

British Milers' Club News

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**Anabolic steroids &
physical growth
Sub four register**

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Editorial

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Cover photo:
BMC Mile field at Crawley,
21/4/84 won by Jack Buckner
from Roland Weedon and Mark
Rowland.

Cocksedge Photo

Distance running stars like Said Aouita and Brahim Boutayeb can learn something from high hurdler Roger Kingdom. For whilst Aouita and his countryman have spent several seasons ducking top opposition until it suited them, the athlete of 1989 hid from no-one. He went head-to-head with arch rival Colin Jackson nine times, winning six and losing three, broke the world record and clocked a windy 12.87 for 110mH in the World Cup.

Just why is it that many world class middle distance runners are reluctant to test themselves in direct competition? We do not see this cowardice from top sprinters and hurdlers, who are prepared to put themselves on the line anywhere and often.

The sport needs these world class match ups, but in these days of the appearance fee, the athletes' agent and the pacemaker, many distance men prefer time trials to races until major Championships take place. Besides loss of face, the cynical truth is that losing to a major opponent can also mean taking a payout for the next stop on the circuit, and it seems men like Aouita just cannot contemplate that. What has he to be afraid of? Any man who can run inside 7:30 for 3000m as he did in Cologne last year need fear no one.

The IAAF is currently debating the reduction of appearance fees, with the emphasis on prize money. Whilst I applaud this, perhaps it is time for the World body to also legislate that CP meeting organisers cannot hold a 1500m and mile; or 3000 and 5000m in the same meeting; thus limiting the choice and maybe forcing rivals to race each other more often.

As the golden years of the Coe/Ovett/Cramer era draw to a close, Britain could be facing a drought in middle distance fortunes at top level. However in youngsters Craig Winrow and Paul Burgess, gold and silver medalists in the European Junior 800m Championship last year, we have two of the finest to ensure Britain's rich tradition continues. They race uncompromisingly, and I am pleased to note that both are BMC members.

Liz McColgan and Yvonne Murray have shown the way for our women also, setting a fine example in terms of careful preparation and courageous racing. Youngsters such as Lisa York, Maxine Newman, Bev Nicholson and Helen Titterton are great prospects who will follow in their footsteps. There is much to look forward to in the nineties.

David Cocksedge, Editor.

Eagle-eyed Greg Moon spotted the blunder in our Quiz in issue no. 45. Yes, the last Briton to set a world mile record in the UK was Mitcham's Anne Smith, who ran 4:37.0 at Chiswick in June, 1967, almost ten years after Derek Ibbotson ran 3:57.2 at White City. Anne, a BMC Life Member, currently resides in New Zealand.

BMC GUIDE TO FITNESS TESTING

- a twelve page Coaches' leaflet on fitness testing procedures, written by **BAAB Senior Coach and BMC Chairman, Frank Horwill.**
£1.00 to BMC Members
£2.00 to non-members
plus 26p postage.

**From: Pat Fitzgerald, The Acacia,
 47 Station Road, Cowley, Uxbridge,
 Middlesex.**

Cocleedge photos.



1989 BMC Coach of the year **GORDON SURTEES** was presented with his medal last Nov.



SEB COE received a special plaque in honour of his twelve world records from BMC founder **FRANK HORWILL** at the AGM.

Expell Exhaust

by Harry Daniell, M.D.

The literature of running is a scramble of fact and fiction, of truth mixed with fantasy and folklore. Do you run faster or farther or sexier with Vitamin E, peanut butter, a macrobiotic diet, Vitamin C and wheat germ? Fact or fancy? Some day we will know.

Everyone knows now, however, that carbon monoxide is bad, very bad. Maybe even terrible. Carbon monoxide (CO) is a colorless, tasteless, odorless, non-irritating gas which is generated in tiny amounts by most plants and animals, and is normally present in air at a concentration of three or four parts per million (PPM).

During incomplete burning of gasoline, wood or other organic materials, however, it may be produced in relatively large quantities. Automotive exhaust contains 5000 to 70,000 PPM, with the higher values produced at slower speeds by older engines and those that are poorly tuned. It has been estimated that 60% of the carbon monoxide in our environment is produced by motor vehicles.

The carbon monoxide content of the air varies widely depending on these sources of contamination and weather conditions, but it most clearly depends upon the local density of motor vehicles. Particularly high values are found in poorly ventilated garages, in automobile repair shops, in busy parking lots, near busy intersections especially during rush hours, in tunnels, at airports, bus terminals, and occasionally in rooms with poorly vented gas, coal or wood heaters, gas refrigerators or fireplaces. In most metropolitan areas, lower values are found in the early morning with higher values during rush hour.

Distance running is an aerobic (oxygen-consuming) exercise, and levels of performance depend in part on the success we have in transporting oxygen to the muscles as well as in the efficiency with which they use this oxygen in burning fuel to provide energy.

Even though carbon monoxide is present in comparatively small amounts in inhaled air, it adheres to hemoglobin 240 times more avidly than does oxygen. After oxygen is transported to the muscles, most of it is released and utilized there. However, very little of the tightly-bound carbon monoxide can be released, and most of it returns to the lungs where it still adheres tightly to hemoglobin with only small amounts being expired with each breath.

Most inhaled CO, therefore, continues to re-circulate. Continued breathing of carbon monoxide-polluted air causes increasingly high concentrations until an equilibrium state is reached. During constant carbon monoxide exposure, this equilibrium occurs after 10-12 hours in subjects at rest. During exercise, however, it is reached more rapidly because increased breathing activity brings more CO into the lungs.

Breathing air containing 50 PPM of carbon monoxide at rest causes the concentration in the bloodstream to rise to 5% in five hours. But during vigorous exercise, this level of air pollution can produce a level of 5% in less than one hour. This limits oxygen transport to muscle tissue by 5%.

Of immediate importance to distance runners is the clear demonstration that commonly encountered carbon monoxide concentrations interfere with endurance performance for many hours after exposure to the gas has ended.

In meticulous studies recently reported in the *Annals of Internal Medicine*, Drs. Wilbert Aronow and John Cassidy compared the maximum treadmill performances of 10 middle-aged, healthy non-smokers at two carbon monoxide concentrations, 1.3% and 3.95%. Exercise time until exhaustion averaged 663.7 seconds at the higher concentration and 703.4 seconds at the lower concentration. The 2.65% increase in carbon monoxide caused a 6% decrease in performance time.

A similar study by Dr. Bjorn Ekblom and Roger Huot in Stockholm using well-trained young men demonstrated a decrease in mean exercise time from 332 to 244 seconds when performance at baseline CO levels was compared with that at a 7.1% level.

Dr. Barbara Drinkwater and a group of associates have demonstrated a decrease in mean exercise time from 20.9 minutes to 19.9 minutes when non-smokers exercised while breathing air containing 50 PPM CO, as compared with exercise performed in unpolluted air. During this short-lived CO exposure, their average CO level increased from 0.9% to 2.5%.

