious athletics hero Alf Tupper were regarding Elliott as the new "tough of the track".

He duly won his 800m place in the Olympic team, winning the British trial in 1:45.72, and announced he would be challenging Coe in the AAA 1500m with a view to doubling in Los Angeles. As a stepping stone he won the Emsley Carr Mile in 3:55.71, and then came the drama of that AAA 1500m. As Cram and Ovett had already been selected, there was only one place to fill and the AAA championship was widely regarded – although not officially designated – as a run-off for that final spot. When Coe kicked past at the start of the final straight it looked all over but Elliott never lost heart and, as Coe ran out of steam in the closing stages, he inched past to snatch victory in 3:39.66 to become the first Briton to beat Coe at this distance for eight years. Nonetheless, the selectors controversially opted for Coe to defend his Olympic crown. As I editorialised at the time: "One's sympathy must go out to Elliott, who won in such splendid fashion, and it is easy to understand his indignation at being passed over by the selectors for this event. However, taking the overall picture, the right man was picked."

The following week Elliott reduced his best to 3:36.97, but in the end it was all academic. Coe ran sublimely to defend his title with an Olympic record 3:32.53, while Elliott – who ran a season's best of 1:45.49 in the second round – had to scratch from the 800m semis because of a stress fracture of the foot.

Another stress fracture and a torn calf muscle effectively put paid to his 1985 season and it wasn't until the summer of 1986 that Elliott returned to top class racing. Over a mile in Gateshead he finished far behind world record holder Cram in 3:54.22 but at least had the satisfaction of deposing the legendary Herb (3:54.5) as the fastest ever miler by the name of Elliott! Another personal best followed at 1500m (3:35.62) while, dropping down to 800m, he picked up the bronze medal at the Commonwealth Games in Edinburgh with 1:45.42 behind Cram (1:43.22) and Tom McKean (1:44.80). Such was the strength of UK 800m running at that time that Elliott couldn't make the team for the European Championships which saw a British medal sweep by Coe, McKean and Cram.

Elliott ran supremely well to capture the silver medal at 800m in the 1987 World Championships. Although he hadn't run faster than 1:45.15 all season prior to Rome, an early season knee injury restricting his preparations, he clocked 1:43.41 in the final behind Kenyan Billy Konchellah (1:43.06). It was a fast race throughout, just as Elliott liked it. José Luis Barbosa of Brazil took the first lap in 50.59 with Elliott third, and into the finishing straight it was Konchellah, Barbosa and Elliott. Digging hard into his final resources, Elliott snatched second place in a time which made him the third quickest Briton ever behind Coe and Cram. He also made excellent progress at 1500m and in Rieti he pressed the great Moroccan, Saïd Aouita, clocking 3:33.23 to move to fourth on the UK all-time list behind Cram, Coe and Ovett. His season ended well with a 2000m time of 4:52.82, a mark bettered only by Cram among British athletes.

Previously so injury-prone, Elliott succeeded in going from January to September 1988 without missing a day's training, and his results reflected that. Now coached by Kim McDonald, a highly successful athletes' agent who was himself a 4:02.1 miler in 1983, he set UK indoor records for 1500m (3:37.9) and mile (3:53.70), but they were small beer compared to his outdoor exploits. In Oslo he ran Cram (3:48.85) close with a mile time of 3:49.20, making him Britain's fourth quickest ever, while in Brussels he lowered his 1500m time to 3:32.94 again behind Cram (3:30.95).

Unfortunately, neither Cram nor Elliott was in top form at the Seoul Olympics, although from Elliott's results you would not have realised he was running with a newly sustained groin injury necessitating daily pain-killing cortisone injections. In the 800m he entered the finishing straight second to defending champion Cruz but a medal slipped through his fingers as Kenya's unheralded Paul Ereng came through in 1:43.45 ahead of Cruz (1:43.90)

and the ever remarkable Aouita (1:44.06). Elliott placed fourth in 1:44.12. However, a coveted Olympic medal did come his way in the 1500m. The early pace was slow until Kenya's Peter Rono began to stretch the field with a 56.38 third lap. With 200m to go he held a two metre lead over Elliott and that margin remained substantially unaltered until the line, the last 300m taking 39.27 and the final 400m 52.8. In the finishing straight Jens-Peter Herold (GDR) momentarily crept past Elliott on the inside but Elliott counter-attacked to make sure of the silver (3:36.15) behind Rono's 3:35.96.

The 1989 season proved low-key following another stress fracture but he was in superb form early in 1990, even contemplating an attack on Aouita's world 1500m record of 3:29.46 at the Commonwealth Games in Auckland after a spectacular training session when he ran 1200m in 2:45.9 followed, after a four minute rest, by a 38.2 300m. The windy conditions brought him down to earth but he still impressed greatly, clocking a 53.04 last lap for a winning time of 3:33.39. Six days and many time zones later he set UK indoor records of 3:36.13 for 1500m and 3:52.02 for the mile in New Jersey and a memorable February ended in Seville where he smashed the world indoor 1500m record with 3:34.21. Soon afterwards he took the decision to quit work as a joiner and become a full-time athlete.

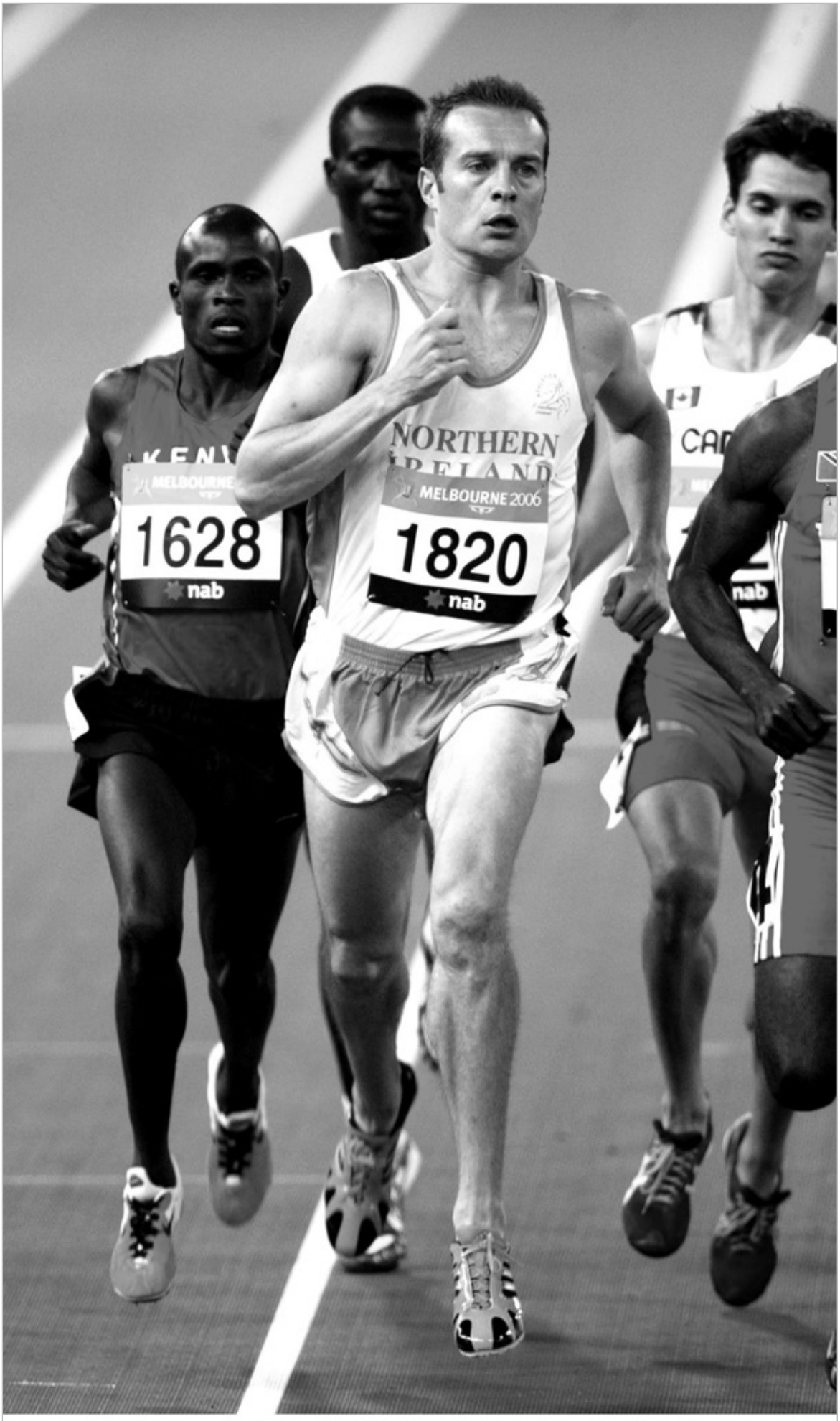
"I couldn't believe I had run that quick" was his reaction after returning to Seville in May and winning over 800m in 1:42.97, becoming only the sixth man (third Briton after Coe and Cram) to break 1:43. He truly believed he was now ready to threaten the world records at 1500m and mile but, again, injury ruined his plans. A damaged calf muscle interrupted his season and he did well to clock 3:49.76 in Oslo's Dream Mile, being overtaken by an inspired American Joe Falcon (3:49.31) 40m from the finish, with Jens-Peter Herold (GDR) third. That was encouraging but then he lost further training time because of a chest infection and a knee injury.

Nevertheless, Elliott started as favourite to lift the European 1500m title in Split, but it wasn't to be. He was knocked over in his heat, sustaining spike wounds to the shin and shoulder plus a swollen wrist. That appeared to be that, but the Jury of Appeal added him to the final although he hadn't asked to be reinstated. As Elliott wrote in a column for Athletics Today: "I didn't sleep well because of the pain. Not only that, I was hardly in the right frame of mind to run, especially after I was jeered and booed by athletes and the crowd. I mean it wasn't my fault that I got in because of a rule. So I was in a no win situation, on a hiding to nothing. There was no way mentally I was ready to run." At one point on the last lap Cram and Elliott were first and second but in the end they virtually dead-heated for fourth place, Elliott finishing 1/100th ahead in 3:39.07 as the title went to Herold in 3:38.25.

Two late season races in which he was again followed home by Cram underlined Elliott's true quality. Running locally at Sheffield's new Don Valley Stadium he set a UK all-comers record of 3:32.69, while the following week he was timed at 3:47.83 in New York's slightly downhill Fifth Avenue road mile to become the first man to win the event for a third time. What a roller coaster 1990 had been. He had a Commonwealth title, the world's quickest 800m and second fastest 1500m time of the year ... but just think what might have been achieved that summer but for those setbacks.

The 1991 campaign was equally frustrating although it started so well. He became UK champion in his first attempt at 3000m (8:07.51) and gained a satisfying victory over Herold in the European Cup 1500m in a pedestrian 3:43.39 but with his fastest ever last lap of 51.12. As he remarked: "People used to think I was just a front runner without a kick, but we've been working on this kick since 1988." In July he scored a brilliant win in Oslo's Dream Mile in his second fastest time of 3:49.46 but Elliott never even got to the start line for the World Championships in Tokyo. He flew home because of a recurrent Achilles tendon problem and watched on TV as Morceli produced a 51.55 last lap to win by a street in 3:32.84. Elliott had recovered in time to confront Morceli in Brussels later in September and although he lost he finished much closer than anyone had in Tokyo with 3:32.94 to the Algerian's 3:32.38. Two days later he brought his track season to a close with an Emsley Carr Mile victory in 3:52.10. That effectively was his swansong for he raced only twice early in the 1992 season before withdrawing from the Olympic team with a knee injury. He always intended to return but further injuries conspired to make his retirement permanent. Later he helped coach fellow Yorkshireman John Mayock to record a faster 1500m time (3:31.86) than he himself ever accomplished.

This profile has been reprinted from Mel Watman's new book, "All-Time Greats of British Athletics", obtainable from SportsBooks Ltd, PO Box 422, Cheltenham GL50 2YN; price £15 post free (cheques payable to SportsBooks Ltd or payment by Mastercard or Visa; e-mail: www.sportsbooks.ltd.uk). The book, running to 256 pages plus 32 pages of photos with a foreword by Seb Coe, profiles 78 of Britain's greatest athletes including such other miling legends as Walter George, Albert Hill, Arnold Strode-Jackson, Sydney Wooderson, Roger Bannister, Chris Chataway, Derek Ibbotson, Diane Leather, Brendan Foster, Ian Stewart, Dave Moorcroft, Steve Ovett, Seb Coe, Steve Cram and Kelly Holmes.



Melbourne, 22.3.06. JAMES McILROY. photo by Mark Shearman.

Quiz!

Coaches and Others - Test your knowledge in running matters

By Frank Horwill

1) What is the significance of the Balke Test?
2) What is the significance of the standing start 40yds (36.6m) sprint test?
3) What is the significance of the 25-metre hop test?
4) Who hold the male U.K. record for 2 miles?
5) Who was the first man to run 4-mintes exactly for the mile?
6) What affect does coffee and tea drunk at the same time as a meal have on a mineral in that meal?
7) Who said, “He who trains the same each year will remain the same each year.”
8) Who is the only British coach to have trained three sub 2-minute females at 800 metres?
9) How much of a 1500 metres race is run aerobically and anaerobically?
10) What is a fairly accurate way of calculating a 4-mile lactate threshold run?
11) If an athlete was told to run at 80% VO2max, how would he/she know what speed to run at?
12) How can a prospective marathoner calculate potential?
13) Given a time of 56 secs/400 what potential is there for running 800 metres?
14) What is the most recent method of calculating one’s maximal pulse rate?
15) Training regularly at your 3k speed is said in time to increase what?
16) What is the difference between low and high glycaemic carbs?
17) What middle-distance events accumulate more lactic acid in the body than any other?
18) Athlete “A” is 6 feet (180cms) tall and weighs 176lbs (80kg) and wants to run the marathon. What advice would you give?
19) Athlete “B” can run 48secs/400 and only 1:52/800. What does this suggest to you?
20) How many specialist clubs exist in the U.K.?

