British Journal of Sports Medicine

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martial arts are not for them), leaving a group with low hostility. This hypothesis was tested in a retrospective study[4], and gained little support.

The results may be due to the use of self-report instruments, with expert martial arts practitioners being keen to present a socially desirable image. However, the use of an anonymous self-completion format discourages respondents from faking[9].

Finally, it is possible that the results are due to transitory decreases in hostility brought about by the short-term effects of training, which disappear in a matter of hours. Evidence for this view comes from research which demonstrates that exercise leads to short-term decreases in state anxiety but not long-term decreases in trait anxiety[10–12]. Hostility may decrease after exercise, since exercise leads to short-term decreases in arousal[13]. However, the Buss-Durkee Hostility Inventory asks the respondent to rate usual behaviour, rather than present mood and therefore the results are possibly more enduring than suggested by a transitory mood hypothesis.

The issues raised above clearly need to be investigated before courses in the martial arts can be recommended as a means of increasing ability to defend oneself without increasing one's disposition to harm people. In particular, a longitudinal study of beginners in the martial arts needs to be undertaken[4,5], that examines both the short-term transitory 'state' effects and longer term 'trait' effects.

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From the journals

Sports medicine current awareness service

Prepared by Kathryn Walter and Nancy Laurenson at the National Sports Medicine Institute (NSMI) Library

The following summaries are taken from a selection of recent journals indexed in the NSMI database. A full listing is published monthly in *Sports Medicine Bulletin.*

Copies of the complete articles are available (price 15 pence per sheet subject to Copyright Law) from the Library, NSMI, c/o Medical College of St Bartholomew's Hospital, Charterhouse Square, London EC1M 6BQ, UK. (Tel: 071 251 0583).

Although it is theoretically possible that transmission of HIV could occur in sports such as wrestling, football or rugby in which bleeding and skin abrasions are common, no such transmission has been reported in these sports. In the few instances where it has been suspected, the reports remain undocumented. This prompts concern among coaches and medical practitioners. Should an athlete known to be infected with HIV be allowed to participate in competitive sports, and should the universal precautions recommended for healthcare workers be used when handling athletes' blood and body fluids? A new policy statement – **HIV and sports** by the American Academy of Pediatrics (*Physician and Sportsmedicine* 1992; **20**: 189–91) is similar to that developed by the World Health Organization. Both statements say that given the large amount of information already available on the epidemiology of HIV infection, it is reasonable to conclude that an infected athlete poses at most a minute risk to others, even in contact sports with close personal contact and frequent bloody injuries. However, further recommendations and precautions are outlined with the recognition that HIV transmission in the athletic setting may be possible.

While amino acid preparations appear unnecessary to supplement the normal dietary protein intake, recent claims suggest that amino acid supplements, particularly arginine, stimulate the release of human growth hormone (hGH) that in turn stimulates protein synthesis in skeletal muscle. Clinical evidence is controversial, especially in arginine-only oral preparations. Once released hGH can have a number of effects on the body, including growth of tissue and organs through enhanced protein synthesis and glucoregulatory actions. Growth hormone also has diabetogenic actions in humans and can cause insulin resistance by impairing both the ability of insulin to suppress glucose production and its ability to stimulate glucose use. Thus, chronic elevation of hGH can result in elevated blood glucose levels and hyperinsulinaemia. The implied beneficial effects derived from amino acid-induced hGH release may therefore be countered by the detrimental consequences of its diabetogenic effects. David R. Gater and colleagues (**Effects of arginine/lysine supplementation and resistance training on glucose tolerance** *Journal of Applied Physiology* 1992; **72**: 1279–84) investigated the effects of oral arginine/lysine supplementation (AL) and resistance training (RT) on changes in glucose tolerance to determine whether alterations were associated with changes in selected hormonal parameters. Resistance training as a form of physical activity has been directly correlated with favourable effects on insulin action and/or oral glucose tolerance. Results from the 10-week programme of 30 male subjects controlled for body weight, body fat and nutritional status and assigned to one of four groups (placebo/control; placebo/RT; AL/control; AL/RT) found that oral glucose tolerance parameters did not significantly change after intervention. It was concluded that neither arginine/lysine supplementation nor, surprisingly, resistance training had a significant effect on oral glucose tolerance.