How does one rid himself of this poison? Carbon monoxide is not metabolized ("used up") in the body. It is only dissipated by being exhaled. The more rapidly breathing occurs, the more carbon monoxide is released. During sleep, the half-life (time required for dissipation of half the carbon monoxide contained in the body) is approximately eight hours, and during heavy exercise this figure drops to one hour. Intermediate levels of exercise obviously result in intermediate levels of carbon monoxide release.

Several unexpected sources of carbon monoxide have been recognized. Paint and varnish removers, for instance, may cause dangerously high levels of carbon

Typical Concentrations Of Carbon Monoxide	PPM
"Clean air"	0-10
Tobacco smoke	40,000
	50,000
Tail pipe exhaust	5,000-
	70,000
Smoky meeting room	38
Freeways during rush hour	20-30
Freeways during thermal inversion	100
Burning buildings	1000-
	200,000
Automobile repair shops	80
Border inspection stations	110
Parking lots	80

monoxide, even when the label directions are carefully followed. Certain prescription medications, including Phenobarbital and Dilantin double the normal human rate of carbon monoxide production and can result in an elevation of CO levels by approximately 0.4%.

Cigarette smoke contains the highest concentration of carbon monoxide (unless you make a habit of putting your mouth to the exhaust pipe of cars). It is about 400 PPM when it reaches the lungs. Few runners are smokers, yet they are forced to breathe the smoke of others. This exposure can quickly double the concentration of CO in the blood.

Some suggested techniques for minimizing the handicap imposed by carbon monoxide:

1. Do not smoke tobacco or other substances (even marijuana and lettuce smoke contain high levels of car-

bon monoxide). One tobacco cigarette raises CO levels by 1% or 2%.

2. Do not have a roommate who smokes (even filter-tip cigarettes, for they produce more carbon monoxide than non-filter brands).

3. Run, when possible, where motor vehicles are few.

4. Avoid meeting rooms where smoking is allowed, particularly during the day prior to competition.

5. Do not use paint or varnish removers during the two days before competition.

6. If your physician has prescribed Dilantin or Phenobarbital, ask him about alternative medications.

7. Minimize time spent in automobile repair shops, parking garages, large parking lots, and airports, as well as time fighting fires for two days before racing.

8. Avoid prolonged rides to competi-

tion, particularly during rush hours and certainly in vehicles with defective exhaust systems. This includes station wagons which tend to suck exhaust through their open tailgates.

9. When driving several hours to a run, make the trip a day early if possible. This will give any acquired carbon monoxide a chance to dissipate. An easy run after arriving at your destination may be of extra help.

10. As a race director, minimize exhaust exposure of runners. Avoid heavily-traveled roads, and discourage those who would follow the race by auto or motorcycle.

11. While competing, do not follow a motor vehicle, even if you can run that fast.

12. On the other hand, it might be even better to pass that vehicle and let him exhaust the runners behind you. ●

BMC South, 1989.

A Successful training day was held at Reading on August 19th, where it was good to see athletes from the Midlands attending. These included Helen Titterton, Lisa York and Maxine Newman with their coach, John Price. Mike Rezin and his brother are to be congratulated on administering the day, where coach Peter Thompson proved to be a mine of information.

Several good class races were held at West London Stadium organised by Pat Fitzgerald; and there was good depth in a women's 800m at Aldershot on July 8th, organised jointly by David Cocksedge and James Bevan. In September, the BMC assisted Steven Downes with a Women's 5000m race at Tooting, won by new member Ceri Pritchard in a ground record of 16:25.4. The usual programme of South of the Thames races (Tooting and Crystal Palace) were not held this year on the advice of the President. Few current members seem to need mid-week unsponsored races these days - the vast bulk of the athletes racing in BMC events in the South are not members - and this is a disturbing trend we need to address: If our members do not want to run in BMC races, what service should we therefore be providing?

Mike Rezin is promoting a BMC Training week in the Algarve, Portugal next Spring through Sportsman's Travel (See advertisement in last BMC NEWS). If popular, this will be an annual fixture. Previous warm weather training breaks in Portugal have been organised by BMC Males under Ann Hill, and were very successful.

BMC South hope to revive the Peter Coe Mile race for Youths in 1990, along with further experimental races for women over 5000 and 10,000 metres - the latter could prove to be useful for athletes needing qualifying standards for European Championships to be held at Split, Yugoslavia, from August 27th to September 1st.

David Cocksedge, BMC South.



Cocksedge photo.

Ceri Pritchard - 16:25.4 in 5km debut.

Physiology

ANABOLIC STEROIDS AND PHYSICAL GROWTH

by Lyle Knudson, United States

A review of the literature pertaining to the uses, effects, and side-effects of androgenic-anabolic steroids as related to use in normal people and athletes. With the current controversy surrounding the use of steroids, this article is an excellent source of information.

As an introduction to the general purposes for the production and use of anabolic steroids consider the following statement by Dr. Nasrollah T. Shahidi:

"In this class (17-alkyl) of androgens many synthetic derivatives (of testosterone) have been produced with the hope of a substantial degree of protein anabolism without androgenic property. In most cases a satisfactory dissociation between anabolic and androgenic properties has been achieved. Unfortunately, none of these preparations are completely devoid of virilizing effects, particularly when given in large doses.

For practical purposes, anabolic steroids refer to the compounds in which anabolic activity prevails and that do not cause noteworthy virilizing effect in doses comparable to testosterone." (41)

MEDICAL USES OF ANABOLIC STEROIDS

The therapeutic uses of anabolic-androgenic steroids, to promote normal growth and development, include:

- 1) Originally used to increase growth (bone length) of children whose growth rates were sub-normal (2,8,15,19,23,37,44). But some researchers have found that the increased bone growth was accompanied by increased bone maturation (epiphyseal closure) resulting in possible reductions in the ultimate growth potential (3,14,45). Anabolic steroids have since been used in some cases to retard ultimate growth in youths who have exhibited gigantism tendencies.
- 2) Promote weight gain in children (3,51).
- 3) Treat different forms of anemia. Steroids have been found to increase the production of red blood cells (2,41).
- 4) Disseminate forms of cancer (2).
- 5) Treat serious and specific types of endocrine disturbances, e.g., sexual behavior disorders, delayed puberty (2).
- 6) Increase physical activity potential in the aged (42).
- 7) Counteract catabolic effects of natural adrenal corticosteroids or synthetic cortisols.
- 8) Sex Reassignment (transsexual).