Answers on page 40

Book review

There is clearly more than one road to distance running success. The BMC magazine continues to offer views on this subject. The recently published "Training for Endurance" , a special report from Peak Performance, is reviewed here.

It contains more than a dozen chapters dealing with various aspects of running. It covers factors such as schedules, strength work, weights, psychology and much, much more. For the enquiring coach and athlete there is a great deal to read and evaluate. Nobody knows it all and all points of view should be considered.This book goes a long way to put the reader in the position of being able to widen their outlook on the subject matter....there is a chapter on the contentious matter of the benefit of "long slow distance runs".

Like so much of human activity those in track are learning all the time and at the sharp end athletes and coaches are seeking to maximise endurance ability. To that end this book is a most welcome addition to this area of experience. There is something here for everybody.

Readers of this magazine can order a copy, discounted from £29.99, at a cost of £19.99 from 0845-450-6402.

Arturo Casado - training for 1500m

by David Chalfen

With a view to the likely opposition facing the British 1500 men in the European Championships in Gothenberg in August, here is a sample training week carried out by Spanish 1500 runner Arturo Casado in autumn 2005, as part of his aerobic base work. It follows his two key achievements in 2005, placing 5th in the 1500 world championship final in Helsinki and winning the European Under 23 Championship. He also won what is always a highly competitive Spanish National Championship 1500m final - the key selection race for the world championship. His key target for 2005 was in fact the Under 23 event.

His annual progress over 1500 is as follows:-

Age:	17	-	3.57.7
	18	-	3.46.2
	19	-	3.43.6
	20	-	3.41.5
	21	-	3.38.0
	22	-	3.35.6

Height: 1.86/6 ft 1
Weight: 75kg

Clearly his weight for height ratio is towards the upper end of elite 1500m runners. Much of the year he weighs around 80kg (12 st 8lbs)

His other middle distance PBs are:

800	-	1.47.8
3000	-	8.23,6
5000	-	14.21

His Cross country form in 2005/06 on the very competitive Spanish circuit suggests his 3k and 5k times would be drastically reduced if he chose to test himself at these distances.

His long term coach has been Arturo Martin, whose previous highest achiever has been Alberto Garcia, who returned in 2005 after a two year doping ban for EPO.

Much of the running is done in the large park/woodland area just by Central Madrid called the Casa de Campo, about 15k all around its varied terrain, and the main off road training patch for the many elite runners based at the Madrid High Performance Centre, the Residencia Blume.

The details are all taken from a recent interview in Spanish Runners world.

Monday
am - 14km at c 3.30/km,
then 12 x 200, 1 x 400. Hurdle drills
pm - 12km easy/steady

Tuesday
am - 20mins w/up, then 2 x (4mins - 3 mins - 2 mins) efforts. 10 min w/down. 'Many' reps of 30 seconds practicing race pace technique.
Technical drills are done almost daily.
pm - 12km easy/steady

Wednesday
am - 3km w/up - 14km steady - 18 x 100m hill runs - 4km w/down, 5 x 50m 'multi jumps' (bounding, skipping type drills?)
pm - Rest

Thursday
am - 6km w/up - 3 x 3000m in c 8.40[90 secs recovery] on Casa de Campo paths - 5km w/down
pm - 12km easy

Friday
am - 3km w/up - weights - 16km steady - 10 x 100m race pace technique [40 metres recovery]
pm - Rest

Saturday
am - 6km w/up - 2 x 4000m [2 mins] - w/down
pm - Rest

Sunday
am - 14km v easy run
pm - Rest

Sunday
am - 13-14km easy/steady run
pm - Rest

In addition the following are carried out:-

- 3 x 100 abdominal strength exercises
- ankles/calfs strength 3 x per week
- two weekly massages/physio sessions and one sauna

Longer term he looks to get into 3.30 form and sees it as extremely difficult to break 3,30. He talks of the stresses, demands and compromises of preparing to compete at the highest level but ultimately feels 'truly privileged to be able to earn a living doing what I like'. He has lived as a full time athlete for the last two years, having deferred his university degree in engineering to prioritise his running. He considers the 'brutal loads' of his training are perhaps beyond the realms of 'healthy' running but says that is the price of trying to succeed.

Casado has run this year 7.55 3k indoors.

System coaches versus personalised coaching

A system coach is one who, by trial and error over many years, feels that he has found a successful formula which when applied to all athletes will lead to success. It has to be said that all system coaches have produced world-class athletes that give testimony to the effectiveness of their regimes. An unknown factor is how much of the system is due to the presence and personality of the inventor. Judging from their verbal and written postulations they don't take kindly to criticism and have a Svengali-like attitude when dealing with athletes personally. It's doubtful if a softly-spoken coach with a reticent manner could execute a system with the same effectiveness as its originator. System coaches have a touch of arrogance about them and strangely enough, female athletes do not figure greatly in their repertoire. This, in itself, is an intriguing subject, for we have in the U.K. coaches who are one sex only practitioners and others whose squads have equal numbers of males and females. One regular columnist in A.W. in bygone days thought it disturbing for a male coach to train only women but not a female coach supervising an all-male group. Perhaps the first loosely defined system coach was Gosta Holmer of Sweden who eschewed the track in favour of training near to Nature. No running around in circles for him. Get running through woods and forests; hear the birds' chorus in the trees, watch the odd rabbit scamper off in fright as one approached and note the sun struggling to find a gap in the tree-tops. All very poetic, but one's brain has to decide when sightseeing ends and work begins. Here lies the essence of this system; you decide when and where efforts should start and how long each should last. A survey done years ago revealed that the world's great runners devoted 14 per cent of their total volume of training to this regime of speed play, which Holmer called fartlek. But, during the years 1939 to 1945, two Swedish runners apportioned 75 per cent of their training to fartlek and between them broke world records from 1500 to 5,000 metres. They dropped the description of fartlek as speed play and renamed it "speed work."

Unfortunately, for many the idyllic notion of fartlek is far removed from their surroundings and the track is safer.

Franz Stampfl, who came to Britain just after the Second World War, introduced the system of repetition running. One must suspect he got the idea from Dr. Woldemar Gerschler who was ordered to discover a quick way of getting service-people fit for action. Gerschler confined his repetition distances to 100 and 200 metres near to maximum with a pulse recovery of 120 beats a minute within 90-seconds. Gerschler claimed that six weeks of this got better results than running for 40-minutes steadily per day for 3-months. Stampfl extended the repetition distances from 200 metres to 2,400 metres, which was executed throughout the year. After each distance, it was followed by the same distance jog recovery. The essence of his system was 10x440yds with 440yds jog recovery, which started in October at a speed of 66secs/440yds and got progressively faster. Bannister in the month before his epic sub 4 mile was running the 440s in 56-seconds. The lap jog recovery took 2-3 minutes. Many copied this routine and could not break the 4-minute barrier. What they did not know was that during the winter he did 3x1½ miles once a week averaging 6mins.35secs and that as the track season approached, once a week one of the 10x440 sessions became 5x880 and another 1 x three-quarters of a mile. Accompanying Bannister on such outings was Chris Brasher and Chris Chataway. The simple efficiency of this system was manifest when Brasher won a gold medal in the steeplechase in the 1956 Olympics and Chataway broke the 5k-world record. Fourteen years later, another Stampfl protege, Australian Ralph Doubell, won the 1968 Olympic 800 metres equalling the world record of 1:44.3. The only discernable change in Stampfl's system was a huge increase in the number of reps (10x440 had become 20x400) and the recovery distances halved. In complete contrast to Stampfl, whose athletes rarely exceeded 40 miles a week the year-round, nearly all of it on the track, Percy Cerutty, who lived in Portsea, Australia, was basically a fartlek zealot executed on steep sand-dunes. His view was that toughness should be instilled in athletes at weekends where training was three times a day (including weight-training) and the habits of civilised living were forsaken. Bath in the sea and don't shave were standing orders as was eating natural uncooked food (breakfast was raw oats and fruit). During the week athletes just ran 10 miles a day and equalled that volume again at weekends, much of it ascending steep sand dunes. The success of his protege who broke the world record in winning the Rome Olympics 1500 metres gold medal, led to the establishment of sand dune camps all over the world. Outspoken and intolerant of other coaches who used track training, he believed that coaches should keep themselves in top condition as examples to their athletes. He detested the advocates of "You mustn't do too much" and was noted for saying at Portsea, "You're not tired! You only think you're tired!"

While Cerutty was flamboyant of speech and gesticulations, Arthur Lydiard in New Zealand, who was around in the same era, was quietly precise. Build up to running 100 miles a week any old how for 10 weeks making it faster as it became more comfortable. This to be followed by 6 weeks of fartlek-type hill running. One could either run 400 metres hard leading up to the hill or ascend the hill and run 400 metres hard away from it or run slow away and come back fast. When it came to the track season, Lydiard had a system of "efforts" which he described as quarter, half and three-quarters. For instance, given a mile time of 4mins.20secs, three-quarter effort would be 10-seconds slower, half effort 20-seconds slower and a quarter, 30-

seconds. Thus, a session could be: 3x1 mile at half-effort. With regard to some sessions, he was vague, for instance he advocated 20x400 but did not mention any recovery time. There is no doubt that his system had universal appeal and the fact that all his Olympic medallists and world-record breakers came from his neighbourhood is unprecedented.

In the U.S.A. at the same time as Lydiard, a mystery coach was making a name for himself. He arrived from Hungary with great credentials; three of his athletes had broken world records. He never wrote about his methods nor lectured on them. Attached to the Los Angeles Track Club, he astonished athletes by requesting, "Meet me on the track at six in the morning and six again in the evening." Mihaly Igloi was a track fanatic; even marathoners did all their running on the track. All sessions started with 30-minutes of running. He invented the "sets" system of training. Bannister may have been happy with his 10 x 440 yds, but having done that; to be told to jog for 5-minutes and repeat it would have caused a gasp or two. Another of his idiosyncrasies was that sessions were untimed and the recovery was always jogging half the distance of the rep. Not possessed of fluent English he controlled the speed of reps by exclaiming, "Too slow" or too fast". Most early morning sessions after the long warm up run were 32x100m jog 50m or 16 x 200 jog 100m, rest 40minutes and repeat. This strange routine together with the evening workouts was to lead his athletes to 31 world records. Unfortunately, there is not much else known about Igloi's system. But, his "sets" routine soon spread around the world and his reduction of recovery times was universally followed.

The sceptics of system coaches declare that what the coaches are saying is that size nine shoes will fit everyone. While Cerutty embraced weight training, Lydiard thought it was unnecessary because his volume and hill running specifications ensured strong legs. He also pointed out that his 5k Olympic gold-medallist, Murray Halberg, virtually had one arm. Harry Wilson (Ovett's coach) told me he was a personalised type of coach. However, he certainly favoured sand-dune training camps and was Lydiard orientated over the volume of winter running. The regular testing of athletes every 12 weeks will reveal strengths and weaknesses which will require personal attention from both coach and athlete. The noted Russian coach and writer, Karikosk, stated in an article that his 800 metre runners did not respond well to Lydiard's training. In the late 1960s two Welsh runners on the Big Dipper at Merthyr Mawr left the cream of British middle-distance running trailing in their wake. Much was expected of them. Like mountain goats can clamber at speed over rocks some athletes can run well on sand but not on the track. The two athletes would have been in contention if the Olympic Games arena circuit had included a couple of steep sand dunes.

While system coaches have their gimmicks, it's the small print that has to be studied. When Van Asken extolled the virtues of L.S.D. (Long, slow distance) his small print stated that at the end of every long run, finish up on the track and run a segment of your specialist distance at race pace.

Well, every system coach has given us something to think about and thinking about our event is a good thing.

Melbourne, 20.3.06. HELEN CLITHEROE. photo by Mark Shearman.

Bits and pieces

Petta Bee, writing in the Times, gives a good reason for training in the morning. Studies from Glasgow University suggest that early morning exercisers reported a 50% boost to their feeling of well-being as compared with those who went to the gym in the evening. Hopefully giving a desire to train again in the evening???

Barry Smith ran 4:8.4 for the mile in 1971. Is this still the European Junior Indoor record???

New web-site for lost gear..... www.lostkit.co.uk

Want to break 4 mins for 1500 metres
(Male and Female)

Background

At least 12 weeks of 40 miles per week running which should include one relative speed session a week (fartlek/track) and one hill-running session where the ASCENTS total 5k in distance per week.

Build up

(Beginning of March)

Day 1 - Run 10 miles in 70mins minus.
Day 2 - Track – Stride 200m untimed with 100m fast jog recovery x 16.
Day 3 - 45mins run at 6mins.45secs/mile minus.
Day 4 - Stride 400m untimed with 200m-jog recovery x 8.
Day 5 - 30mins run at 5mins.30secs/mile.
Day 6 - Stride 800m untimed with 200m jog recovery x 4.
Day 7 - REST
Day 8 - Repeat Day 1.
Day 9 - Run up 20m fast and sprint 30m full out x 24 with slow walk back.
Day 10 - Run 6 miles accelerating (2 miles slow, 2 steady, 2 fast).
Day 11 - Stride hard 1200m and jog 600m x 3.
Day 12 - Run over hilly circuit for 45 mins.
Day 13 - Run hard 2k, jog 1k x 3.
Day 15 - REST.

Repeat above cycle.

APRIL - Out comes the stopwatch!

Day 1 - run 10 miles in 65mins minus.
Day 2 - 10 x 400 aiming at 64secs, jog 400m after 1st 400, 300m after 2nd, 200m after 3rd, 100m after 4th and repeat the process.
Day 3 - Run 6 miles in 36 mins.
Day 4 - Run up 20m fast and sprint 40m full out x 10.
Day 5 - Run 8 miles in sub 50 mins.
Day 6 - 4 x 4 x 200 in 30 secs, jog 100 in 30 secs; rest 5mins before next set of 4 x 200.
Day 7 - REST
Day 8 - Repeat Day 1.
Day 9 - Run 1200m full out, rest 4mins, run 300m full out. Rest 5 mins and repeat.
Day 10 - Run steady for 45 mins.
Day 11 - Run 3 x 2k as follows:- 1st lap 80 secs, 2nd lap 76 secs, 3rd lap 72 secs, 4th lap 68 secs, 5th lap 64 secs. Rest 5 mins after each effort. Each lap should be time signalled by whistle to assist pace judgement.
Day 12 - Run 30 mins briskly.
Day 13 - 1 x 600 full out, rest 3m mins, 1 x 200 full out, rest 5 mins and repeat.
Day 14 - REST

Repeat above cycle.