In the most recent volume of *Medicine and Sport Science* (1992; **34**: 131–9), M. J. Jackson reviews **Damage to skeletal muscle during exercise: relative roles of free radicals and other processes.** Muscle pain, as an indicator to muscle damage, can be demonstrated to occur following different forms of muscle exercise, one occurring during or immediately after high-intensity exercise, suggesting concentric muscular contraction, the other with delayed onset pain developing more than 24 h after exercise suggesting eccentric use of the muscle. A role for oxygen in the pathogenesis of muscle damage during exercise has been under recent debate. Firm acceptance or rejection of the many hypotheses has not been possible due to a lack of suitable analytical techniques to study free radicals in biological tissues. In addition, the role of vitamin E as a lipid-soluble antioxidant to influence exercise-induced muscle damage is also under debate. Other mechanisms by which muscle may be damaged during exercise include: (1) mechanical trauma; (2) depletion of muscle energy stores following substantial exercise; (3) failure of intracellular calcium homoeostasis. The author concludes that there is no consensus concerning the nature of the mechanisms underlying damage to skeletal muscle during exercise and of the relative importance of free radicals in these processes.

In the past decade a number of studies has shown that athletic individuals exhibit a high incidence of secondary amenorrhoea – intense training has been directly implicated. However, little is known about menstrual cycle function from recreational levels of exercise training. In **Recreational exercise does not impair menstrual cycles: a prospective study** (*International Journal of Sports Medicine* 1992; **13**: 110–20) A. Bonen was able to conclude that recreational exercise training of up to 30 miles of running per week over a 4-month period does not alter the menstrual cycle length, nor the luteal phase lengths, despite changes in follicle-stimulating hormone (FSH) in some of the menstrual cycles in two of the six groups of women who trained. Failure to observe changes in the menstrual cycle seems to be attributed to the fact that weight losses were minimal, the women were gynaecologically mature, and the training volume each week was below a critical threshold.

Although ankle taping is widely used among athletes, both after injury to support the weakened ankle when exposed to possible reinjury or to prevent reinjury, the role and mechanism behind the function of external ankle support is not clearly defined, i.e. does tape affect mechanical or functional ankle instability, or both? Jon Karlsson and Gunnar Andreasson (**The effect of external ankle support in chronic lateral ankle joint instability** *American Journal of Sports Medicine* 1992; **20**: 257–60) evaluated the effect of external ankle support (taping) on functional ankle joint instability in patients with radiologically verified mechanical instability. Reaction time for the peroneal muscle response was established and used to assess the effect of external ankle joint support. The reaction time was significantly slower in the unstable ankles of 20 athletes with unilateral, chronic ankle instability than in the stable contralateral ankles. With tape, the reaction time was significantly shortened although not back to normal. The greatest improvement in reaction time was achieved in ankles with the highest degree of mechanical instability. Thus, the mechanism behind the function of ankle tape may be to restrict the extremes of ankle motion and to help shorten the reaction time of the peroneus muscles by affecting proprioceptive function of the ankle.

An understanding of **The biomechanics of sprint running** (A. Mero, P. V. Komi and R. J. Gregor *Sports Medicine* 1992: **13**: 376–92) is useful because of its critical value to performance. The principal known variables which contribute to the biomechanics of sprint running include: reaction time; technique; electromyographic (EMG) activity; force production; neural factors; muscle structure. The reaction time of good athletes is short but it does not correlate with performance levels. Although fast and economical sprint running is a complex event, sprint technique has been well analysed during acceleration, constant velocity and deceleration of the velocity curve. At the beginning of the sprint run, it is important to produce great force/power and generate high velocity in the block and acceleration phases. During the constant speed phase which can be submaximal, maximal or supramaximal, the events immediately before and during the braking phase are important in increasing explosive force/power and efficiency of movement in the propulsion phase. Little is still known regarding force production in the sprint deceleration phase. The EMG activity pattern of the main sprint muscles is well described in each sprint phase. The skeletal muscle fibre characteristics are related to the selection of talent as well as the training-induced effects in sprint running. Efficient sprint running requires an optimal combination between the examined biomechanical variables and external factors such as footwear and ground and air resistance. This review stresses the need for further research especially in the measurement of sprinting economy.