USES BY ATHLETES

Throughout the world athletes, male and female, use anabolic steroids hoping to increase strength, to increase lean body mass (i.e., increase ratio of muscle tissue to adipose tissue), to increase endurance, and therefore, to improve performances. Steroids are used heavily (high percentage of athletes and in high doses) by body builders, weight lifters, professional football players, and international level track athletes participating in the throwing events (shot put, discus, and hammer) (49).

Women, and intercollegiate and high school men, in these same sport categories use anabolics to a lesser extent. Anabolic steroids are used by a smaller percentage of other athletes, at almost all ages and levels of competition, and in strength and non-strength activities, to seek improved performances in sports competition.

EFFECTS, RELATING TO PHYSICAL PERFORMANCE

Considerable research has been conducted to determine the effects of the uses of anabolic steroids on the development of strength, lean-body mass, and endurance in humans. No consensus of findings are indicated. However, an analysis of the research designs and respective findings can lead to some conclusions.

At least two important criteria to be considered when analyzing the research methods employed in studying the effects of anabolics upon human performance factors are:

- 1) Does the research design isolate the effects attributable to the anabolic steroid from those due to extraneous conditions (e.g., placebo effect (5), development vs. time interaction, subject differences, etc.)?
- 2) Did the experimental conditions simulate the conditions under which athletes would use dietary ergogenic aids to theoretically help prepare themselves for improved physical performance?

To measure fairly the possible contribution of anabolic steroids to exceptional physical development the subject would have to be taken in adequately large doses for adequately scheduled time frames; and the anabolic would have to be taken in conjunction with a high protein diet to insure the availability of adequate amino acid supplies for greater than normal protein synthesis.

A number of research studies indicate no increases in strength, weight, lean body mass, endurance, and/or performances as a result of the use of anabolic steroids (13,16,18,22,27,39,47). Other studies show significant increases in strength, body weight, lean body mass, and/or aerobic capacity with the use of anabolics (26,32,47).

Johnson (25), O'Shea (33), and Win-May (52) found increases in strength, body weight, and/or lean body mass, but no increases in endurance. Bowers indicates only strength and lean body mass gains, but no weight or endurance increases (9). Casner found weight gains but indicated that those weight gains were due to water retention rather than increases in body mass (10).

However, the designs of the aforementioned studies do not meet the stated research analysis criteria. Therefore, the conflict in conclusions from these studies need not necessarily be interpreted as irreconcilably confusing. Two studies which do appear to meet the criteria will be highlighted.

Stamford and Moffat conducted a study with experienced and conditioned weight trainers, over a one month period, with use of high protein supplements, with relatively high dosage (20mg) of Dianabol, with strenuous strength training, and controlled for the placebo effect and variances in the diet.

They found a significant increase in strength and body weight of the anabolic steroid group over the placebo group, those who took only protein supplement, and the control group. The placebo group showed significant strength gains over the protein supplement group (46).

Freed, et. al., conducted a cross-over double-blind study on the effect of 10mg and 25mg of Dianabol on male weight lifters. The anabolic and a placebo were given at alternate six week periods along with high protein diets. A significant gain was indicated with the anabolic steroid over the placebo. Skin fold measurements did not change, indicating that the weight gain was not due to increased fat content. There was no differences shown in strength and weight gains between the differences in dosages (17).

In conclusion, anabolic steroids, when accompanied by a high protein diet and strenuous strength training program, appear to produce increases in strength and weight in trained male athletes. The weight gain may be as a result of fluid retention. There is no substantial evidence that aerobic endurance is improved by using anabolic steroids.

SIDE-EFFECTS

If anabolic-androgenic steroids are to be considered for use for medical purposes or physical performance development aids, the other effects must

also be considered. While the steroid aids the athlete in synthesizing muscle protein, it also has anabolic effects on other body cells, tissues, and organs. Introduction of any synthetic hormone into the body stimulates an adjustment of the digestive, neural, endocrine, and other systems to maintain the body's normal homeo-kinetic state. These effects and adjustments may have a detrimental effect on the desired psycho-socio-physiological status of the individual.

Specific anabolic related side-effects which have been reported by researchers include:

- 1) Alteration in liver function (1,40), cholestasis (jaundice of the liver) (1,2,17,41), hepatoma (non-malignant tumor of the liver) (11,41,48), hepato-cellular carcinoma (cancer of the liver) (1,4,20,43).
- 2) Retention of body salts (calcium, sodium, potassium, phosphorus, sulfur, chlorine), resulting in retention of water, edema (swelling of tissue due to retention of water) (12).
- 3) Disruption of the normal growth pattern in youth (41), premature bone maturation (epiphyseal closure) in youth (46).
- 4) Increase in blood pressure, headaches, dizziness, fainting, nosebleeds, nausea (17).
- 5) Hypertension (2,17,46).
- 6) Stomach distress, gastrointestinal hemorrhage (17,46).
- 7) Acne (2,17,41,46).
- 8) Baldness (2,46).
- 9) Hypertrophy of the prostate (2,46).

Introducing a synthetic male sex hormone into the male or female body causes imbalances in the hormones which control the normal development of primary and secondary sex characteristics and function. Anabolic-androgenic steroids have been found to reduce the normal body production of gonadotropic hormones (hormones which stimulate the production of the sex hormones—testosterone, estrogen, etc.) (1,20,28).

Reported androgenic side-effects of the use of anabolic steroids include:

- 1) In males—atrophy and decreased functioning of the testes (1,2,20,28,46), oligospermia (lack of semen and/or lowering of sperm count) (2,17,20,25).
- 2) In females—virilizing (masculinization) effects (36,40,41), deepening of the voice (1,2,36,41), hirsutism (growth of body hair) (1,2,36,40,41), enlargement of clitoris (1,2,40); amenorrhea (suppression or cessation of menstrual cycle) (1,40,41).
- 3) Gynecomastia (enlargement of the breast) (2,29,36).
- 4) Decreased libido (sex drive) (17,46), increased libido (17).
- 5) In youth, before puberty, sexual precocity (premature sexual development) (36), changes in external genitalia (41), phallic enlargement (36).

Most side-effects of the use of anabolic-androgenic steroids have been found to be totally or partially reversible with time after the administration of the drug has been terminated (1,41). Adequate research has not been conducted relating to these regressions of effects to make concrete implications to specific side-effects, time to beginning of the regression, and degree of regression.

ANECDOTES FROM ATHLETES

Additional information on uses, effects, and side-effects is included here which has been reported by male athletes relating to their use of anabolic steroids outside of experimental conditions. Some of this information has not been reported and/or confirmed by research, and therefore should be interpreted especially critically. The information has been taken from Freed's article (17) and this writer's personal contact with world class track athletes.

Athletes have taken up to 300mg daily of anabolic steroids for months and even years continuously, and have reported that huge amounts were no more effective than lesser doses. When taken in conjunction with high protein diets and strenuous strength training, athletes reported extraordinary strength and weight gains.