MAY – Introduction of five paces.

Day 1 - Run 3 x 2k 8 secs a lap slower than per 400m in your best 1500m, jog 200m after each.
Day 2 - 35 mins steady run.
Day 3 - 10 x 400 in sub 64 secs with increasing rest as follows: - 15 secs after 1st 400; 30 secs after 2nd 400; 45secs after 3rd 400; 60secs after 4th 400; repeat process.
Day 4 - 35 mins run.
Day 5 - 4 x 1k 4 secs a lap slower than per 400m in your best 1500m. Walk 200m recovery.
Day 6 - 35mins steady run.
Day 7 - REST
Day 8 - 2 x2 x 400 in sub 60secs with 1min rest. Take 5mins rest after 1st set before repeating.
Day 9 - 35mins run
Day 10 - Run up 20m fast and sprint 50m full out. Walk back recovery x 10.
Day 11 - 35 mins run.
Day 12 - Time trial 1200m in sub 3 mins 12 secs every 100m time signalled by whistle. 5mins rest. 16 x 100m in 14 secs with 100m walk on around track.
Day 13 - 35 mins run.
Day 14 - REST

Repeat above cycle for the rest of the season.

Racing procedurers

1st race 3k; 2nd race 800m, 3rd race 1500m. Before an 800m race – 1st race 1500m; 2nd race 400m; 3rd race 800m. Rest completely or reduce training by two-thirds 48 hours before all-important races, i.e. 1500m and 800m.

The author of this programme has coached 47 GB junior and senior internationals of which five broke UK records and five were sub 4-minute milers. Guess who?

Young athletes national residential courses

by David Lowes
BMC Academy Chair and Course Director

2005 was a fantastic year for our National Residential Courses with three held at Ardingly, Sussex; Ogmore-by-Sea, South Wales and Calver, Derbyshire.

Almost 400 athletes and coaches attended the courses and all were over-subscribed and had waiting lists for anyone dropping out beforehand.

The three courses all included the same ingredients: hardwork, lectures, workshops and fun! However, all were different due to the time of year and the nature of the environment.

ARDINGLY

Our first course of the year was held from April 8-10 and attracted a record 150 attendees.

Ardingly College is set in beautiful grounds with great expanses of grassland and is an ideal place to start the summer preparations. The college is an imposing building and is always a popular one with athletes and coaches alike.

The one thing that all courses have in common is that the athletes 'train' three times a day! The first session at 7.00am is a steady run for 25 minutes for the younger athletes whilst the older athletes complete 35 minutes.

As Ardingly is a precursor to the track season the other two sessions which are held mid morning and mid afternoon are 800m and 1500m specimen sessions. These are usually not 'full-blooded' sessions but a taste of what the athletes could (not should) be doing in their sessions back in the club environment.

Athlete and coach education is an important part of our courses and I try to include things that may be of interest and practical use in the training sessions.

The athletes seem to get sore and aching muscles but they never seem to complain about the workload and some even ask if they can do more! Aches and pains are dealt with by our masseur Alan Calver who works tirelessly reviving the athletes for their sessions.

All of our courses are split into squads and these are done so by their pb times. Some of the group names in use are: Kenenisa Bekele; Tirunesh Dibaba; Paula Radcliffe; Kelly Holmes; Seb Coe; Steve Ovett; Haile Gebrselassie.

All of our courses have a "Male Athlete Of The Course' and a 'Female Athlete Of The Course' along with 'Athletes Of Their Squad' awards.

In the past these have been decided by the Head Coach and the Squad Coaches nominating whom they think deserved the award. This always proved a difficult decision,

especially for myself, with some of my own athletes being nominated by other coaches! I have now changed the system slightly and the names go into a hat and the Male and Female athletes are picked accordingly.

The award is never for the best ability athlete of the course (that would be much easier!) but for someone who has shown an excellent attitude and determination to do well no matter what their ability. The added bonus of the awards is that they get a free place on a future course of their choice.

Much change is now taking place on our courses and will continue to do so. Change is necessary because stagnation is not the policy of the BMC, we need to move forward and suggestions for improvements are encouraged via a questionnaire. Some of the remarks have been: great course; extremely hard, but enjoyable; helpful coaches; good lectures and workshops; lectures too short; lectures too long; meals great; meals not so good; too early to run in the morning; not enough training! All of these findings are discussed by the Academy committee and changes made where possible.

All athletes are instructed to take it easy or rest for 3-4 days before starting normal training again too allow the training effect to occur.

As Chair, Course Director and Head Coach I always come home inspired and enthusiastic after seeing athletes and coaches working as a genuine unit.

OGMORE

Ogmore is generally considered to be our most popular and hardest course in terms of quantity of work done.

It is an Autumn course and was held from September 23-25 and it is an excellent way of starting the winter season.

The basis of the course stays the same but the sessions are much different from Ardingly due the natural environment surrounding Ogmore.

Most come to try and conquer the imposing 'Big Dipper' at Merthyr Mawr. It is an awesome sand dune and many have not experienced fatigue like it before and some cannot even make it to the top and that includes top athletes over the years like Nick McCormick!

The 'Big Dipper' fools many athletes who although they know it is long and steep, don't comprehend how hard the last 20 metres is!

The rolling sand dune terrain makes it an ideal place to do resistance running in squads and the area is so vast no squad gets in the way of one another.

The third session of the day was held on The Common which is a grassland area on a hill top about 3km from the Ogmore Residential Centre which is our accommodation base. The underfoot conditions are excellent and prevent legs getting impact soreness. Coaches tend to give sessions ranging from short recovery 30 second reps to long reps of 4-5 minutes.

The second session on the Sunday morning is held down at Southerndown beach which is a large flat cove of firm sand where speedier sessions are held.

The warm-up down to this beach is exhilarating and follows the coastal path along the cliffs for about 3km and we have been lucky with having extremely good weather over the years which makes the views even more spectacular!

Ogmore used to be a very high mileage course due to the positioning of the training sites. Merthyr Mawr is 6km from base camp and athletes had to run there and back and do their session with 8km of steady running already in their legs from the morning session and then the 3km to the Common and back plus the session, so the whole weekend for the older athletes was in excess of 50km!

With many younger athletes now attending the courses as well as older athletes I felt transport should be provided to the training venues so better quality training could be done and wasted mileage could be cut out and longer times could be spent at the sites.

This now works extremely well and the hard training ethic is not lost but gained in better more smarter training sessions with fresher legs.

The squads I have taken over the years have ranged from top ability to novice athletes and all work as hard as one another and are appreciative of the work and advice on offer. I always tend to finish off the session 'Chariots Of Fire' style with some striding in the sea and this tends to be great fun for the athletes.

The one thing that we can never promise is that our courses will be perfect and to everyone's taste. What we do try to do is make them as suitable as possible to everyone and this is borne out by the numbers who keep coming to our courses!

Subtle changes are made from one course to another and the athletes should be aware that they can't have things exactly the way that they want them, but should be prepared to accept and prosper because of them.

We are always on the lookout for new venues and this has proved a stumbling block recently because of many factors out of our hands such as cost, facility, accommodation, meals and training sites.

CALVER

Our third course of the year was a brand new addition due to our Sportsmatch funding which dictated that we had to have two courses a year in England.
This was our most northerly venue, situated in the Derbyshire Peak District about 15 miles from Chesterfield and was held from October 28-30.
Whereas Ardingly was based on grass and Ogmore on sand this was primarily a hill orientated course.

Much work went into organising this course and this was down to the Academy secretary Ollie Wright and committee member John Cooper who worked unstintingly in preparing training routes for all abilities.

The venue, Cliff College was in Hope Valley and as the name suggests the morning runs were done along the valley which was fairly flat. However the mid morning session required much hope and fitness to ascend the 2k climb to the cliff top. Although extremely tough, the views from the top were breathtaking and worth the effort! Many struggled with the ascent but all were inspired and thankful that they had made it to the summit on a beautiful morning with bright warm sunshine.

Once at the top the athletes split into their squads and did their specific sessions under the guidance of the squad coaches.

As at Ogmore, part of the new format continued here and that was instead of having lectures to one big group, there were three lectures or workshops going on at the same time.

I felt that this made them more intimate and gave the lecturers more scope for question and answer sessions. Some of the lectures at Calver were on 'Nutrition for Performance' by Rod Lock and 'What Training Is Required In The Winter For Track Success' by John Cooper.

I was asked to repeat my workshop on drills from Ogmore and this proved a very popular and worthwhile session and also plenty of laughs! The drill session was repeated three times over the weekend and a special extra session was put on in the evening for a group that had requested them.

The Saturday afternoon session was held at nearby Chatsworth Park which is a huge expanse of parkland with sheep and deer in the grounds. Again, the squads split up and did their thing and most ran to the park and back as back of their warm-up and cool-downs, approximately 6km there and back.

The highlight of the Saturday night session was the interview with Frank Horwill who humored the audience with his many stories and anecdotes over the years. The interview was done by myself and hopefully this will be published later in 2006 in The Coach, all 6,800 words of it!

The weather on the Sunday morning was not so kind as the previous day with rain falling, however this did not dampen the spirits of the athletes with a mass fartlek session being done on grass.

The final session on the Sunday afternoon was a joint athlete interview with Lisa Dobriskey and Ricky Soos which gave the youngsters the opportunity to learn what they did in their younger years and what they considered was needed to get to the top.

After the interview Lisa and Ricky presented the certificates to the award winners and let's hope some of these youngsters go on to emulate some of the feats that they have done so far.

All of our courses require much hard work by the committee and we are now booking venues over a year in advance in some cases to ensure they take place.

My thanks go to Ollie Wright without whose behind the scenes hard work these courses would not take place. Rod Lock and Jim Bennett for accepting applications and getting all of the necessary paperwork done. John Cooper for his hard work and help with equipment and anything that is needed to make a course a success and all the staff and visiting coaches and athletes.

I always say that although I organise the content and delivery of our courses, and take the responsibility for them, which is the nice work, without the Academy Committee these courses would not only fail to function, but wouldn't take place at all, many thanks again, you're irreplaceable!

Legal aids to performance

by Frank Horwill

FREQUENCY OF MEALS

Haggard and Greenberg found from their experiments that eating moderate-sized meals every four hours a day led to a total work output that was greater than that achieved from three meals a day. They also found that this regime helped cope with extremes of cold and hot climates and easier acclimatisation to training at altitude. They also coined the phrase, "breakfast like a king, lunch like a prince and dine like a pauper." Many athletes do the exact opposite!

THE RATIO OF HEIGHT AND WEIGHT

In the U.S.A. the Dr. Stillman table is accepted by coaches and distance runners as being gospel. First of all Stillman states what the weight of a non-active person should be with this formula for healthy males: 1) Allocate yourself 110 pounds (49.8kg) for the first 5-feet (150cms) in height and 5.5 lbs (2.466kg) for every inch thereafter (3cms). 2) Females should allocate themselves 100 pounds for the first 5-feet in height (45.3kg/150cms) and 5 pounds (2.26kg) for every inch thereafter.

Thus a 6ft tall non-active male should weigh no more that 176lbs and a female of the same height not more than 160lbs. Everyone who disagrees with this table is nearly always overweight! The endurance runner needs to weigh less for height than the above figures. Just how much less is a matter of personal preference and experience. Dr. George Sheehan, a noted sports doctor in the U.S.A. stated, "The key factor in distance running is weight relative to height." He was an American Masters mile champion. The statistical evidence is that middle-distance runners weigh 5% less and distance runners 10% less on average. However, some world-class marathoners have weighed 20% less. Going without food to make the weights is utter folly. A good way to lose weight is to do more running in the morning, which will elevate the metabolism for several hours afterwards. No male weighing 176lbs and standing 6ft tall will win the London Marathon.

BOOSTING THE OXYGEN-CARRY CAPACITY OF BLOOD

When we breathe in oxygen it goes into the lungs' air sacs where it's diffused into the bloodstream. Awaiting its arrival in the blood are "carriers" which convey the oxygen around the body, collectively called haemoglobin, 1ml of this conveys around 1.34ml of oxygen. Male runners should have not less than 14.5 grams of haemoglobin (Hb) per 100ml blood, and females not less than 13.5 grams. Hb is largely made up of iron which we get from food. It would seem logical that the more iron-containing foods we consume the greater will be our Hb figures and the greater the supply of oxygen to the body. Unfortunately, iron on its own is practically useless. This was first discovered when an Israeli medical team started treating huge numbers of anaemic (low Hb count) women in India by just giving them iron supplements. Only 10% responded. However, when they started giving folic acid, zinc, vitamin B12, vitamin B6, vitamin C and vitamin E, together with the iron, they all quickly responded.

Now, this is a vitally important matter because runners lose iron in sweat and also from the crushing of red cells as the feet hit the ground. Can emphasis on taking the above listed nutrients daily improve performance? Well, one bit of research at the Colgan Institute of Sports Nutrition, which lasted 12 weeks, revealed that 27 well-trained runners who biased their diet on the above ingredients improved their VO2 max from 8 to 18% while another group on a non-biased diet only improved marginally. When the two groups were switched for the same period of time the improved group declined and the moderate group excelled.

It should be noted that vitamin B12 is not found in any fruit or vegetable and strict vegetarians will need to take a supplement.

BOOSTING THE HAEMATOCRIT

The red cells that carry oxygen are called erythrocytes and make up 35-50% of blood. The remainder is largely plasma fluid and some white cells. The proportion of red blood cells is measured by the haematocrit (blood is placed in a calibrated tube and centrifugally treated). The red cells settle at the bottom of the tube. An haematocrit of 50 provides 25% more red cells than one of 40, with a similar increase in the maximum oxygen delivery to muscles. Can we increase our haematocrit? We can. We have to ask what nutrients manufacture new red cells? By far the most important is folic acid which functions biochemically in the formation of nucleoproteins, which are proteins occurring in all cell nuclei, in particular the formation of new blood cells. In tandem with folic acid is vitamin B12, which aids folic acid metabolism. If vitamin B6 is in short supply vitamin B12 will not be fully absorbed. This reliance on each other is known as synergy.