An important factor in the prevention and management of running injuries is the selection of appropriate shoes. The range of shoe designs currently on the market has components which help compensate for the biomechanical abnormalities which predispose to certain injuries. In a recent article by Barbara Heil (**Running shoe design and selection related to lower limb biomechanics** *Physiotherapy* 1992; **78**: 406–12) the range of materials used in running shoe construction is discussed in relation to the properties they confer – for example, shock absorption and cushioning in the midsole and wedge, and breathability in the upper. The design features which help accommodate problems such as overpronation and *pes cavus* foot and prevent injuries such as Achilles tendinitis are also reviewed.

The cushioning properties of running shoes may also influence the degree of 'footstrike' haemolysis associated with distance running. Rudolph Dressendorfer and colleagues compared haematological responses of male runners during and following a 17-day period of increased training mileage. Each runner was assigned to either a firm-sole group or a soft-sole group according to the heel impact attention character of their shoes. (**Effect of shoe cushioning on the development of reticulocytosis in distance runners** *American Journal of Sports Medicine* 1992; **20**: 212–16). Although marked reticulocytosis occurred in both groups it was significantly more pronounced in the firm-sole group. This indicates that rearfoot shoe cushioning can affect the erythropoietic response to a sudden large increase in endurance training mileage. If erythropoiesis is partly dependent on heelstrike force, wearing shoes with better cushioning should help high-mileage runners maintain their normal red blood cell turnover rate.

The compulsive goal-directed behaviour typically seen in athletes may place them at special risk for the development of depression or chronic fatigue. A rational approach to treating the athlete who presents with these diagnostically complex complaints is described by James Puffer and John McShane in **Depression and chronic fatigue in athletes** (*Clinics in Sports Medicine* 1992; **11**: 327–38). The authors differentiate depression and fatigue by viewing fatigue as a physical phenomenon and depression as a psychological phenomenon. The phenomenon of overtraining can manifest itself as fatigue and depression and is the most common cause of fatigue in otherwise healthy athletes. The monitoring of mood states by the clinician may help predict those at risk from the development of staleness and the chronic fatigue/depression syndrome. Endocrine or metabolic diseases such as hypothyroidism and hyperthyroidism, infection and anaemia can also manifest as fatigue and should be excluded by careful evaluation and diagnostic testing. Depression without concomitant fatigue may also occur. It is important to differentiate situational depression (which may occur for example as a reaction to injury) from true endogenous depression which has a more serious prognosis. Eating disorders are commonly associated with depression and should not be overlooked, especially in young female athletes. Severe depression may also accompany anabolic steroid withdrawal.

Lifestyle changes to combat fatigue are advocated by Frances Munnings in **Why is your active patient tired?** (*Physician and Sportsmedicine* 1992; **20**: 173–8). Once medical causes have been ruled out, correcting improper sleep, eating and training practices may be all that is needed to help patients shake fatigue.

The ergogenic value of phosphate loading has long been advocated – however, early literature was discredited due to poor experimental control. Well controlled contemporary studies have indicated that phosphate loading may improve the physiological responses to exercise. One such study using six male cyclists and triathletes as subjects, investigated whether tribasic sodium phosphate supplementation affected performance of a maximal cycling test and simulated 40-km time trial. R.B. Kreider *et al.* (**Effects of phosphate loading on metabolic and myocardial responses to maximal and endurance exercise** *International Journal of Sport Nutrition* 1992; **2**: 20–47.) Results indicate that phosphate-loading attenuated anaerobic threshold increased myocardial ejection fraction and fractional shortening, increased maximal oxidative capacity, and enhanced endurance performance.