"Athletes generally become less susceptible to fatigue which allows longer, more frequent, and harder training sessions. Injuries to muscles, tendons, and ligaments occur less often in weight training, and when they do occur they heal more quickly than usual." The effects seem to wane after approximately six weeks after stopping the drug followed by a period of several weeks of weakness (17). The side-effects are consistent with those listed earlier in this paper (17).

Some athletes believe that the performances in the strength-power events common today would be impossible without the use of anabolic steroids. Some athletes (plus coaches and athletic physicians) believe that world class performances of women in strength, as well as endurance events, would not be possible without the masculinization due to the use of anabolic-androgenic steroids. Others believe that the same performances are possible in women without the use of anabolics, but that the same development requires an unusually gifted athlete or many years of development.

Athletes have reported very significantly different side-effects from different forms of anabolic steroids. One world class athlete stated, "_____*" is poison", referring to the side-effects. But he also reported that the drug which he was then taking had no noticeable side-effects.

Most world class athletes apparently take steroids in intervals of 4-6 weeks in length with 2-6 weeks non-use intervals, building to important international competitions, with longer non-use intervals, after major competitions.

*The brand name is not listed here, but it is perhaps the most available and commonly used anabolic steroid.

CRITICAL REACTION TO THE RELATED LITERATURE

Despite the quantity of research conducted on the effects and side-effects of the use of anabolic steroids, the lack of quality experimentation leaves many unanswered or poorly answered questions.

The medical effects of the various anabolic-androgenic steroids appear to be well substantiated. The side-effects of medical use have been

verified by observation, although the cause-effect in some cases may not be sufficiently isolated.

Some of the stated side-effects may actually be a manifestation of the disease treated, or an interaction of the anabolic with the disease, rather than directly attributable to the drug. For example, cancer of the liver has been found in a subject recovered from aplastic anemia who was not treated with anabolic steroids (11).

The anabolic-androgenic effects and side-effects relating to exceptional physical growth and development (as with athletes) are not as well substantiated. Physicians, sport officials, coaches, and some athletes have objected to any consideration of the use of anabolic steroids for improving performances or even experimentation, for medical, moral, or ethical reasons. Some note that the negative side-effects are detrimental to normal health, and that no pursuit can be more important than health.

The use of drugs, including anabolic steroids, for improving performances is illegal in almost all athletic events and at all levels of athletic competition. Those who use anabolics are circumscribing the rules, having to avoid using steroids for a period of time prior to competition, where drug testing is done, so that the violation of rules will not be detected. If anabolic steroids improve performances, those who use them gain an unfair advantage over those who do not.

But in spite of these objections, many athletes use anabolics "to gain an advantage" or "to keep up with others who use steroids." Because of the fact that anabolic steroids are available and are used by some athletes; physicians, sport officials, coaches, and other athletes can not ignore the implications, and must deal with the realities.

Drug testing in more competitions, and better methods of detection, are being employed to identify violators of the rules. But the technology to avoid the rules (developing non-detectable drugs, use of pure testosterone, controlled administration of the drug, etc.) will always keep up with the technology to enforce the rules.

Physicians and sport officials have used "scare tactics" expounding the dangerous side-effects of the use of anabolic and stimulating/depressing agents, some of which have been stated accurately and many of which have been significantly exaggerated. The exaggerations have served to destroy the credibility of the physician and sport official relative to the subject, so that even the accurate information is questioned and/or ignored.

Athletes are strongly motivated by success in competition, but are also interested in their personal well-being. They only want the "facts." Facts can only be determined by well-constructed research. If others (physicians, sport officials, etc.) will not conduct that research, then the athletes will experiment on themselves.

At least in the U.S., the athletes who have experimented with themselves as subjects appear to be more knowledgeable about the uses, effects, and side-effects than doctors, officials, or coaches. Of course, their interpretation of their findings are tainted by their lack of technical knowledge and experimenter-subject bias.

So if unbiased well-constructed research is to be conducted, those who are qualified (sports physicians, endocrinologists, professional physical educators, etc.) must accept the realities and get on with separating truth from fiction about anabolic steroids.

Following are some recommended guidelines for future research with anabolic steroids:

- 1) Use a cross-over double-blind experimental model to control for experimenter and subject bias;
- 2) Include at least two different quantities of the anabolics to test the effect of varying doses;
- 3) Include high protein supplements and no high protein diet in separate experimental groups;
- 4) Include an exercise program consistent with the effects which are being tested (e.g., if testing the effect on strength, strength training must be involved; if testing endurance, aerobic training must be involved);
- 5) If implications are to be made to training athletes, subjects should be pretrained prior to the beginning of the experiment, and should follow normal training procedures during the experiment. The training program should be described in the write-up of the experiment;
- 6) The anabolic steroid should be administered according to a specific time interval pattern so that the pattern is considered a variable in the study; Replication studies should be conducted using different patterns;
- 7) Replication studies should be conducted using different anabolic steroid products;
- 8) Longitudinal studies investigating the long term effects and side-effects of the use of anabolics for athletic performances is needed. Particularly needed is a well-controlled study of the reversibility-non reversibility of side-effects;
- 9) Subjects should come from the population to which inferences will be made. Animals or untrained humans should not be the subjects if inferences are to be made to trained athletes;
- 10) Studies with women as subjects should be conducted.

Once the athlete has substantial information about the effects and side-effects of anabolic steroids available to them, they have several philosophical choices. They can avoid the use of drugs for moral and/or ethical reasons. They can avoid the use of drugs because they choose a "zero risk" situation. Or they can perform a "risk-value weighing" analysis based on the information available to them (43).

If the projected values outweigh the projected risks, then perhaps the use of anabolic steroids can be justified. In some cultures, success in sports can determine the social-economic status of the individual throughout life. If anabolic steroids can improve performances, the implied psycho-social values should not be underestimated in any culture. Until more is known, human beings will continue to risk their health and lives using anabolic steroids without really knowing the possible values and risks.□

DEFINITIONS

Anabolic-(adj.) to cause the synthesis of body tissue
 Androgenic-(adj.) to cause virilization (male sex characteristics)

Hormone-(n.) a chemical produced by a gland, secreted in the blood stream, and affecting the function of distant cells or organs (38)

Steroid-(n.) a classification of chemicals based on molecular structure; includes some of the natural and synthetic hormones

Testosterone-(n.) male sex hormones with anabolic and androgenic effects.□

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FALLACIES

By F.J.H.

Frank discusses some common misconceptions relating to training mileage and cross country racing.

Fallacy number 1: "Britain owes her success in middle-distance running to her great cross country tradition." The UK's greatest middle distance man, Sebastian Coe, has competed only six times at cross country in the last 12 years. In the sixties British milers were unranked in the World and even European 'top tens'. Meantime, thousands of British athletes were racing most weekends over the country. In the USA and Soviet Union the cross country season is about half as long as ours. I think we can safely state that in depth both male and female athletes in the USA are on a par with Britain and that Soviet women are superior, whilst the men are of lower standard. Thus it appears that our much-lauded cross country tradition in practical terms has limited value.