BOOSTING ANABOLIC DRIVE

Years ago Finnish sports doctors declared that after a bout of strenuous strength training athletes should take a protein snack (bottle of skimmed-milk or bag of nuts) to repair minute muscle-cell damage. This advice is still valid. Because strength is so crucial to middle-distance running the Finns

recognised that preventing muscle breakdown after exercise was an important aspect of anabolic drive. This prevention is called anti-catabolic.

Do not be put off by the term "anabolic" which we frequently hear linked with illegal steroids. The fact is we all have it and it comes via the anterior pituitary gland which produces growth hormone (GH); the thyroid which produces hormones; the liver which produces insulin-like growth factors (IGF) under the influence of (GH); the pancreas which produces insulin; muscle which grows under the influence of exercise and insulin-like growth factors, testosterone and nutrients; and in the male, testes which produces testosterone under the influence of luteininzing hormone and nutrients.

It must be remembered that we gain strength only during rest never during exercise, thus 8 hours sleep a day is essential and a catnap after training. The next essential for rapid strength gains is complete nutrition and progressive resistance work. The most powerful anabolic substance in the body is human growth hormone, we make 0.4mg to 1.0 mg a day and we have a store of 5.0 to 10.0mg. We can stimulate the production of human growth hormone quite legally and safely by ensuring that our diet contains the amino acids tryptophan, glycine, ornithine and arginine (see tables).

ENSURING PREMIUM FUEL

In a lecture at West London Stadium, the former nutritionist to the B.A.F. stated that in her experience a large percentage of distance runners were short of premium fuel in their diets; this is, of course, carbohydrates, and not any old sort but low glycaemic carbs which are preferentially stored in muscle and the liver. The rule with carb consumption is simple; take some three hours before training; take some during training in liquid form and take some in liquid form immediately after training. The next thing is to habitually include a low glycaemic carb in every meal.

Carb boosting before a marathon has fallen foul of gimmicky pasta parties the day before the race. The big increase in consumption should occur three days before together with increased water intake, followed by two days of lesser but high intake and plenty of water. Research from the Australian Institute of Sport suggests that lentils should be the last meal 3 hours before the start.

SUPPLEMENTS THAT WORK AND ARE SAFE

The fastest over 40 years miler in the country is Dave Moorcroft (4:02) who stated that he could not have run that time without creatine monohydrate. The original quantity suggested from Swedish research to be taken daily has been greatly reduced. It has the ability to increase one's workload without stress and aids muscular strength.

In both anaerobic and endurance running, the body loses a lot of muscle phosphate into the blood. Regular training also increases resting levels. Three studies have shown major increases in the VO2 max after sodium phosphate supplement. However, the downside is that excess makes calcium non absorbable which could undermine bone density. The answer is to increase calcium intake to a ratio of 1 to 1.

L-carnitine has been incorrectly described as an aid to performance; however, it does provide tolerance to increased training loads. The body creates 20% of its L-carnitine from menthionine and lysine. The greater part is taken in with food, mutton has a high content. In sport it hit the headlines 20 years ago when it was discovered it had the power to sweep fat-acids into the mitochondria. Athletes who are vegetarians can become deficient. Its benefits are similar to that of creatine.

Since coffee is consumed by most people every day it's a bit difficult to frown upon its use in sport. A cup of coffee contains around 100mg of caffeine. It first hit the headlines in 1978 when Costill stated that if taken before a marathon it stimulated the nervous system to burn fat and spare valuable glycogen. The difference being that only 16% of free fatty acids were utilised without caffeine and 40% with it. It was alleged that it could cause dehydration and overheating, both accusations were disproved by some Canadian research three years ago.

Three cups of black coffee improves reaction time to the starter's gun and one study in Kent suggested that the final sprint to the tape in a 1500 metres race was improved.

What is missing with all this information is that no one has stated precisely when is the best time to take it; on the line or one or two hours before.

Most of the research has been done with pure caffeine and not coffee, and Messrs. Neumann, Pfutzner and Berbalk from Leipzig University, state that coffee's effect is unproven.

LIST OF FOOD CONTENTS MENTIONED

IRON	*FOLIC ACID*
Enriched bread	Barley
Cashews	Beans
Caviar	Brewer's yeast
Cheddar Cheese	Calf's liver
Egg yolk	Endive
Chickpeas	Fruits
Lentils *	Chickpeas *
Black strap molasses	Green, leafy veg
Mussels	Lentils *
Pistachios	Orange Juice
Pumpkin Seeds	Oranges
Seaweed	Peas
Walnuts	Rice
Wheat Germ	Soya beans
Whole-grain products	Split peas

Black pudding
Liver
Corned Beef
Curry powder**
Sprouts
Wheat
Wheat germ
Liver
Broccoli
Spinach

ZINC
Beef, lean
Chicken heart
Egg Yolk
Fish
Herring
Lamb
Maple Syrup
Milk
Black strap molasses*
Oysters
Pork
Sesame Seeds
Soya beans*
Sunflower seeds
Turkey
Wheat bran
Wheat germ
Whole-grain products
Yeast

VITAMIN B12
Beef
Beef liver
Blue cheese
Clams
Eggs
Flounder
Herring
Liverwurst
Mackerel
Milk
Milk Products
Sardines
Snapper
Swiss cheese
B12 is not in any vegetable

VITAMIN B6
Avocados
Bananas
Bran
Brewer's Yeast*
Carrots
Whole wheat flour
Hazelnuts
Lentils*
Rice
Salmon
Shrimp
Soya beans
Sunflower seeds*
Tuna

VITAMIN C
Blackcurrants
Broccoli
Brussell sprouts
Cabbage
Collards
Grapefruit
Green peppers
Oranges
Orange juice*
Tomato
Rose Hips
Potatoes
Watercress
Spinach
Guava

THYPTOPHAN
Bananas*
Cottage cheese
Dried dates
Fish
Meat
Milk*
Peanuts
Turkey

GLYCINE
Meats
Fish
Eggs
Dairy products
Peas

ORNITINE
As for glycine

ARGININE
Brown rice
Carob
Chocolate
Nuts
Oatmeal
Popcorn
Raisins
Raw cereals
Sesame seeds
Sunflower seeds*
Whole-wheat products

LOW GLYCAEMIC CARBOHYDRATES
Fructose
Soya beans
Kidney beans
Lentils*
Sweet potatoes
Apples
Oranges
Whole-wheat spaghetti
Oats

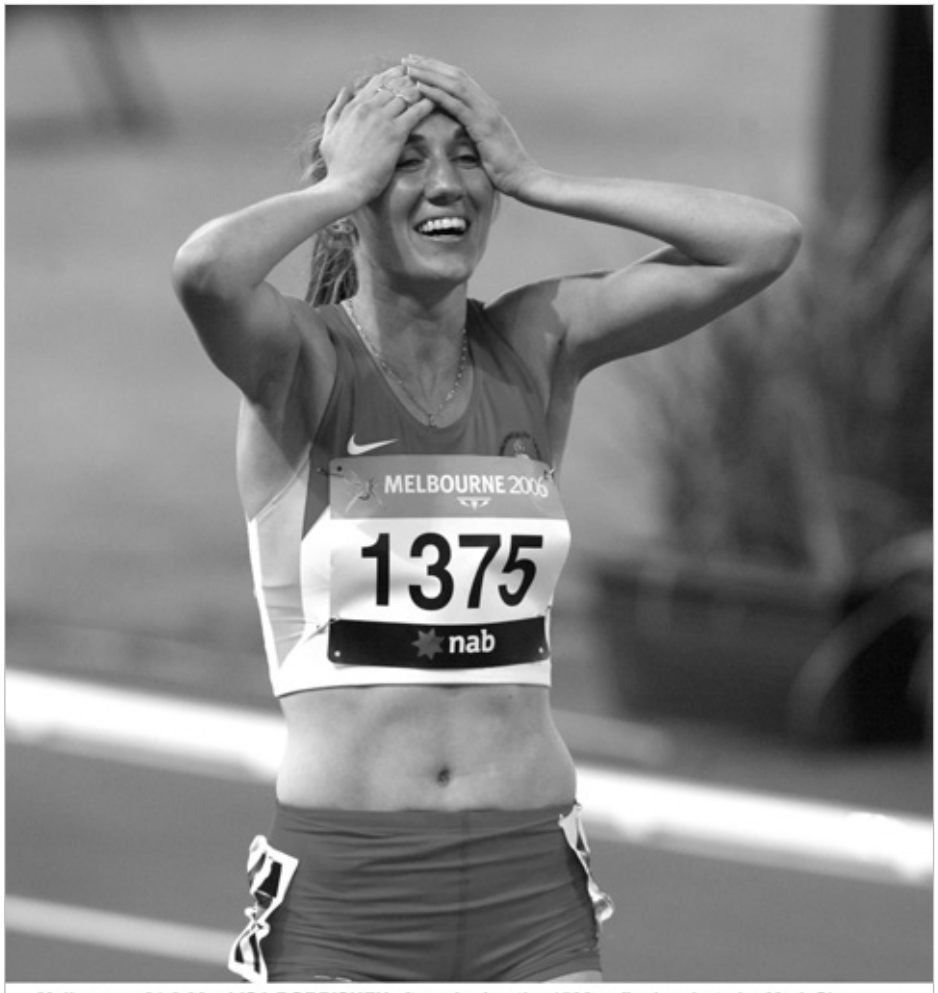
CREATINE
Meat
Fish

PHOSPHORUS
Almonds
Dried beans
Calves' liver
Cheddar cheese
Eggs
Brown rice
Buckwheat pancakes
Whole wheat bread
High fibre cereals
Barley
Barley
Sprouts
Peas
Grapes
Beetroot
Spinach
Fish
Milk products
Peanuts
Peas
Poultry
Pumpkin seeds

Red Meat
Canned sardines
Scallops
Soya beans
Sunflower seeds
Tuna
Whole grain products

L-CARNITINE
Avocados
Dairy Products
Lamb
Beef
Tempeh (Soya fermented)

* Denotes food item appears in another list.
** Denotes extremely high-content



Melbourne, 21.3.06. LISA DOBRISKEY after winning the 1500m. final. photo by Mark Shearman.

The legendary Bowerman

by Stewart Dent

Bill Bowerman, the Oregon University endurance coach, first hit the headlines in 1962 when four of this athletes (Keith Forman, Dyrol Burleson, Vic Reeve and Archie San Romani.) broke the 4x1 mile relay record with a time of 16min:09secs (average of 4min.02.3secs per runner). This is a good exercise for any coach to apply to his/her group. Take any four athletes in an age group and imagine what time collectively they could come up with in a 4x1500m relay (this distance is more convenient than the mile on 400 metre tracks). A reasonable measure of a squad's strength would be: - senior men – 16mins, junior men – 16mins.16secs. Junior women – 18min.20secs. Under 18's – 18mins.40 secs.

Later on, he was to be linked with famous athletes like Steve Prefontaine and Kenny Moore the Olympic marathoner. However, he invented a system of training, which was to be known as the Oregon System. Unlike any other system coach he experimented with the making of running shoes and was a major force in the establishment of the NIKE company.

But, he was no carte blanche trainer, believing that there was an optimum amount of work for each individual and there was an optimum blend of different kinds of running for each individual. There have been sub 4-minute milers at Oregon who never ran more than 40 miles a week and some ran 100 miles. His schedules had 21-day cycles. It was compulsory for all his charges to keep a training diary. Bowerman provided two schedules: the "B" part as shown in Table 1, and the "A" part which in general, each month's workouts are done at an established pace, beginning at 75 seconds per 400m in October and steadily increasing speed to 56 seconds in August. All related workouts are done at the selected pace. Within each month there is a variation in volume: the first and third weeks call for double the competitive distance; the second and fourth, three times the distance.

During the four weeks of each month, the recovery jog decreases from complete (same distance jog as rep) for the first week to half in the second week and to one quarter for the last two weeks. For example, the month of March would be organised as follows:

Date	Pace	Mileage Related to Distance	Recovery
March 1	62 secs	2	Equal
March 8	62 secs	2-3	Half
March 15	62 secs	2	Quarter
March 22	62 secs	2-3	Quarter

If a runner is stuck on a pace, such as 70-seconds, he/she would not advance to the next month's pace until acclimatised.

Table 1. OREGON TRAINING SCHEDULE

Date	Work Done	Recovery Complete	Key to Work Done
1	2X9d, 2X6C 2X5D, 12,11	Complete	1.warm up weight work or arm and shoulder work, rings or apparatus
2	3		2. Fartlek
3	10X7F		3. Light fartlek
4	3		4. Reps: 110s (A-20, B-18, C-16, D-14, E-12, F-11
5	3		5. Reps: 200s
6-7	2		6. Reps: 300s 7. Reps: 400s
8	1X10, 2X4D, 11		8. Reps: selected longer distances
9	3		9. Sets: 600 400 200 A. 1:50 70 34 B. 1:40 66 31 C. 1:30 62 29 D. 1:20 58 26
10	4X7F, 4X60, 4X5D, 3		Bunches: 2 or 3 600s, 3 to 6 400s, 6 to 10 200s.
11	3		Take long recovery
12	3		Take long recovery after work out.
13	8 1X1200, 1X600, 3.		400s with declining recovery.
14	2		Sprint 50, jog 50
15	2		Hill reps.
16	3		
17	10x7F,3		
18	1X9D		
19-21	2		

Name: Jim Grelle

Before all sessions the warm up included strength exercises. To illustrate this chart, on the 17th of the month, Grelle ran 10 x 400 in 64 secs followed by light fartlek. On the 20th he did fartlek.