A related article by Mariana Pop and Scott Gordon describes the working mechanisms of buffering systems in relation to anaerobic exercise performance. (**The potential ergogenic effect of buffer loading on anaerobic exer-**

cise performance *National Strength and Conditioning Association Journal* 1992; **14**: 78–82.) A major factor causing muscle fatigue may be the accumulation of hydrogen ions and the associated decrease in intracellular pH. Buffering systems in blood and muscle reduce the rise in hydrogen ion concentration and therefore delay the fatigue associated with anaerobic exercise. Two major intracellular buffering systems are the phosphate buffer system and the protein buffer system, whereas the bicarbonate buffer system serves as the primary extracellular buffer.

Stress fractures are a common injury among runners but their aetiology is not well established. A number of factors such as training volume, nutrition, body composition and ovarian function may affect bone function but the roles of these as risk factors for stress fractures *per se* and studies on the possible relationship between bone mineral density and stress fracture risk have yielded equivocal results. Anecdotal evidence suggests that female athletes are particularly at risk, a theory attributed to the low oestrogen levels associated with athletic amenorrhoea which can lead to bone mineral loss. However, studies comparing evidence of stress fractures in amenorrhoeic and eumenorrhoeic athletes have again been inconclusive. These issues are reviewed by Kate Cameron and colleagues in **Stress fractures and bone loss – the skeletal cost of intense athleticism?** (*Excel* 1992; **8**: 39–55).

The benefits of exercise support the case for its promotion in the community although as yet this is relatively untested and the long-term benefits have yet to be determined. The short-term benefits, however, provide a solid rationale for further community-based efforts and the challenge remains to encourage people at all stages in their lives to participate in physical activity. Encouraging the community to exercise requires a programme which involves the workplace, schools and community centres. A programme needs to be educative to ensure maximum participation. Concepts underlying community approaches to health behaviour changes in the USA and their limits and challenges are reviewed by Abby C. King in **Community intervention for promotion of physical activity and fitness** (*Exercise and Sport Sciences Reviews* 1991; **19**: 211–59).

British Association of Sport and Medicine

The **British Association of Sport and Medicine** holds Introductory, Intermediate and Advanced Courses in Sports Medicine yearly. The Introductory Course held at Lilleshall Hall National Sports Centre is a one-week intensive course designed primarily for general practitioners and physiotherapists although suitable for all doctors with an interest in sports medicine. It is a prerequisite for the Intermediate and Advanced Courses; these courses provide the academic training necessary to sit the Society of Apothecaries Diploma in Sports Medicine, PGEA approval is given for 5 days.

The Intermediate Course concentrates on the proper examination of normal joints with regard to the management of sport specific injuries. There is a strong focus on the coaching and training involved in each sport. PGEA approval is given for 5 days. The six Advanced Modular Courses comprise three injury modules which focus on the clinical examination, diagnosis and management of both acute and chronic injuries. Treatment and rehabilitation programmes are also outlined. There are two Exercise Physiology modules which look at training with respect to cardiorespiratory and musculoskeletal physiology and a final module which explores the Physical Medicine of Sport and Exercise, concentrating on a range of topical issues from 'Exercise in the Elderly' and 'Osteoporosis' to 'Update on Nutrition' and 'Diabetes and Exercise'. PGEA approval is given for 2 days.

Forthcoming courses

Introductory Sports Medicine Course, 27 September – 2 October 1992.
Cost: £315.00 (BASM member) or £355.00 (Non-member) inclusive of tuition, accommodation and food. Lilleshall Hall National Sports Centre, Shropshire.

Advanced Injury: Acute and Chronic Injuries to the Lower Limb, 18–20 September 1992.
Cost: £175.00 (BASM member) or £195.00 (Non-member); non-residential. RAF Wroughton, Swindon.

Advanced Injury: Acute and Chronic Injuries to the Head, Neck, Spine and Pelvis, 23–25 October 1992.
Cost: £175.00 (BASM member) or £195.00 (Non-member); non-residential. Postgraduate Centre, Milton Keynes General Hospital.

Intermediate Sports Medicine Course, 1–6 November 1992.
Cost: £100.00 inclusive of tuition, accommodation and food in conjunction with Rhone Poulenc Rorer. Lilleshall Hall National Sports Centre, Shropshire.