It could be argued that a club's insistence that all its' best active members turn out regularly every week to score in club and league events is actually detrimental to some athletes who would do better spending time in the winter correcting faults that became apparent during the previous summer's racing.

Tests performed on over 500 runners have shown that good standard 400/800/1500 runners, male and female, possess greater leg strength than average club level runners. The measurements used and the minimum requirements established for major success in middle distance are: Sargent Jump - 20 inches; 25 metres hopping - 9 hops; Standing Long Jump - own height lengthways plus 25 per cent; Full Squat - bodyweight.

To correlate these findings, the 40 yards (36.6 metres) sprint test is used. If all athletes who achieve the leg test standards listed above are timed from a standing start over 40y they will register between 4 to 4.5 seconds. Those unable to achieve the standards will be slower than 4.5 sec.

The relationship between leg strength and speed is fully proven, and given this fact major improvement in speed can be obtained by increased leg strength, provided the rate of stride is maintained.

Increased Leg strength is most difficult to achieve. Racing cross country each weekend will NOT increase the POWER of the legs, merely their ENDURANCE. Progress in the leg strength department depends on every other day sessions over six months. These sessions must be divided into two goals: POWER - requiring maximum weight and not more than five repetitions; ENDURANCE - requiring half-maximum weight and not less than ten repetitions. All reps. are repeated three times.

Example: A female endurance athlete weighing 50Kg/110lbs who wishes to improve her leg strength. Under supervision and working with other athletes, the weekly programme could be - Sunday: Power weights; Tuesday: Endurance weights; Thursday: Power weights; Saturday: Endurance weights. Now there are five major leg strength exercises - step ups, half-squats, heel-raises, hamstring curls and up to 40 metres hopping.

Because hamstrings MUST be 60 per cent as strong as the quadriceps a set of curls (five) at maximum weight should be done after each completed set of three (i.e. 3 x 5).

By trial and error the maximum weight possible (which can only just be managed five times in a set) will be arrived at. If our female example can complete seven step ups onto a bench with the left leg whilst carrying a barbell loaded with 90 lbs; the weight on the bar is inadequate if power is her goal. The weight should be increased so that only five step ups can be handled. This principle applies to all exercises where POWER is the target.

Fallacy number 2: "Big mileage is required for success at cross country". Athletes coached by me have achieved a fair degree of success at the winter sport, and I can verify that this was due to three factors: (a) steady running; (b) hill work; (c) relative speed work on the track. Pushed to name the major factor, I would state 'one track session a week of long repetitions with very short recoveries during October/November; two track sessions a week during December/January, one of long reps and the other shorter, with very short rest; three track sessions a week during February/March - basically at 5km pace on Sundays; 3km pace on Tuesdays and 1500 pace on Thursdays'.

To emphasise how vital speed has become to modern cross country runners, here is a tale about Tim Hutchings: In March 1984 Tim ran 3 x 1000m in 2:40/45 with 100m jog (45 sec) on Tuesday before flying out to the IAAF World XC in New York on Friday. That session is about 13:20 - 39 pace for 5000m. In the race, the leaders covered the first 5000m of the flat course in 14 minutes, and four runners, including Hutchings, broke away from the main pack. Quite clearly, this opening speed polished off the opposition. Running 100 miles a week at 6 - 7 minute mile pace does not bring about this extra speed gear.

Don't go into another cross country season thinking that you require big mileage without track work. Instead, think PROGRESSIVE mileage and progressive track training. Whilst many still follow the Lydiard concept of 100 miles a week, it is often forgotten that Lydiard stated "Work up to 100 miles..."

Consider this schedule for a mature athlete - October/November: 40 miles per week; December/January: 60 mpw; February/March: 80 mpw. This weekly schedule should always include a long run, hill reps up and down a long hill, an acceleration run equal to race distance, and speed work relative to race distance.

Key track sessions for cross country: Senior and Junior men, 5km pace; Senior women and Youths, 3km pace. Intermediate women, Boys and Girls, 1500m pace. For example, senior men could start with 4 x 1600m in 4:40 average with 1 minute rest, building up to 6 x 1600 by February. Senior women could start with 2 x 1500 in 4:30 - 50 with 2 minutes rest, building up to 4 x 1500.

Fallacy Number 3: "Warm weather training is conducive to better overall performance". The key word here is 'training'. Some people substitute 'holiday'. Loughborough's George Gandy insists that when his athletes use the Algarve Camp in Portugal, they run six miles every morning, and are on the track for pace work by 17.00 (5pm). Boozing and sun tanning are discouraged. If you can afford it, altitude training is likely to be more beneficial than going abroad to find warm weather.

Frankly, you are better off training regularly in British drizzle than lying by a swimming pool in the sun, de-hydrating yourself before your next session. A change of training venue is always good for you psychologically, provided you avoid over-indulgence in pleasures of the flesh and continue to train sensibly and progressively.

ACHILLES WRITES:

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Satellite howler

THOSE of you with satellite or cable television had access to many hours of live athletics coverage last summer, as Eurosport did a splendid job in covering the IAAF/Mobile Grand Prix circuit and the World Cup in Barcelona. Among the quotable gems was this discourse from Earlsfield resident Tim Hutchings, working as a 'colour man' alongside commentator Ian Darke at the Monte Carlo stop on the circuit: "These Kenyans are smart runners. They race a lot, and they learn their trade whilst on the job...."

Wanted: womens' track races

THE main reason for Britain's lack of depth at womens' 10,000 on the track is a shortage of competition, claims Coventry Coach Jerry Murland. To remedy this, and to help aspiring women achieve qualifying marks for the trials in June, Murland is putting on two top-quality track 10,000m races for women. The first is in Coventry on May 5th. For further details, contact Jerry on 0203 - 501706. For Londoners, there is a womens' track 5000m at Crystal Palace on April 25th (contact: David Cockledge for further information).

ME: the mystery illness

BELGRAVE Harrier John Gladwin is just one of the many leading sportsmen who have been laid low by a mystery illness which echoes myalgic encephalomyelitis (ME) - the symptoms are extreme exhaustion and a susceptibility to common ailments. Doctors use the term 'post viral syndrome' because the illness often strikes in the aftermath of a viral attack, when the body's immune system is still weak.

Gladwin, a Commonwealth silver medalist who has run a mile in 3:51.02, woke up one morning whilst in heavy training feeling 'really terrible - tired and aching.' But athletes are used to overcoming tiredness, and he trained on when he now knows he should have rested. Soon afterwards, he collapsed whilst shopping in a supermarket. He rested completely, but soon severe depression set in and he was aware of failing eyesight and memory loss. Then John separated from his girlfriend, and often felt suicidal.