The key word in Bowerman's system is PROGRESSION in the speed of repetitions and in recovery times. A GB international some years ago was the classic example of failing to progress with his 5k training. He was an international on the road up to the half-marathon. His specific session for the 5k was 12 x 400 with 400 jog. He was able to get most of his reps done in under 60secs and felt that he would have no trouble in running continuous laps of 64secs in a 5k race. He could only manage 65.5secs per lap a feat which he repeated eleven times never beating 13mins.40secs. Had he systematically reduced his recovery time down to just 50 metres jog (20 secs), he would have replicated the race requirements which are twelve and a half laps of the track without any rest! By the way, doing 400s is not a particularly good choice of distance for the 5k, 800s, 1,000s and 1200s are better.

Most American college coaches face a difficult job, primarily they are recruiters (this isn't only confined to American colleges) and when that's over with they have on their hands a collection of budding stars most of whom are already set in their ways. They're away from home for the first time and this can be a shock. However, Bowerman stated that "recruiting is immoral" and distorts the role of the university. He told newcomers, that they would learn as much about their event as he knew.

When the new all-weather track replaced the old cinder one at Oregon, he announced that non-college students could use it irrespective of age. Clearly, he was no elitist.

The Jones' strength training theory

by Frank Horwill

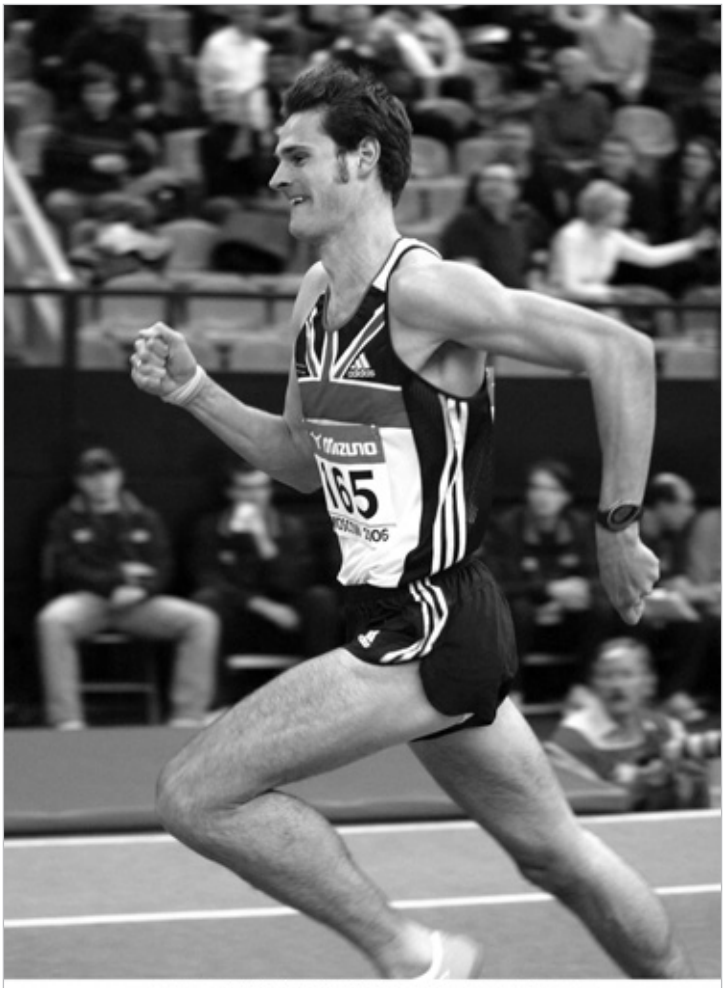
When Milo of Crotona lifted a bull calf daily with joy over his head until it was four years old and then carried it the length of the Olympia stadium, he set in motion the overload system of acquiring strength – start with a little resistance and progressively increase it. Somewhere along the line someone suggested that it would be a good idea to lift weights many times in one go, have a rest and repeat the process twice more. Volume became a big factor in strength training as many believe it is in running.

We have two types of overload, the first is an increase in repetitions using the same resistance and the second is increasing the resistance and keeping the reps.constant. For instance, one might be able to do half-squats with half bodyweight ten times, rest a minute and repeat the process twice more. This could progress to twenty times to a set. This is not going to produce any real overload effect because one's muscles are already adequately conditioned to perform at that level. However, imagine setting the body a challenge of ten reps at three-quarters of bodyweight. More weight means more overload effect. The questions we now have to ask is what's the ideal method to generate overload? We have a clash of opinions: volume versus quality. We've heard this old argument with running training, Coe's fifty miles a week against Ovett's ninety miles. Some fifty years ago, Arthur Jones, a leading exponent of strength training, decided that intensity brought better results. Now, we have to be careful how we define intensity. Jones' view was that it's about squeezing a lot of high quality resistance work in the shortest possible time to exhaustion. In fact, I introduced MUSCLE FATIGUE SATURATION to athletes some 20 years ago, which is similar to Jones's concept. My routine involved doing one exercise to exhaustion three times with one minute's rest after each maximal effort. This routine for press-ups might appear thus: 1st maximal set – 90; 2nd set – 80; 3rd set – 70. Jones advocated just one set of reps for each muscle group to be executed correctly to "failure". Without any rest the athlete moves onto another exercise using a different muscle group to the previous exercise. A six exercise routine may take as little as 15-minutes to complete.

This brings into question the efficacy of three sets of working a muscle group. The flaw in this routine is, if for example, one can do 3 sets of 15 reps using progressively more weight, then it's obvious that it's impossible to reach failure point until the final set, if at all. One could say that the first two sets were almost useless. Now, research backs up this myth of three sets. When we train one set of muscles the neural stimulation that occurs to the fibres carries over to adjacent fibres in nearby muscle groups. Exercising just one set to failure then immediately starting on another adjacent muscle group means that the secondary stimulus produced in an adjacent muscle group by the first exercise is added to when that muscle group is targeted, which produces a greater neural stimulation and overall intensity. In the 3-set approach, any secondary stimulus has almost gone by the time the muscles are programmed because of the relatively low intensity period of the first two sets.

The belief that less can be more is backed up by research done over a period of 50 years by the America College of Sports Medicine who also claim that the tedious, time-consuming 3 set approach leads many strength enthusiasts to give up.

However, in highly trained weightlifters multiple sets do offer minor (5.5 per cent) benefits mostly to the lower body than single workouts.



Moscow, 10.3.06. NEIL SPEAIGHT. photo by Mark Shearman.

Moscow, 11.3.06. JIMMY WATKINS. photo by Mark Shearman.

The marathon - the simple truth

by Frank Horwill

In Britain there is a preponderance of marathon "experts" who will tell us the right way to train for the marathon. Unfortunately, our history in both men and women's marathoning tells us that these gurus have not quite got it right. In the World Men's all-time lists, Great Britain has **one** athlete ranked 38th with a time done in 1985. The Republic of South Africa, banned from international competition for 25 years, has **three** athletes listed, the best in 10th place. In the World Women's all-time lists, we have one athlete listed first. Kenya has seven listed and Japan a whopping eleven. Apart from Radcliffe's terrific success we are not overall a great marathoning nation, although Jon Brown was great in the last Olympics. There are a few facts, which seem to be ignored. They are: -

POTENTIAL AT THE DISTANCE

The Russians believe that all things being equal, one's potential is one's 10k time multiplied by 4.7 Radcliffe's marathon time is 10k multiplied by 4.5. Another prediction is 10k time x 5 minus 10 mins. Paul Tergat has a 10k time of 26:22.7, which predicts a time of 2:01.50. He ran 2:04.56. That's 5x10k time minus 7 minutes. However, this formula under-estimates Radcliff's time for the marathon by 5 minutes!

It's clear that the 10k time is very significant in marathoning. Should athletes continue to train to reduce their 10k time while also training for the marathon? After all, the 10k is 90% aerobic compared to the 99% of the marathon. This, in turn would require work at 5k speed which is 80% aerobic, some 2-4 seconds faster per 400 metres than 10k speed.

MARATHON TARGET PACE REHEARSAL

If we wish to run a marathon at 5min/mile or 6mins/mile or 7min/mile, which is 2:11, 2:37.12 and 3:03.24 respectively, it's logical to practise that speed regularly. We could start with a third of the distance (9 miles) and when comfortable with the pace advance in stages to 18 miles. One thing is clear, if we do long, slow runs, a minute a mile slower than race pace and also just work at 10k speed, a minute a mile faster than marathon speed we will be confused over pace in the actual marathon. We might be tempted to go too slow or too fast. **We need to have the target speed firmly in our minds.**

HANDLING THE DISTANCE

There is a general acceptance that once a week there should be a long run (Although several world-class runners have never exceeded fifteen miles as their longest run.) Grete Waitz (2:25:29) never exceeded 18 miles. Most athletes feel that 20 miles is adequate. Is it? The late Harry Wilson (Ovett's coach), himself a Welsh international marathoner, believed that the long, slow run should last the same DURATION as the target marathon time. He called it, "The time on your legs." This means that if the target time is 3 hours 30 mins the athlete should build up to that duration at about 30-seconds a mile slower than intended pace. One female marathoner, who has made the team for her country in the Commonwealth Games, told me she had no problem running for five hours! Two years ago she could hardly break 3-hours for the distance. Obviously, her ultra-runs paid off to get the Commonwealth qualifying time. Psychologically the ability to run for the same duration as the intended time or to run the actual marathon distance albeit leisurely is a great morale booster.

CONSTANT FUELLING

Most of us know that carbohydrates are the runners' mainstay. A training session is always finished with a carbs deficit which has to be rectified quickly. This is because low glycaemic carbs are not stored all day long; they are preferentially stored in the first four hours after training. The use of glucose polymers in liquid form is not too common in this country, yet the maximum rate of synthesis in the first four hours after training occurs by taking 225 grammes of it. These are complex carbohydrates made by extending glucose molecules so that they are more slowly digested than simple sugars. Pure glycogen is fructose powder and should form part of a replacement drink. However, not more than 20g/day should be sprinkled over cereals and in beverages. Excess has been linked to degenerative diseases of the liver. Some common low glycaemic carbs include: - porridge, brown rice, linseed bread, peas, apples, lentils, bran flakes, sweet potatoes.

PREPARING FOR THE BIG DAY

Costill was the first physiologist to discover that many marathoners lining up for the Boston Marathon had minute muscle cell damage, which was worse after the race. To avoid this he suggested that the training the week before the marathon be reduced by two-thirds. Since his first deliberations much research has gone into this process of tapering. The consensus being a 25% reduction in volume **each week for three weeks before the race**. The Japanese replace the missing volume of work by increased quality of running particularly at 10k speed.

PUTTING IT ALTOGETHER

A 14-day training cycle will need to include the following: -

1) A session at 10k speed, e.g. 6x1600 with 30 secs rest.
2) A workout at 5k speed, e.g. 7x800 with 30secs rest.
3) Rehearsal of the marathon target pace starting at 9 miles and increasing to 18 miles.
4) A long run either for the same duration as the intended time or the marathon distance at 30secs/mile slower. N.B. The only two men to win two consecutive Olympic Marathons (Bekila and Cierpinski) ran well in excess of the marathon distance once a fortnight, i.e. Bekila - 40 miles, Ciepinski - 36 miles.

The above with warm up routines will make up a maximum total of 57 miles. The days after these severe workouts will be recovery days and might be 35mins easy running in the morning and repeated 10 hours later. Total - 97 miles max.

As Harry Wilson once said to me, "What we ask athletes to do is quite simple really."

BMC young athletes academy

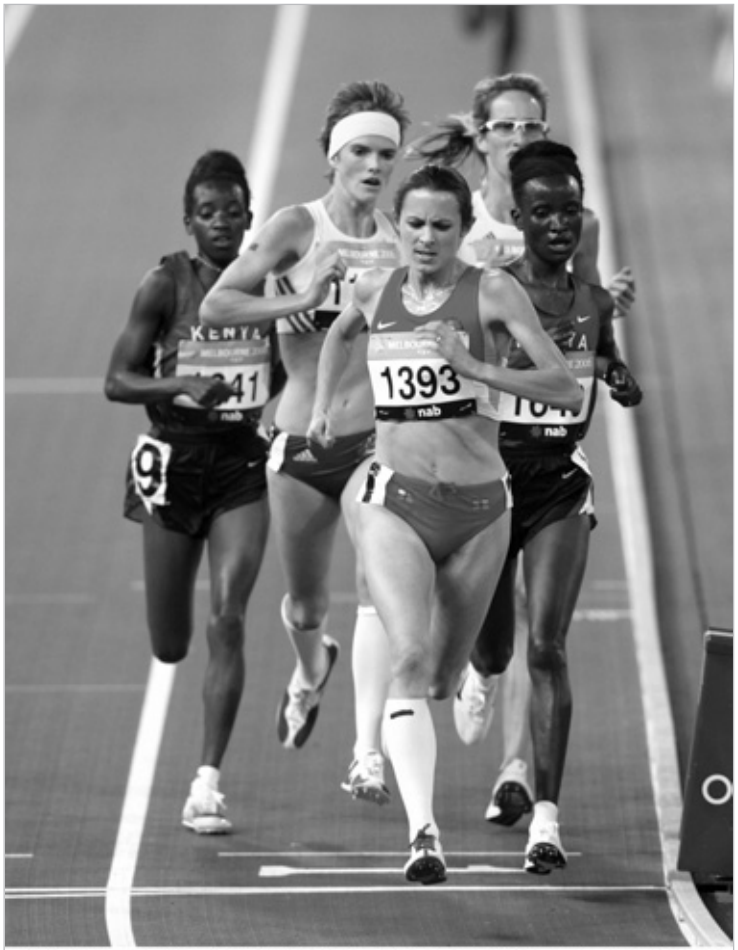
2005 report

The Young Athletes Academy was formed in January 2005 with David Lowes as the Chair, Ollie Wright as Secretary, Rod Lock as Administrator and John Cooper as a Technical Advisor.

New standards and identity were introduced with a dark blue singlet academy vest and baseball caps for new and existing members with the necessary qualifying times. Academy membership leaflets were designed and printed and this introduced the Academy to the nation. Regular advertising in Athletics Weekly has put us to the forefront countrywide.