Advanced Physiology: Cardiorespiratory System, 22–24 January 1993.
Cost: £175.00 (BASM member) or £195.00 (Non-member); non-residential. Department of Cardiology, Bradford Royal Infirmary.

Applications and enquiries concerning courses and membership:

Nancy Laurenson, Education Manager, National Sports Medicine Institute, St. Bartholomew's Medical College, Charterhouse Square, London EC1M 6BQ. Tel: 071-253 3244 or 071-251 0583

BASM Education Programme

BASM's current annual programme of Sports Medicine courses includes two introductory courses following the FIMS basic course outline and six advanced courses in physiology (cardiorespiratory), physiology (musculoskeletal), injury (head, neck, back and trunk), injury (lower limb), injury (upper limb), and advanced medicine of PE and sport.

All details from: BASM Education Officer, c/o LSMI, St. Bartholomew's Medical College, Charterhouse Square, London EC1M 6BQ, UK. Tel: 071-253 3244; Fax: 071-251 0774

Current Programme for 1992

Date	*Course*	*Venue*
January 10–12	Advanced Physiology: musculoskeletal	BOAMC
February 28–March 1	Advanced Medicine of Physical Exercise and Sport	NSMI
March 27–29	Advanced Injury: Acute and Chronic Injuries to the Upper Limb	RAF Wroughton (Swindon)
April 26–May 1	BASM Introductory Sports Medicine Course	Lilleshall
September 18–20	Advanced Injury: Acute and Chronic Injuries to the Lower Limb	RAF Wroughton (Swindon)
September 27–October 2	BASM Introductory Sports Medicine Course	Lilleshall
October 23–25	Advanced Injury: Acute and Chronic Injuries to the Head, Neck, Spine and Pelvis	Milton Keynes
November 1–6	Intermediate Course: Sports Specific Injury Management and Normal Examination of Joints	Lilleshall
November 16–17	Joint Annual Weekend and Meeting	Bruges, Belgium

London Sports Medicine Institute Programme

Although the LSMI was superseded by the National SMI at the end of 1991, LSMI continues to offer its weekly Open Lecture programme on Wednesday evenings, as well as its three-year part-time diploma course. Details from: Academic Secretary, LSMI, St. Bartholomew's Medical College, Charterhouse Square, London EC1M 6BQ, UK. Tel: 071-253 3244; Fax: 071-251 0774

BASM news

BASM North West Region Committee 1992–1993

Chairman and Postgraduate Tutor:	Dr P. J. M. Milroy Brook House Farm, Mill Lane, Kingsley, Warrington, Cheshire WA6 8HH; Tel: 0928 33249
Vice Chairman:	Mr J. Clegg JP 67 Springfield Lane, Eccleston, St. Helens, Merseyside WA10 5HB; Tel: 0744 28198
Secretary:	Miss Carole Atkinson, 51, Two Bridges Road, Newhey, Rochdale, Lancashire OL16 3RP, UK; Tel: 0706 882955
Treasurer:	Miss A. Johnson 2 The Rake, Ramsbottom, Lancashire BL0 9HD; Tel: 0706 826650

BASM

Acute and Chronic Injuries to the Head, Neck, Spine and Pelvis

23–25 October 1992

This is a non-residential intensive advanced sports medicine course designed for medical practitioners, but open to chartered physiotherapists. Previous experience in sports medicine is necessary. Requirements include completion of the BASM Introductory Sports Medicine Course or a suitable recognized alternative. The course will focus on acute and chronic injuries to the neck, back and pelvis caused by, or affecting participation in sport. Emphasis will be placed upon cases most likely to present to the general practitioner such as disc, facet and sacroiliac joint pathology. Examination techniques and biomechanical assessment will be covered making use of sample patients.

Treatments such as physiotherapy, osteopathic manipulation and spinal injection therapy will be demonstrated. The use of imaging in injury diagnosis will also be discussed. Recommended reading material and journal references will be circulated before the course.