He had two blood tests, and finally fled to the Australian sun for three months. Gladwin started back slowly, and by June was running well enough to clock 3:40.40 for 1500m in Sweden. "Then, wham, I was knocked back again. I got a stomach bug and it really wiped me out. My resistance was still really low." All the doctors could tell him was that full recovery may take a long time; he had to accept frequent "ups and downs" and learn to "listen to the body".

Dr. Lynn Fitzgerald, an immunologist at St. George's Hospital in Tooting, is a leading distance runner who has studied ME and believes that mental stress is a key factor. "For the immune system, all stress is the same, physical or psychological. Whether it's a major life event, or sporting pressure, it all adds on, and there's a point where the whole system breaks down. Previously, athletes had well-defined competitive seasons. Now they compete all year round. They have the pressures of making a living, satisfying sponsors, media and selectors. They're expected to compete and show form

whenever the BOB requires them to do so, and they get slated publicly if they don't - accused of letting the team down", says Dr Fitzgerald.

Her personal answer to stress is yoga, which helped her to a world best of 133 miles in 24 hours. Lynn just "let it happen" rather than forcing or hurting herself. "Where it's right, it feels good," she says. "I can see that people have to push themselves hard, but it can be very damaging. The idea that more is better can soon mean diminishing returns - and illness."

With grateful acknowledgements to Norman Harris.

'Wallowing in self-pity': Budd's new book

SUNDAY TIMES scribe Cliff Temple was less than enthusiastic in his review of 'Zola' By Zola Budd, published last Autumn. Commenting in the paper, he wrote: "Zola tries hard to paint a picture of an innocent, lonely girl reluctantly imprisoned in a strange land by her remarkable running ability. What comes over is the tale of a talented athlete wallowing in self-pity, making little effort to mix, silently manipulating those around her, and denigrating anyone riding on the so-called Buddwagon who was unwilling to make themselves constantly available to her whims. It is a story of everybody's else's failures.

"She reveals that as recently as last year (1988) when she was clinging to the hope of a place at the Seoul Olympics, she was still employing a British coach largely as a front man. This was a ploy which, she writes, was intended to hide the identity of her real coach at time, Fanie Van Zyl, back in South Africa.

"That subterfuge was apparently enacted with the knowledge of British Board officials, who were always more concerned about upsetting one of their major commercial attractions than in telling the South African hangers-on to push off." (ZOLA by Zola Budd with Hugh Eley is published by Partidge Press; £12.95).

Pay 'em by place!

APPEARANCE money could become a thing of the past for top athletes following moves by IAAF Council last winter. Up for consideration was a plan to combine prize money with appearance fees. Currently, major stars are paid almost exclusively just for turning up and promoters feel that they don't always get their money's worth. The French sporting newspaper, L'Equipe has quoted these figures - if you want Carl Lewis to grace your meeting, expect to fork out \$40,000 (\$21,550); for Said Aouta, it's \$25,000 (£13,470).

Arturo Barrios who broke the World 10km track record last summer, commands a \$15,000 appearance fee through his agent/manager, Joss Hermens. That's worth nearly £8,100 in our money. The BMC does NOT pay out appearance money, but officials are always willing to talk to sponsors and promoters about extending the direct incentive of prize money. Payment by performance is honest, up front and healthier than sleazy inducements based on athletes' estimated market value. It also provides up and coming youngsters with a chance to hit the jackpot.

'Raging drunk on adrenalin'

TIMES scribe Simon Barnes has an interesting perspective on the golden years of Sebastian Coe. "Everybody knows that Coe is the nice one: to be compared and contrasted with Steve Ovett, who was supposed to be the nasty one. People were happy with such an archetypal simplification. Ovett was cunning, a tricky racer, a scrapper, arrogant and tough. Coe was a gazelle in human form, charming, self-effacing, and handed a gift that all but overwhelmed him.

"Ovett is, I am told, one of the nicest fellows you could wish to meet. And Coe has a thick streak of toughness in him, and he also has an almost overpowering aggression.

"He has even displayed this in public. After his second Olympic gold medal in Los Angeles, he celebrated his victory with a fit of what looked like psychotic rage; his face distorted quite horribly. He was raging drunk on adrenalin. "Who's number one now?!" he roared up at the press tribune, thrusting his index finger skywards as if he wanted to cause a permanent injury to the air around him.

"He had won the race, not through mere natural talent and grace, but through driving aggression, through a desire for victory that was greater and stronger than that of anyone else in the race.

"That is how I will always remember Coe: Unmasked, stripped naked of his genuine charm by the truth drug of victory..." (TIMES, January 13, 1990).

Neurotic nutter

TRACK & Field News recently relayed an incident from last summer that may stir memories. Picture the scene: "United's red carpet lounge at the airport. A famous Olympic runner, female, picked up receptionist Susie Magee's heavy nameplate and hurled it at her after Susie tried to get the runner's spilt, misbehaving child to quiet down and stop disturbing the other guests. Fortunately, the woman is a better runner than thrower and Susie survived..."

Can you guess the identity of the female athlete? Your submissions to the editor on postcards, please.

0 - 0 Draw

INEVITABLY, the conclusion of the two-man independent inquiry set up by the AAA to look into Steve Ovett's allegations at Birmingham last August looked suspiciously like a whitewash. David Pickup and Robert Reid, QC, seemed to be trying to please everyone, and AAA officials were anxious to forget the whole shabby business and move on. Spokesman Tony Ward described it as an "0 - 0 draw" and further stated that to continue the investigation would be "a waste of energy for us. We have got to get on with the job of running athletics."

"I'm pleased the inquiry admits I was telling the truth when I said I had been offered money (£20,000). It does not confirm who made the telephone call with the offer of money, but I know who 'phoned me - it was Andy Norman", said Ovett, when the inquiry's belated report was released on January 19th.

One interesting recommendation was that Promotions Officer Norman should be specifically debarred from acting as an agent for any athlete at home or overseas.

Super drug for endurance athletes?

"A SYNTHETIC drug originally developed to help patients suffering from kidney failure is becoming acknowledged by the sports world as a potentially greater threat to competitive fairness than anabolic steroids", writes Cliff Temple in THE SUNDAY TIMES, January 7, 1990.

"In the wrong hands, erythropoietin, known as EPO, could

be the latest aid for athletic cheats, and a nightmare for drug testers in the 1990's.

"For not only does EPO appear to enhance oxygen transportation in endurance sportsmen even more effectively than the banned process of blood boosting, but it is far easier to administer and virtually impossible to detect. It disappears from the body quickly, but leaves its benefits.

"In its natural form, erythropoietin is a hormone produced by the kidneys to stimulate the production of red oxygen-carrying cells in the blood.