Our sponsors Nike expressed that they were interested in putting the emphasis on our U20 athletes and the Academy was initiated. Funding from Sportsmatch amounting to £10,000 dictated that we put on an extra training weekend in England and this year we have had three such courses, two at traditional venues; Ardingly 8-10 April; Ogmore 23-25 September and a new venue, Calver in the Derbyshire Peak District 28-30 October. Every course was over-subscribed with waiting lists for any ill or injured athletes dropping out! Around 400 athletes and coaches attended the three courses. It should be noted that although all of our courses have always been well attended, they had never been over-subscribed before the Academy was started. New venues are being looked at for next year and Ardingly is already booked for 31 March-2 April 2006.

BMC National Training Weekends have always been successful and well run, but as Chair I feel our courses are now even better than ever before with many changes and additions made to make them without doubt the best run courses in the country. This is borne out by our athletes who have been on the much more expensive Adidas courses and saying ours are much better in every aspect!



Melbourne, 24.3.06. JO PAVEY (England, 1393) leads in the 5km. from ISABELLA OCHICHI (Kenya) on right, followed by ELOISE WELLINGS (Australia) and LUCY WANGUI (Kenya).
photograph by Mark Shearman.

Also this year we held two Young Athletes Grand Prix meetings at the traditional Millfield venue and also at Stretford on 2 May, both were huge successes with Stretford, although not getting anywhere near the Millfield entries, probably had more pb's as a percentage of athletes competing. Athletes were invited to the Crystal Palace Grand Prix Final on 6 August for male and female mile races.

Next year promises to be even better with more projects and a prospective trip to Kenya for Academy athletes in the pipeline. We have recently had enquiries about putting on some road miles in London for ethnic minorities with the best athletes being invited to attend one of our national courses as part of a social inclusion scheme. There are apparently large amounts of funding for this and Pat Fitzgerald is negotiating with the interested parties.

Membership has increased significantly this year and will continue to do so next year with 'word of mouth' auditing our courses and races in particular.

The Academy could not function without the considerable hard work, endless hours and dedication put in by the committee and Pat Fitzgerald's input. We all look forward to 2006 with great enthusiasm and moving the Academy onto the next level!

David Lowes

The weakest link...

When, 30 years ago, the B.M.C. published its fitness test findings based on examining 1,000 male and female M.D. runners, they were not universally welcomed. In particular, the leg-strength results which revealed that only sub 2-minut 800 metres females and sub 1:50/800m males could accomplish the following:-

1. Hop 25 metres in 10 minus leaps on each leg.

2. A full squat with bodyweight and rise.

3. A vertical leap in excess of 20inches (50cms) based on the Lewis Nomogram, which takes an athlete's weight into account.

4. A hamstring curl equal to two-thirds of the strength of the quadriceps.

5. A 40yds (36.6m) sprint from a standing start in sub 5.5secs/ females and sub 5 secs/males.

Many coaches argued that because an athlete couldn't do all the above it didn't mean that they could not run sub 2mins/800(female) or sub 1:50/male. After all, Bannister couldn't touch his toes but he could run a sub 4 mile. However, the staggering fact was that 95% of the athletes tested could not do ANY of the tests efficiently and their performances reflected this. This was and is a surprising factor for; it can be argued, surely a runner doing 100 miles a week must possess strong legs. Well, yes and no. Running is a muscular endurance activity, the ability to perform the same activity many times. The load is constant. If, however, a large proportion of the running is uphill or on sand dunes the load will be increased. Some research by the French involved athletes running uphill daily for 12 weeks while another group did specific weight-training leg exercises every other day for the same period. The hill-runners gained greater leg-strength. This research greatly impressed Harry Wilson (Ovett's coach) who was a great admirer of Percy Cerutty's weekend sand-dune training camps.

To emphasise the muscular endurance aspect of running, one of the athletes tested was reputed to be running 140 miles a week and he confidently predicted before the trials that he would do well. To his astonishment, his girl friend, a GB 800 metres international, had superior leg-power! However, Kenyan runners, who have admitted that weight-training facilities are almost non-existent in their country, have outstanding leg-strength gained from frequent excursions up mountain trails, which start at 3,000 feet and end 10k later at 10,000 feet done in a time of 38-minutes.

It's an unfortunate reality that improving leg-strength is no easy matter, a problem compounded by different views on how best it can be achieved. For instance, Max Jones, in a lecture, questioned the effectiveness of that age-old step-up exercise onto a bench with a barbell loaded with half bodyweight in sets of 3x8 with increments of 10kg to bodyweight. The force is upwards; runners are concerned with horizontal power.

Behind all strength acquisitions in running is the question of what is the ultimate reason? Speed is defined as rate of stride x length of stride. If we have a maximum rate of 4-5 strides a second and improve our stride length by just 3 inches (8cms) we will go faster. The old Soviet coaches believed that the rate of stride could only be improved by alternating flat, uphill and downhill running. The latter a slight decline.

Here is word of warning about improving strength for MD running from Seb Coe, "When I first went to Loughborough, I was the only MD runner to be seen in the weights room. Word got around and I was joined by a throng of MD runners who hadn't a clue what they were doing. One 400 metre runner so increased the size of his thighs that he had to run with splayed feet to get around the track."

In weight training we have the single set exponents who perform quickly to failure and move on to exercising another muscle group likewise. This is a big time-saver. The multiple set adherents start lighter and get progressively heavier, for instance, squats- 4x4 with 10kg increases after each set eventually reaching one-and-half times bodyweight.

There are those who shun weights and rely on exercises that work one leg momentarily as in running. Former national coach, Bill Marlow, was a great believer in power hopping uphill starting with 25 metres and extending to 50 metres. The Soviet coaches liked the isometric exercise where the athlete lies down with one leg raised 2-feet off the floor while a partner prevents it coming down against maximum force for 10-seconds and the ground-leg coming upwards against a partner's foot resistance. The legs are alternated.

So, if you score badly on the stated tests you need to do something about it NOW. Here are a few ideas: -

1. Strength train every other day for 12 weeks. Strength train twice a week for 12 weeks, strength strain once a week throughout the year.

2. Strength exercises should mimic the running action; we run with one leg momentarily off the ground, we are not kangaroos using both legs together.

3. If you have never used weights before, get professional instruction and note the safety routines.

4. The primary muscles concerned with running are:

   a) High knee-action results from contraction of the hip flexors – ilio-psoas, rectus femoris, pectinueus, the first two are very important.

   b) A powerful leg thrust is provided by the contraction of the hip-joint extensors and the knee-joint extensors working with the plantar flexors of the ankle joint and toe flexors. The buttocks and hamstrings are prime movers in hip extension with the buttocks providing 55% of the power. The hamstrings provide about 30% of the power of hip extension. The prime movers in plantar flexion of the ankle are the posterior calf muscles, gastrocnemiums, soleus, flexor hallucis longus (flexor of big toe) and flexor digitorum longus (other four toes).

5. Don't neglect all-round body strength.

Here is a 14-day strength routine to get you going:-

Day 1
Hop 25 metres up a gradient twice on each leg.

Day 3
Isometric leg down and up contraction twice.

Day 5
Carry a partner piggyback 50 metres alternating with him/her for 5-minutes.

Day 7
Sit against a wall with thighs at right angles to the ground to failure.

Day 9
Half-squat onto a chair/bench 18 inches high (45cms) with a barbell across the shoulder starting with one-quarter bodyweight ONE LEG AT A TIME for 60sec x 4.

Day 11
Lie on a table face down with knees overhanging one end; curl one leg at a time into the buttock against pressure from a partner's hand six times each leg and three times both legs together. If available a hamstring machine can be used.

Day 13
Press-ups, straight-leg abdominals, and squat thrusts, for 60 seconds each with one minute recovery. N.B. If you are an ITV addict, every time a commercial comes on, leap up and do some leg-strength work

Day 15
Run up and down a 1 in 10 hill where the ASCENTS equal 3k and progress to 5k distance.

There are some very elaborate strength-training routines around, so elaborate, in fact, that you may become a weight-trainer who does some running. Remember, you are a runner who wishes to acquire strength.

Hippocrates.

Answers to quiz

1) The athlete runs as far as possible in 15-minutes. The distance covered predicts the Vo2max with 95% accuracy. However, ignoring that data, if an athlete runs 4k distance on the test and runs 4,400m 12 weeks later, there is an improvement in endurance. If less distance is run, there is a decline in stamina.
2) Multiply the time done by ten (10) and add 2-seconds to it for males and 3-seconds for females and this will predict 400 metres potential.
3) Sub 1:50/800 runners and sub 2-minute/800 female runners tend to cover the distance on each leg in less hops. The test also reveals that one leg might be weaker.
4) Steve Ovett (8:13.5 done on 15-09-78).
5) Mike Blagrove, Ealing Harriers, ran exactly 4mins/mile.
6) If taken within one hour before or after a meal, the iron in the meal is not fully absorbed (about50% less).
7) Arthur Lydiard (NZ).
8) Norman Poole, BMC Chairman. (Norman Poole).
9) Half and half.
10) Take the mile time in your best 3k performance and add 30 secs to it, e.g. best 3k = 9 mins – 4:48/mile plus 30 secs = 5:18/mile on LT run.
11) 88% of maximum heart rate.
12) 10k time x 4.7.
13) Between 2mins and 2:08 secs.
14) Males – 214 minus.8 for every year of age. Females – 209 minus .7 for every year of age.
15) Major increase in mitochondria, cells that burn fat and carbs to produce ATP a chemical essential to all physical exercise.
16) High glycaemic carbs are absorbed quickly and used quickly. Low glycaemic carbs are stored in the liver and musculature for later use, e.g. HG – Glucose (100), Fructose (20 LG).
17) 800 and 1500 metres.
18) Eat normally, avoid high-fat foods and do more morning running to reduce weight by 10%.
19) Lacks endurance.
20) Three – Hammer Circle, N.U.T.S. and the BMC.

Want to run 13 mins for 5k and faster?

by Alistair Gordon

BACKGROUND
At least 12 weeks of 10 miles a day for five days and one run of 20 miles per week. One of the 10-mile sessions should be fartlek (4mins hard running, one minute fast jog recovery x10) or a track session at 10k speed (7 x1600 in 5mins minus with 30 secs 100m jog).

THE REQUIREMENTS
80% of the total running should be aerobic and 20% anaerobic.

THE METHOD
A 14-day training cycle should include the following: -

1. A session at your 10k speed or estimated 10k speed.
2. A workout at your 5k-target speed.
3. A session at your 3k speed or estimated 3k speed.
4. A session at your 1500m speed.
5. A workout at your 800m speed.

RECOVERY PLAN
Some athletes can train on the track doing the above sessions every other day. Others AT FIRST may require two days of steady running after each track session.

THE KEY TO SUCCESS
Observe short recovery times from the outset and work to reduce the training time targets. This takes about 12 weeks to achieve and should start at the beginning of March.

CANDIDATES FOR SUB13MIN/5K
a) 3:40 / 1500m

b) 7:50 / 3k

c) 27:55 / 10k

THE SPECIMEN BUILD UP SCHEDULE

Day 1. 10k pace – 25x400 in 66 secs with 30 secs rest.

Day 2. Run 1 hour easily.

Day 3. 3k pace – 5x800 in 2mins.02secs with 200 jog (60secs).

Day 4. Run 45mins easily.

Day 5. 1500m pace – 3x1k in 2mins.25secs with 4mins rest.

Day 6. REST

Day 7. 5k – 4x1600 in 4:10 with 200 jog/60secs.

Day 8. 30mins fast run.

Day 9. 800m pace – 4x4x200 in 26secs with 30secs rest. Take 5 mins rest after each set of 4x200.

Day 10. Run 1 hour easily.

Day 11. 32x200 in 30secs with 100 jogs in 30secs.

Day 12. REST

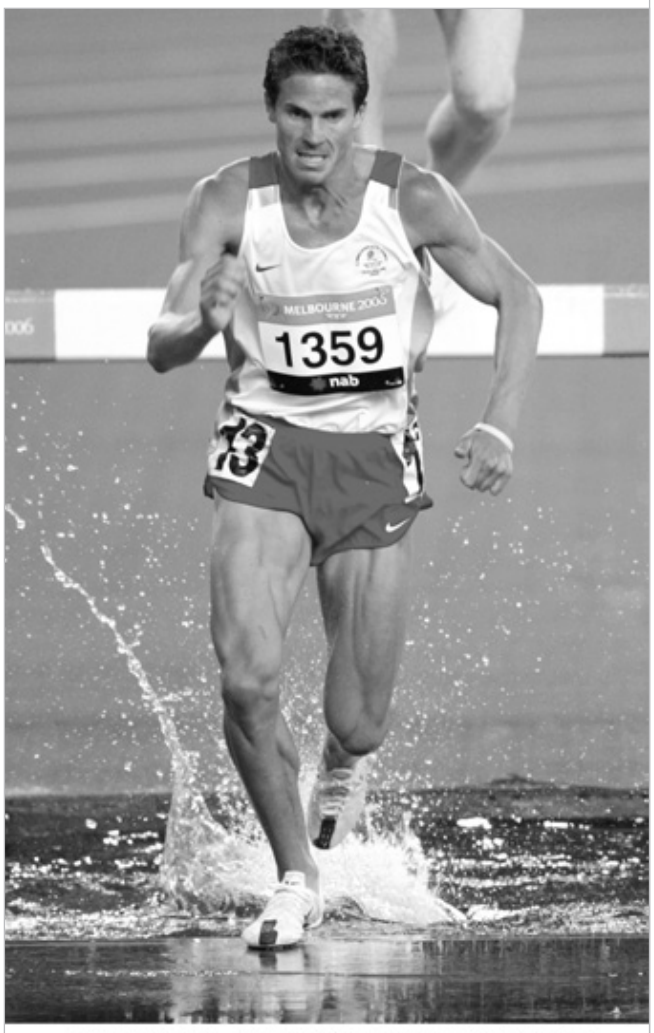
Day 13. Run 45mins easily.

Day 14. Start cycle again.

In due course (the cycle repeated three times) the recovery runs after track sessions may be repeated 10 hours later in the evening.