Course Fee:	£175.00 BASM members; £195.00 non-members
Location:	Postgraduate Centre, Milton Keynes General Hospital
Course Tutor:	Dr Simon Petrides
Schedule:	Friday 23 October 19.15–21.00 hours; Saturday 24 October 09.00–18.00 hours; Sunday 25 October 09.15–16.00 hours

Applications and enquiries should be sent to:

Nancy Laurenson, National Sports Medicine Institute, St. Bartholomew's Medical College, Charterhouse Square, London EC1M 6BQ, UK. Tel: 071-253 3244 or 071-251 0583

The number of delegates will be kept to 20, so early booking is advisable. A non-refundable deposit of £50.00 is required when booking a place on the course. The closing date and any remaining balance will be due no later than **30 September 1992**. Please make cheques payable to **British Association of Sport and Medicine.** PSEA approval has been applied for for this course.

BASM Courses in Sports Medicine

1. **British Association of Sport and Medicine**

   One week/weekend introductory and advanced courses in sports medicine for medical practitioners and physiotherapists.

   Contact: Ms Nancy Laurenson
   BASM Education Officer
   London Sports Medicine Institute
   c/o Medical College of
   St. Bartholomew's Hospital
   Charterhouse Square
   London EC1M 6BQ, UK
   Tel: 071-253 3244 and 071-251 0583;
   Fax: 071-251 0774

2. **London Sports Medicine Institute**

   Three-year part-time course in sports medicine for general practitioners.

   Contact: Academic Secretary
   London Sports Medicine Institute
   c/o Medical College of
   St. Bartholomew's Hospital
   Charterhouse Square
   London EC1M 6BQ, UK
   Tel: 071-251 0583; Fax: 071-251 0774

3. **The London Hospital Medical College**

   One-year full-time diploma course in sports medicine for medical practitioners.

   Contact: Mrs Dot Blake
   The Diploma Course in Sports Medicine
   Department of Sports Medicine
   London Hospital Medical College
   1st Floor Fielden House
   Stepney Way
   London E1 1BB, UK
   Tel: 071-377 7389

4. **University of Nottingham Medical School**

   Two-year part-time MSc in sports medicine for medical practitioners and chartered physiotherapists with a first degree or equivalent.

   Contact: Professor E. Idris Williams
   Department of General Practice
   The Medical School
   Queens Medical Centre
   Nottingham NG7 2UH, UK
   Tel: (0602) 709396; Fax: (0602) 709389

5. **The University of Bath**

   A modular course in sports medicine by distance learning for medical practitioners

   Contact: Mrs Sally Jeffries
   Distance Learning Unit
   Centre for Continuing Education
   University of Bath
   Claverton Down
   Bath BA2 7AY, UK
   Tel: (0225) 826342; Fax: (0225) 826849

6. **Association of Chartered Physiotherapists in Sports Medicine**

   Six-month practical course leading to certificate in sports physiotherapy and a two-year part-time academic course leading to a diploma in sports physiotherapy.

   Contact: Dr Ian Roberts
   Assistant Director
   Crewe and Alsager College of Higher Education
   Hassall Road
   Alsager
   Cheshire ST7 2HL, UK
   Tel (0270) 882500

7. **Diploma in Academic and Practical Physiotherapy for Sports**

   One-year part-time course in sports medicine/physiotherapy for chartered physiotherapists.

   Contact: Joanne Marshall
   Department of Sports Medicine
   London Hospital Medical College
   1st Floor Fielden House
   Stepney Way
   London E1 1BB, UK
   Tel: 071-247 7636

8. **Edinburgh Post-Graduate Board for Medicine**

   One-week introductory course in sports medicine for doctors and physiotherapists.

   Contact: Dr Elizabeth McSwan
   Moray House College of Education
   Cramond Campus
   Cramond Road North
   Edinburgh EH4 6JD, UK
   Tel: 031 3126001

9. **Diploma in Podiatric Sports Medicine**

   Two-year part-time course in sports podiatry.

   Contact: Dr Ian Roberts
   Assistant Director
   Crewe and Alsager College of Higher Education
   Hassall Road
   Alsager
   Cheshire ST7 2HL, UK
   Tel: (0270) 882500