"For the best medical reasons, therefore, scientists developed a synthetic version. According to Dr. Mark Harries, director of the British Olympic Medical Centre at Northwick Park, Harrow, "If you inject EPO into people with kidney disease who have become anaemic, you can to some extent correct their anaemia.

"But if you take a sportsman with a normal haemoglobin level and inject him with EPO you can artificially raise his haemoglobin level, which would be of enormous value in endurance sports. It really is quite worrying."

"The cost of a dose of EPO," continues Temple, "which is said to be as much as \$15,000 on the American black market, may have more to do with its scarcity than the ethics of its use. But the ever-growing financial carrots available in middle and distance running could eventually see it being considered as a business expense."

Weekly versus Today

AT present we have a slightly crazy situation in the UK, with two domestic weekly athletics magazines fighting for control of a specialist (i.e. small) market. There surely is not room enough for both of them, as they essentially cover the same news and results.

Many readers of ATHLETICS WEEKLY, which was bought out by East Midlands Allied Press (EMAP) in 1987, defected to ATHLETICS TODAY when the journal went weekly in January 1989. The latter magazine has yet to attract enough advertising to make it truly viable however, and is funded largely by the personal wealth of publisher Eddie Kulukundis, a major benefactor of British Athletics. It remains to be seen as to how far AT can continue to sustain a loss, in spite of some consistently excellent editorial material within its covers each week.

New editor Steven Downes has turned things around at AW, meanwhile, and the oldest journal in athletics continues to enjoy a bigger readership than its rival. The comfortable A5 size, sleepy old image of AW (founded by Jimmy Green in 1946) has gone forever.

What the two journals have done very successfully is increase the amount of hard NEWS of the sport, both on the international scene and within the clubs. This calls for hard-boiled, no-nonsense investigative journalism. No more rehashing press releases, and going to conferences just for the nosh and wine. It's all to the good, and altogether healthier.

Subs were due
on January 1st!

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BRITAIN'S SUB FOUR MINUTE MILERS - ALPHABETICALLY.

With grateful thanks to Bob Sparks, ATFS, NUTS.

(First time under Four, followed by best mile time to date, where applicable).

SUB FOUR MINUTE REGISTER

Roger Bannister	3:59.4	6 May 54	3:58.6	7 Aug 54
Maurice Bennett	3:59.80	3 Jun 66		
Mike Berisford	3:59.2	18 Aug 62		
John Boulter	3:59.72	3 Jul 65	3:58.6	24 Jul 66
Clifton Bradeley	3:57.88i	9 Mar 85		
Gareth Brown	3:59.5	25 Aug 84		
Jack Buckner	3:53.44	13 Jul 82	3:51.57	29 Aug 84
Sean Cahill	3:56.95	31 Aug 79		
Adrian Callan	3:59.45	23 Jul 85	3:58.28	13 Jul 86
Andrew Carter	3:59.3	10 Jun 72		
Christopher Chataway	3:59.8	28 May 55		
Patrick Chester	3:59.60	20 Jul 85	3:59.6	17 Aug 86
David Clarke	3:56.95	17 Jul 82		
Frank Clement	3:57.44	10 Aug 74	3:54.2	27 Jun 78
Sebastian Coe	3:58.35	30 Aug 76	3:47.33	28 Aug 81
Steven Crabb	3:54.36	21 Jul 84	3:51.76	14 Aug 87
Stephen Cram	3:57.42	2 Jul 78	3:46.32	27 Jul 85
Alastair Currie	3:59.29	2 Aug 85		
Paul Davies-Hale	3:56.5	20 Aug 89		
Robert Denmark	3:59.7	2 Jul 89	3:57.8	20 Aug 89
James Douglas	3:58.5	23 Jul 69	3:56.0	10 Jun 72
Mike Downes	3:56.47	31 Aug 79	3:56.04	25 Aug 82
Neill Duggan	3:59.1	4 Jun 66	3:56.1	11 Jun 66
Malcolm Edwards	3:57.8	20 Sep 87		
Peter Elliott	3:58.54	28 Jan 84	3:49.20	2 Jul 88
Stephen Emson	3:58.9	31 Jul 79	3:58.62	31 Aug 79
James Espir	3:57.91	14 Sep 79	3:56.7	15 Aug 81
Simon Fairbrother	3:59.5	16 Aug 89		
Graeme Fell	3:57.5	1 Jun 83		
Stephen Flint	3:58.68	26 May 80		
Brendan Foster	3:58.5	31 May 71	3:55.9	10 Jun 72
Andrew Geddes	3:59.28	17 Jul 87		
John Gladwin	3:54.52	12 Sep 86	3:51.02	19 Aug 87
Derek Graham	3:59.40	13 Aug 66	3:59.24	20 Aug 66
Glen Grant	3:59.47	30 May 76	3:59.16	19 Jun 76
Andrew Green	3:59.2	25 Aug 64	3:57.74	3 Jul 65
Roger Hackney	3:58.77	13 Jul 86		
Steve Halliday	3:59.4	17 Aug 88		
Ian Hemer	3:59.9	16 Jul 88		
Anthony Harris	3:58.96	3 Jul 65		
Robert Harrison	3:56.76	10 Jun 84	3:53.85	15 Jul 86
Brian Hewson	3:59.8	20 May 55	3:58.9	3 Sep 58
Neil Horsfield	3:54.39	8 Jul 86		
Mark Howard	3:59.3	2 Jul 89		
Colin Hume	3:59.58i	5 Mar 83		
Timothy Hutchings	3:57.83	2 Jul 78	3:54.53	31 Jul 82