EXPERIENCE NOTES
The target times of necessity are daunting. The philosophical approach is to complete all track sessions with the prescribed time rest and then to add up the average times done. Then aim to improve. Here is an actual example, athlete "A" found the 5k pace session of 4x1600 with 60 secs rest tough. On his first outing he averaged 4mins.40secs. Twelve weeks later he was running them in 4mins, 14secs; that predicted a time of 13:11, which was done in the 1984 Olympic 5k final. You can do the same!

INSPIRATIONAL QUOTE
A 10,000 mile walk starts with the first step. Keep on; keep on, until a little something inside you says, "KEEP ON".



Melbourne, 24.3.06. STUART STOKES. photo by Mark Shearman.

Time to get tough

I can recall 60 years ago going to a North London ash track in the middle of a bitterly cold winter. The wooden changing rooms had no heating and no hot showers. A local coach had hooked up a gas ring on top of which was a tea urn full of water, which would enable his athletes to sponge themselves down. The canny would come to the track with a hot water bottle around which they wrapped their training gear.

The track was in darkness except for paraffin lit reflector-lamps every 50 metres, these illuminated the lower half of athletes' bodies so that when viewed from a distance it seemed as though legs were running without bodies.

For the Southern Cross-Country Championships at Ruislip Woods, the changing rooms and numbers were all in one Parish Hall which had a solitary coal-fired boiler, which provided enough water to half-fill six, galvanised portable baths. There were 300 plus competitors and if one finished down the field you were assured of stepping into a mud bath. From this primitive era emerged a diminutive man to break two world records, 880yds and the mile. The training for those feats was uncomplicated and came under the description of "under-distance fast, over-distance slower." This meant that given a best mile time of 4mins.40secs (70secs/440yds), one had to run once a week 8 laps at 80secs/440yds. This would ensure stamina. For speed, once a week from two to three laps had to be run faster than mile pace. In this case, three-quarters of a mile at 68secs/440yds (3min.24secs) and a half-mile in 66secs/440yds (2mins.12secs). The rest of the week was devoted to 5-mile runs. The zealot would track-train three times a week.

Ten years later, track facilities had not changed much. Paddington track, where Bannister trained in his lunch-hour, was still ash and the rudimentary showers were still tepid. The training methodology had altered; run a lap and jog one, and over a period of time make the run-lap faster. Very simple. The over-distance spin was now no longer a solitary outing; it became 3 x 1.5 miles at 8secs per 440 yds slower than mile pace. Bannister described this as "the dreaded session."

Six years later emerged an athlete in Australia who only stepped on to a track to race, for him it was a luxury, he had been accustomed to his feet sinking into yielding sand and always going uphill. He broke the 1500 metres world-record en route to his gold medal in the 1960 Rome Olympics.

Shortly after this a Yorkshire miner could be seen climbing over a fence surrounding a track in Rotherham most evenings. His only light being reflected from nearby street lamps. He was to run a mile 4-seconds faster than Bannister and make two Olympic 1500m finals.

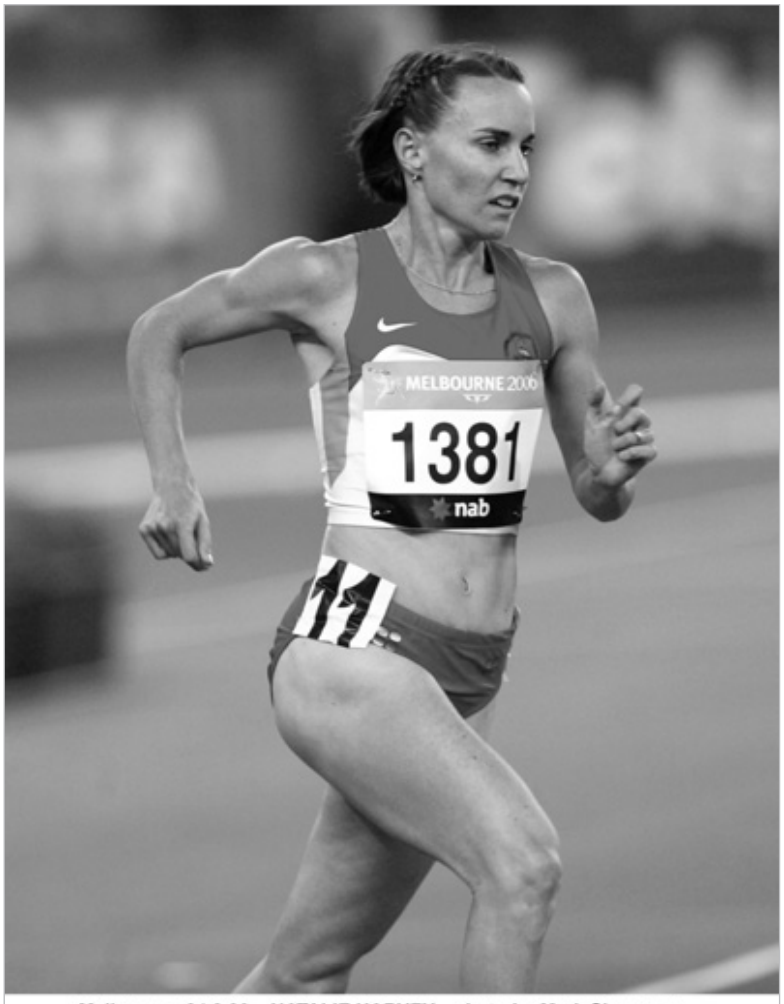
Yes, they were not encouraging times for runners and gradually facilities have got better although there are still areas where athletes have to travel 35 miles to the nearest track. London is well served with a track at all four points of the compass and plenty of public transport to access them. Yet, London has not produced any real great runners since the Wooderson/Bannister era in middle-distance and a couple in distance running. If we cast our eyes over the UK All Time Men's Lists, ten of the best 800 and 1500 metres times belong to those born in the North.

Things are not much better in the 5k and 10k, a quarter come from London and the Home Counties.
It seems that good facilities and easy access to them is not the complete answer and to some they are irrelevant, a park or quiet thoroughfare is all they require. The lack of amenities is made up for by a determination to succeed. This toughness of mind and body is something the coaching structure doesn't like to mention and frequently condemns. For instance, an official commented to me that my Saturday morning endurance sessions at Battersea Park were somewhat notorious. First of all, they last 2 hours. This duration is deemed too tough by some. However, it's no tougher than running for 2 hours on a Sunday morning long run. Also, most athletes don't work on Saturdays; they have at least 24 hours respite before their next workout. It's results that count, the group comprises athletes from different clubs and armed services. They have collected national road relay gold medals and win numerous cross-country league matches as well as some international appearances. There is a common observation among them, "A race is child's play after you have experienced a few Saturday morning sessions." We may have lost sight of the fact that once a week athletes need to step out of plateau training and venture into the unbelievable.

p.s. Can you recognise the runners referred to? In order they are:-
Sydney Wooderson, Roger Bannister, Alan Simpson and Herb Elliott.

ACHILLES

Moscow, 11.3.06. KATRINA WOOTTON. photo by Mark Shearman.



Melbourne, 24.3.06. NATALIE HARVEY. photo by Mark Shearman.

Mark Winzenried... a unique double?

For an athlete to compete in a World Record race is not an every day occurrence. To compete in two such races, at the same distance, and eight years apart must be almost unique. The subject of this article did just that !

Mark Winzenried lined up,on 27.5.1973 at the "Vans Classic" meeting in the Los Angeles Coliseum for the 880 yards. It was 3.40 in the afternoon. The likely favourite was Rick Wolhuter, who, at the start of 1973, stood twelth on the 800m all-time list. With Dannie Malan, of South Africa , thirteenth on the all-time list, the race could nevertheless be expected to be competitive. The opening 220 yards were timed at 25.5 with Wolhuter and "our" man together , Malan third in 25.6. At 440 the clock showed 52.0, the two Americans locked together with the South African just behind in 52.2. By the 660 yard mark the latter led in 1:18.4 with the other two at 1:18.8. Into the home straight Wolhuter broke the world best with 1:44.6, Malan second in 1:45.1 and "our" man tailed off with 1:48.8. Whilst Mark may have been less than satisfied with his run his front running had no doubt assisted his countryman to the record .

Mark Winzenried was born on 13.10.49 so was 23 at the time of this race but he was no novice having had experience of International competition. His early running had been at high school racing at all distances from 100 yards to two miles, plus cross-country. An early indication of latent talent emerged when, as a twelve year old, he partook of a national fitness test, part of which was a 600 yard run and he was thought to have recorded the best time in the nation. The die was cast.Aged 15 he placed third in the National Junior Championships over 440 yards…in the 17-18 age division, with a time of 49.5. Two years later he was National Champion at 880 yards, 1:50.9. He also recorded a 47.8 440 before going up to University as a 17 year old.

From here he would describe himself as a "full-time athlete", sometimes training twice per day. This had immediate results, running in December , just 18, 1:50.1 for 880, a new 800 pb of 1:49.4. A performance which caused him to be invited to Madison Square Garden in New York. For the last meet at the "old" Garden. He describes his feelings as both thrilled and scared. He finished behind Wade Bell and Benedict Cayenne in 1:49.4, big stuff for an 18 year old. Invites to other meets followed and ran second to Bell in the AAU. This qualified him to tour Europe with the "National Team". His subsequent 1:46.5 was the second fastest by a junior that year, 1968. His long season , December to September, ended with comparative failure when he placed a heart-breaking fourth, still only 18, in the American Olympic Trials..

In his eight years of high-school and college he had no less than six different coaches. Food for thought perhaps? Throughout his college time he competed around the U.S and abroad. At one time he spent ten days in Kenya, with Lee Evans, when he should have been in class! He spent ten days in Trinidad for the "Southern Games". He admits to be having been not overly concerned about school grades, "they fixed things up". He recall one week-end during the indoor season when he competed in New York on the Friday evening, Portland, Oregon on the Saturday and back in class on the Monday…with another flight to an indoor meet on the Thursday, returning to compete for the University on the Saturday! He describes himself as having been a "professional athlete" whilst on a college scholarship.

As to training he was" really big" on intervals and would do them day after day after day. Training would be on Monday, Tuesday and Wednesday , all to near exhaustion, rest Thursday, jog Friday and race Saturday. Out of season train very hard for three days, needing to rest Thursday, Friday, Saturday and Sunday!!!He admits to getting drunk on Saturday nights which "seemed to help with my recovery". One memorable session was 20x440 then 40x220 but that was never attempted again. Generally favoured high quality work-outs and regards his best-ever session , in 1972(just before injury) as 4x440, with 7 minutes jog/rest in 49.9, 49.4, 49.2 and 48.8.He had intended, in the up-coming Ol ympic trials to go out in 50.0 and come home in sub 54 but injury prevented him from attempting this.Earlier in that year he had secured for himself the world indoor 1000 yard record with 2:05.1 at Louisville on February 12th. He had run 3:59.6 for the mile and seemed set fair for the Trials even to being seeded first but in a warm-up race sustained a kick to his Achilles and that was that.

Next year, whilst touring Europe he ran , between June 2nd and September 25th no less than 40 races in 38 meets spread over ten countries (do I hear coach led disapproval?). In 1968, 10 races in 7 meets in Europe, 1969 he ran 2 races in 2 meets in Kenya, 1970 raced 13 times in 12 meets in Europe, in 1971 there were 7 races in 3 meets in Trinidad and Tobago. 1972 saw 4 races in two meets in Trinidad and 10 races in 10 meets in Europe. In addition in 1973 he (squeezed in) 5 races in 2 meets in Trinidad.

His 800 history over the years 1968 to 1975 showed best marks of sub 1.47 for all except 1974 when his best was 1:47.1. Clearly a prolific racer and perhaps a rationing of effort might just have allowed something special to emerge? However he moved into becoming an agent/manager and perhaps one of the very first when he guided Merlene Ottey. He would later be involved with a young Michael Johnson. It was in this capacity he found himself in Florence in June 1981. He had kept himself "fit" so asked the meet promoter if he could join the 800. So it was that he lined up in an International field at the "Citta di Firenze", Comunale Stadium on June 10th at 11o/clock at night! Billy Konchella led at 400,49.6, Seb Coe's 200,s were timed at 24.4, 25.3 (49.7), 25.3 (1:15.0) and 26.7. Mark finished a distant fifth in 1:50.01. He had participated in two , two lap, world records staged 6000(?) miles and over eight years apart.

Mark had a distinctive English connection. In 1973 he met a London girl who was holidaying in Trinidad. He made a point of contacting her when next "on tour".By the year end he was living, and working, in London, hooked up with Hercules Wimbledon, of which time he has many fond memories, Sunday runs, pubs and riding on the back of BMC member Dave Cocksedge's motor-cycle amongst them. His wedding to the London lass was attended by many notable British athletes.He would go on to organize training camps in Jamaica, Olympic Gold Medallist Dave Wottle was on his staff plus bringing parties of young athletes to Europe. Now developing a holiday village in Jamaica he was recently appointed to the University Of Wisconsin's "Hall of Fame" of which honour he is particularly proud.

Mark Winzenried winning

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Want to become a world class steeplechaser?

by Nevern Russell

READ THESE TWELVE POINTS AND GET A SHOCK

1) The Olympic event covers 3,000 metres involving 28 barriers and 7 water-jumps each of which is 3-feet high males and 2ft.6ins female. Other distances used are 1500 metres involving 12 barriers and 3 water jumps and 2,000 metres with 17 barriers and 4 water jumps. In the 3k event the distance from the start to the 1st barrier is 281 yards; in the 1500 metres it is 360 yards and a little less in the 2k. From thereon the barriers are 86yds apart except to the final one, which is less.

2) One's potential at the event is to add 35-seconds to one's flat 3k time, e.g. best 3k time – 9 mins + 35 secs = 9:35/3k steeplechase potential. Note the following extremes – M.Karst (West Germany) – best flat 3k/7:58.2 and 8:28.6 3k steeplechase.