Sub Four Minute Register

Derek Ibbotson	3:59.4	6 Aug 56	3:57.2	19 Jul 57
Stephen James	3:59.8	9 Jun 84		
Michael Kearns	3:57.86	26 Jun 77		
John Keyworth	3:59.43	14 Jul 84		
Mark Kirk	3:59.67	13 Jul 86		
John Kirkbride	3:58.0	23 Jul 69	3:56.5	10 Jun 72
Paul Larkins	3:59.32	18 Jul 86	3:56.65	17 Jul 87
Ashworth Laukan	3:59.1	16 Jun 85		
Paul Lawther	3:58.49	19 Jun 76	3:57.81	13 Jul 83
Anthony Leonard	3:59.92	8 Jul 79		
David Lewis	3:59.6	27 Jul 82	3:55.96	23 Aug 83
Ian McCafferty	3:58.8	11 Jun 69		
Seamus McCann	3:59.84	5 Jul 88		
Peter McColgan	3:59.37			
Ron MacDonald	3:59.7	30 Aug 75	3:59.1	1 Sep 75
Christopher McGeorge	3:58.97	27 Jun 86	3:56.71	5 Jul 88
James McGuinness	3:59.2	30 Aug 75	3:55.0	11 Jul 77
William McKim	3:59.4	22 Jul 64		
Kevin McKay	3:59.0	7 May 89	3:56.9	20 Aug 89
Michael McLeod	3:59.38	23 Aug 78	3:56.38	31 Aug 79
David McMeekin	3:59.7	30 Aug 75	3:58.05	30 Aug 76
Robert Maplestone	3:59.51	19 Feb 72	3:58.5	25 May 73
Eamonn Martin	3:59.7	12 Jun 83	3:59.30	23 Aug 83
Ronald Martin	3:58.9	11 May 74		
Stephen Martin	3:56.71	10 Jun 84	3:56.36	5 Aug 86
Christopher Mason	3:59.9	30 May 70		
David Moorcroft	3:59.9	26 Jul 75	3:49.34	26 Jun 82
Tony Morrell	3:58.5	9 Sep 88		
Norman Morrison	3:58.7	31 May 71		
Alan Mottershead	3:58.8	12 Sep 77	3:58.23	14 Sep 79
Kenneth Newton	3:59.8	12 Sep 77		
Sean O'Neill	3:58.42	7 Jul 87		
Steven Overt	3:59.4	17 Jul 74	3:48.40	26 Aug 81
Neil Ovington	3:57.07	11 Jul 86		
Adrian Passey	3:58.38	18 Jul 86	3:54.9	20 Aug 89
Gordon Pirie	3:59.9	23 Sep 60		
Malcolm Plant	3:59.61	31 Aug 79		
Timothy Redman	3:59.3	16 Jun 85		
Colin Reitz	3:55.41	31 Jul 82		
Jonathan Richards	3:59.94	7 Jul 87		
Colin Ridding	3:57.42	5 Jul 88		
John Robson	3:58.81	29 Aug 77	3:52.44	11 Jul 81
Nicholas Rose	3:58.4	25 Jul 73	3:57.49	8 Aug 80
Rayfel Roseman	3:59.6	23 Jul 69		
Mark Rowland	3:55.72	11 Jul 86	3:52.99	10 Sep 86
Allan Rushmer	3:58.7	26 Aug 67		
Alan Salter	3:58.31	9 Jun 82	3:56.99	9 Jul 85
Mark Scruton	3:58.95	10 Jun 84		
Anthony Settle	3:59.4	30 Aug 75	3:58.8	29 May 76
Alan Simpson	3:56.6	7 Jun 65	3:55.68	30 Aug 65
Christopher Sly	3:59.69	8 Jul 79	3:58.85	8 Aug 80
Raymond Smedley	3:59.0	15 Sep 72	3:57.7	27 Apr 74
Barry Smith	3:58.96	4 Jul 75	3:57.46	8 Aug 80
Geoffrey Smith	3:55.8	15 Aug 81		

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Sub Four register, continued

Ronald Speirs	3:56.9	30 Apr 77		
Laurie Spence	3:58.8	12 Sep 77		
Gary Staines	3:59.24	20 Jul 85	3:57.0	20 Aug 89
Ian Stewart (1)	3:57.3	11 Jun 69		
Ian Stewart (2)	3:58.94	26 May 80	3:53.20	25 Aug 82
Peter Stewart	3:58.7	11 Jun 69	3:55.3	10 Jun 72
Gary Taylor	3:58.26i	17 Jan 86	3:57.15	5 Jul 88
Stan Taylor	3:58.0	18 Aug 62		
Bruce Tulloh	3:59.3	27 Jan 62		
Geoffrey Turnbull	3:59.41	12 Jun 83	3:57.66	18 Jul 86
Adrian Weatherhead	3:58.5	19 Jun 71	3:57.59	29 Aug 75
John Whetton	3:59.0	3 Aug 64	3:57.68	3 Jul 65
Michael Wiggs	3:59.5	12 Jun 65	3:57.5	5 Jul 65
Walter Wilkinson	3:59.9	21 Jul 65	3:56.6	31 May 71
Graham Williamson	3:56.40	2 Jul 78	3:50.64	13 Jul 82
Kenneth Wood	3:59.3	19 Jul 57		
Roy Young	3:59.4	14 Jul 71		

i : indoor mark.

LETTERS TO THE EDITOR

Kirsty leaps to defence of Harry Wilson

In defence of Harry Wilson (Achilles column in your Autumn issue) I would like to point out that in a book entitled *RUNNING MY WAY* the author has no need at all to mention training methods that were not HIS way.

Your example of Laura Adam and her training was highly irrelevant as Harry has ample proof that his way is also effective. Not only have his athletes graced international teams for many years, but to achieve results from the lowest club level to Olympic gold medallist is an achievement which his publishers obviously feel justifies the book title.

In the future it would be delightful to receive an edition of your magazine which does not contain (1) An irritating article on British women distance runners who don't want to train hard; or (2) A personal attack on Harry Wilson.

Petty infighting is the last thing that middle distance athletes keen to improve are interested in. Please place less emphasis on it and keep distributing the more worthwhile articles.

KIRSTY WADE.

Editor's reply: BMC NEWS is OUR magazine - that is, a publication 'owned' by the entire club membership. As such, I see it as a platform for views and a forum by which members can exchange opinions and ideas. I am saddened by Kirsty's rather contemptuous reference to BMC NEWS as 'your magazine'.

Harry Wilson has been criticised occasionally in these pages - but then, so have many other people. We try to call them as we see them; and everyone has the right of reply.

However, on page 5 of issue no. 44 is a review of Harry's latest book, giving it high praise. Similarly, on page 11 of issue no. 37 there is a strong defence of Harry's actions in opposing the UK team management at Rome in 1974 over the appalling team accommodation at the European Championships.

For his brave stand on this issue, Wilson was deliberately overlooked by management when selection for Olympic team coaches was made in 1976. Again BMC NEWS openly stated that this was a disgrace. Strangely, though Harry Wilson's colleagues on the UK Coaching staff privately agreed that he had been shabbily treated, none of them said anything in public....

'Worthwhile' is a subjective term. And since Kirsty does not state which articles she finds 'worthwhile' I must say that her criticism is not constructive or particularly helpful.

3000 sub fours, says Bob Sparks (ATFS)

One small snippet caught my attention in the last issue - the suggestion that Steve Scott ran the 1000th sub four minute mile behind Said Aouita in Belfast. There seems to be some confusion between races and performances. At the time (mid July) it seemed that the 1000th RACE was about due, but the number of performances was then approaching the 3000 mark.

Having picked up details of several previously unreported events, it now seems that the 1000th sub four RACE was at Westwood, Los Angeles, on June 10th, 1989 won by Joe Falcon. The current total (at October, 1989) is 1,018 (216 indoors) with 2,998 performances (515 indoors) by SBI athletes.

BOB SPARKS