3) The greatest delay in a race occurs at the water jump, which takes around 1.1 secs compared to 0.4secs over a barrier. Quite clearly, the old-fashioned method of placing one foot on the water-jump barrier and pushing off costs time, especially if both feet land together at the end of the water. Only one foot should get wet if correctly executed. From the outset, aspirants should be taught to clear the water jump in one leap. This should be repeatedly practised in training over a barrier placed across a long-jump pit with a line drawn across it 12-feet from the barrier. This will require increased effort and a substantial increase in leg-strengthening exercises during training (hopping 25-50 metres up a gradient on either leg).

4) Former national coach, Denis Watts, believed that there should be an increase in speed before tackling any barrier, Gordon Surtees, former national steeplechase coach thought that this increase in speed was contrary to level-pace running and uneconomical. The evidence is that increased effort for each barrier does not in reality lead to increased speed but maintenance of the pace. Try both methods and see which suits one.

5) While hurdling technique is important, the British have a reputation of looking good over the barriers with better differentials, while many world-class performers (Africans) have poor techniques with poor differentials and much faster times. Compare the U.K. record of 8:07.96 to the 10th ranked male time on the world all-time list of 7:58.5 (Boulami – MAR) who has a flat 3k time of 7:40.99. John Bicourt and Gerry Stevens, both British, have remarkable differentials of 23.0 secs and 24.8 secs. Both could not break 8mins for 3k. Had they been able to run 7:45/3k, with their barrier skill Stevens could have run 8:08 and Bicourt 8:10. This suggests that the current British approach of concentrating on fastidious hurdle technique should give way to a concerted effort to get our barrier men down to 7:30/3k and our women to 8:35/3k. That said, M. Karst's 19.6 secs differential if emulated by our current chasers would make the event more respectable. It's interesting to note that one time world-record holder, Kerry O'Brien (Australia) – 8:22.0/1970, never trained over the barriers nor did Kip Keino (Kenya) who won Olympic gold. Both had excellent 3k times for their era.

6) While the 3k flat is 60% aerobic and 40% anaerobic, the 3k chase is deemed fifty-fifty. This suggests that as this is the same analysis accorded to the 1500 metres event one half of all training for the 3k chase should be aimed in that direction which will involve workouts at 800 metres pace, 1500 metres speed and 3k pace. The following come to mind: - 800m speed – 16 x 200 in sets of 4 x 200 with 30 secs rest and 5 mins rest after each set. 1500s speed – 1 x 1200, 1 x 1,000, 1 x 800, 1 x 600, with lap jog after each. 3k pace – 1 x 2k, 1 x 1600, 1 x 1200, 1 x 1000, with 300 jog after each. These are weekly session starting in March.

7) To enter any race without experiencing the precise conditions of that race is a foolhardy experiment. During the winter at least once a month long reps over correctly placed barriers and water jump should be executed, for example, 5 laps, 4 laps, 3 laps and 2 laps, with adequate rest after each set concentrating on a slow level pace at first (73secs/400m = 9:15 pace) and speeding up a little each month. Sunday afternoons see most tracks deserted and this is a good time for several enthusiasts to tackle this session.

8) In the summer, excursions over the barriers should be once a fortnight aiming at greater speed, a favourite being 200 metres which takes in

barrier, water-jump and barrier in that order at faster than race pace with declining rest as follows: - 1st 200 – 2mins. 2nd 200 – 1min.45secs. 3rd 200 – 1min, 30secs. 4th 200 – 1min.15secs. 5th 200 – 1min. 6th 200 – Start with 2mins. Again.

9) The novice will find that "stuttering" before a hurdle is a common occurrence as the favoured take-off foot and leading leg is sought. For this reason a collapsible hurdle should be used at first and the ability to take off on either leg should be cultivated. The old coaching axiom of "lead with the knee" should be remembered. The technique is similar to that of the 400-metre hurdler with less body lean, however, the leading leg must be straight ahead and the trailing leg comes through late and fast.

10) The 'chase is a tough event, tough on endurance and tough on the feet. Those prone to foot injuries may think about using Sorbothane heel and sole inserts, which absorb 96% of running shock.

11) When using a water jump in training check it before starting. Sadly, many use the pit for depositing tins and bottles; land on one of these and injury is likely. If the jump is unsafe use a fifth barrier in its place on the bend near the water jump.

12) Invest in an ice-spray (ASDA sell a good one) and take it on all training trips ready for immediate use on non-broken skin injuries. Life will be more comfortable in very hot weather if you take a large plastic container to the track full of cold water and pour it over the head after each repetition.

N.B. Brahim Boulami (MAR) also holds the WR with 7:55.29

Book review

ALL TIME GREATS OF BRITISH ATHLETICS

AS the 2012 Olympics draws slowly closer Mel Watman, a journalist with over 50 years experience of writing on track and field, has produced a not to be missed book. The title says it all. He has selected, no doubt after much heart-searching, four-score of GB greats from the last 100 years or so to present their mini-biographies. Needless to say the middle-distances, and indeed distances are more than adequately represented. The "biggies", Bannister,Holmes,Radcliffe,Coe and Ovett etc are all there. So are those to whom to-days fan may be less aware of, Diane Leather, Ron Hill, Steve Jones, Jim Peters, Derek Johnson etc etc.

This book serves to remind us, in great detail. of both yesterday and the day before yesterday. One comment, from Derek Johnson, "The two-lap race requires all the virtues of other flat track events- - technique, speed, strength and simple decisive tactical ability-plus an unpredictable element of luck, which gives it added spice". This is just a sample from a multitude of quotes. If your interest in track burns brightly this book is for you.

To those whose interest lies outside "our" events the book contains a mountain of facts and figures about other events. This compendium, as Seb Coe states in his forward, "Has been compiled by somebody who has lovingly and painstakingly chronicled those individuals who have left a nation with some of the most breath-taking moments in our sporting history".

Published by SPORTS BOOKS LTD. at £15 , available post free in the UK, from the publisher at PO Box 422, Cheltenham, GL50 2YN.

Coach profiles

It is the intention of the BMC to present a series of profiles of coaches who have been involved in the sport with success.

The first of these is Phil Banning.

Current position.
Director of Coaching-Wales.

How many years continous coaching?
31 years.

Main events coached?
400m - 400mH - 800m - 1500m - 5000m - and X country.

Do you coach male and female athletes?
Yes

Level to which you have coached athletes over a period of years?
County, Area, National , All.

AAA Medallist (Outdoor, which events)
400m-400mH-800m-1500m

International (ie major games)
Under 20 and senior

European/Commonwealth Finalist?
Yes

International Team Coaching experience.
GB Junior and Senior International. World Indoor, European, Commonwealth and Olympic Games

Were you an athlete before coaching?
Yes, UK Junior record holder at 1500m and UK, Commonwealth and European Indoor record at 1500m.

Days of the week that you organize squad sessions. Monday, Wednesday, Thurday and Sunday.

Events catered for in your squad sessions.
800m, 1500m, 5k, plus 400m and 400mH

Melbourne, 23.3.06. JEMMA SIMPSON. photo by Mark Shearman.

Want to run sub 2 minutes 800?

by John Francis

BACKGROUND

At least 12 weeks of 5 runs a week of 4 miles and one run of 8 miles. One of these runs should be relatively faster (Fartlek or track). One other run should be over a hilly course. General strength training should be done every other day, which must include specific legwork.

MARCH

Day 1 Run 8 miles increasing speed every 3 miles.

Day 2 Stride fast-untimed 200 metres and jog 100 metres (45 secs) in blocks of four. Jog 400 metres (3mins) after each block. Do 4 blocks of 4.

Day 3 Run 6 miles increasing speed every 2 miles.

Day 4 Stride fast un-timed 300 metres and jog 300 metres (2mins) x 6.

Day 5 Run 4 miles 20secs/mile slower per 400m than in your best 1500 metres per 400 metres.

Day 6 Run up 20m fast and sprint 30m x 15 with walk back recovery. Concentrate on good form.

Day 7 REST

Day 8 As for Day 1.

Day 9 Stride fast 400 metres; jog 400 metres (3mins) x 8.

Day 10 Run up 20m fast and sprint 40m x 12 with walk back recovery.

Day 11 As for Day 5.

Day 12 stride fast 500 metres; walk 100 metres recovery x 6.

Day 13 REST

Repeat this 14-day cycle.

APRIL

Day 1 Run 10 miles at 7mins/mile.

Day 2 Run up 20m fast and sprint 50m x 10 with walk back.

Day 3 4x200 in 29secs with 100 jog (45secs). Jog 400m and repeat twice more.

Day 4 Run 8 miles at 6:45/mile.

Day 5 Run 8 x 100m full out from standing start from 800m-start line.

Day 6 2x400 in sub 60secs with 100 walk (60 secs). Rest 5 mins and repeat once more.

Day 7 REST

Day 8 Run 10 miles at 6:45/mile.

Day 9 Run 3 x 1k as follows: 1st lap – 68secs, 2nd lap – 64 secs, last 200 – 30 secs. Rest 5 mins after each 1k.

Day 10 Run 6x150 full out into finish line. Slow walk back recovery.

Day 11 Run 6 miles at 6:30/mile.

Day 12 1x534m (two thirds of 800 metres) in sub 80secs, rest 4 mins. Run 1x267m (one-third of 800m) in sub 40secs. Rest 4 mins and repeat. To measure 534m, start from 1500m-start line and measure off 34m up the back straight. To measure 257m pace out 33m from 1500m start line up straight. Add the total time up of the two runs x2. If they come to an average of 115secs – your are ready to crack 2mins/800m.

Day 13 1x350, 1x300, 1x250, 1x200. All at maximum effort with 400-800 jog recovery after each.

Day 14 REST

Repeat this 14-day cycle

MAY

Day 1 Run 10 miles at 6:30/mile.

Day 2 Run up 20m fast and sprint 50m x 12.

Day 3 Run 4 x 800 in 2:08 with 400 jog after each.

Day 4 Run 8 miles in 6:15/mile.

Day 5 Run 1x600 in 90 secs minus. Rest 2mins, run 1x200 in 30secs minus. Jog 10mins and repeat.

Day 6 Run 6 miles, two slow, two steady, two full out.

Day 7 REST

Day 8 Run three laps as follows: 68-64-60, rest 5mins and repeat.

Day 9 Run easy 10 miles.

Day 10 3x4x200 in sub 30secs with 15secs rest. Walk 400 after each set of 4x200.

Day 11 Run at 14 secs/100 for as long as possible. Walk 800.
Run at 15secs/100 for as long

as possible. Walk 800
Run at 16secs/100 for as long as possible. Walk 800.
Run at 17 secs/100 for as long as possible.

Day 12 Run easy 8 miles.

Day 13 Run up 20m fast and sprint 60m x 8.

Day 14 REST

Note that the 800 metres is two-thirds anaerobic and one-third aerobic, this means that six out of every nine training sessions should be anaerobic. However, many 1500 metre runners who train half anaerobically and half aerobically run good 800 metre times.

The above programme is based on two consecutive anaerobic sessions followed by one aerobic one.

A good sequence for the 800 metres race build up is: - 1st race – 1500m. 2nd race – 400m (a time-trial will suffice). 3rd race – 800m. Repeat process.

The statistics are that the seventh 800 metres race in a season is most likely to be the fastest (weather permitting).

STRENGTH NEEDS

The following strength tests have been associated with running sub 2-minutes:

A) Hop 25 metres on either leg in 11 hops minus.

B) A full squat and rise with bodyweight.

C) Hamstring curl on each leg equal to two-thirds of that lifted on each leg in a quadriceps lift.

D) Fifty straight-leg abdominal curls in a minute.

E) Fifty press-ups in a minute.

F) Fifty squat-thrusts in a minute.

SPEED INDICATIONS

1) The ability to sprint 40yds (36.6m) in sub 5.5. secs.

2) The ability to sprint sub 56 secs/400m.

3) The ability to run sub 4:05/1500 metres male: sub 4:15 female.

Moscow, 10.3.06. COLIN McCOURT. photo by Mark Shearman.

Melbourne, 23.3.06. SUSAN SCOTT. photo by Mark Shearman.

for runners by runners

RUN

nikerunning.com

NATURAL MOTION:

Name: Paula Radcliffe

What does the term Natural Motion mean to you?

Running as your ~~feet~~ body works best and functions most efficiently in order to get the best performance from yourself.

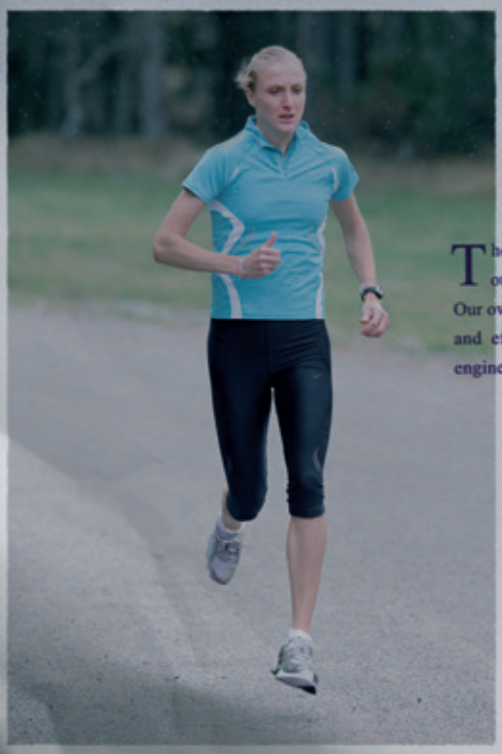
What don't you like about how you run?

Shoulders get too tight and tense up. Left arm throws slightly and right arm swing gets too high. Right leg doesn't always come through as fast or as strongly as the left. (the heel doesn't come up as high and swings around the side a little)
Right knee lift could be better and straighter.

If you had to write a letter to your running style what would you say?

Dear.... Head,

Please could you tell me if I run quicker because you nod like that or would I run quicker if you didn't do it? It doesn't bother me as much as it seems to everyone else but it is a question that everyone wants to know the answer to!



There is no right way to run. We all have our own style with our own peculiarities. Our own Natural Motion. It's the most natural and efficient way to run. That's why we engineer products like the new *Air Zoom Percept*: the women's specific neutral shoe featuring a softer polyurethane lateral crash pad to slow the rate of pronation and anatomical flex grooves that encourage efficient toe-off. Result? It lets Paula run more like Paula.

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