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**Biosocial Aspects of Sport**

# SPORT AND MENTAL HEALTH

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Bodily exercise profiteth little.

*1 Timothy* 4:8

Those who think they have not time for
bodily exercise will sooner or later
have to find time for illness.

Edward Stanley, Earl of Derby (1826-1893)

Cease, reverend Fathers! from those
youthful Sports
Retire, before unfinish'd Feats betray
Your slacken'd Nerves.

*The Economy of Love* John Armstrong (1709-1779)

**Summary.** The contribution of mental health to sports performance in sports populations is discussed. Athletes' psychological needs and problems, and the various ways in which these may be resolved, are considered.

The benefits of physical activity in the treatment of psychiatric populations and the elderly are reviewed.

Recent emphasis on sports participation for its intrinsic rewards and the psychological benefits derived are also considered, and attention is drawn to the particular needs of children.

## Introduction

It is fitting that a meeting on sport should be held under the aegis of the Galton Foundation. Sir Francis Galton was one of the first to recognize that people differ profoundly in their mental abilities; he claimed that these differences were correlated with their achievements in sport as well as in the mental field. Galton himself however was not one to pursue sport in his leisure time – his recreations are listed in the *Who's Who* of the time as 'sunshine, quiet, and good wholesome food'; in spite or perhaps because of this he lived to the ripe old age of 89.

A great deal has happened to sport over the past few years, especially in the United States, but for centuries man has had strong views about the importance of exercise and

sport in the maintenance of physical and mental health – best illustrated by Homer's '*mens sana in corpore sano*'. However, there has been little systematic study as to whether or not there is a relationship between sport and mental health and, if a positive one exists, what specific factors are necessary for sport to be effective in the maintenance and restoration of health.

## Definitions

According to Moore (1966) 'sport is the play of older children and adults', but of course those involved in physical education need something more specific; Loy's definition (Loy, McPherson & Kenyon, 1978) is more exacting:

> 'It is a formally organised, institutional game where outcome is determined by physical skills, strategy or chance, and has distinct characteristics such as rules, sanctions, roles, positions and the division of labour.'

This definition is somewhat narrow; it is useful, however, to make a distinction between those who play sport to get fit and those who get fit to play sport. For the former, sport represents a vehicle mainly to achieve or maintain physical fitness, whereas it is an end-in-itself for the second type of person where winning is often of paramount importance.

Mental health, of course, is more difficult to define, and for those involved in mental health – or rather, its converse, mental illness – there are disadvantages: the average person often has a lot to say about psychological problems (and other specialist topics) and usually speaks on the subject with confidence whereas the clinician has to qualify everything he says. Mental health is not simply the absence of mental disease; there are basically three ways of looking at and defining mental health according to Jahoda (1958):

> 1. 'A relatively constant and enduring function of personality'; although a person may have ups and downs, his general mental health is relatively stable, predictable and a characteristic of his personality.
> 2. 'A momentary function of personality and of situation'; in this sense, mental health varies, depending on external and internal circumstances, is relatively unstable and unpredictable over the long-term and is a characteristic of current actions and feelings, regardless of personality.
> 3. 'A group or cultural characteristic'; regardless of the status of individual members, the group ethos or behaviour is measured in relation to some ideal standard for mental health.

These three definitions are not incompatible, but they are independent and probably unrelated. Assessment of mental health also requires evaluation of an individual's attitude towards his own self; his growth, development or self-actualization; what he does with himself; his perception of reality; his mastery over his environment; and his autonomy and independence from social influences.

Discussion of the relationship between sport and mental health will be restricted to sports participants compared with spectators; for those interested in the psychological aspects of sports spectating a body of literature has started to appear, e.g. Proctor & Eckerd (1976). Two issues provide the principal focus of this paper: (1) the contribution

of mental health to sports performance in sports populations, and (2) the effects of sports participation on mental health in psychiatric populations.

## The contribution of mental health to sports performance

It is surprising that clinical psychologists have not become involved in top-level sport until relatively recently, especially as competition, by definition, is stressful and the environment is one in which individuals are constantly testing their limits. How many of us in the course of our daily life are testing our limits? By contrast, for sportsmen and women the pressure on winning, the emphasis on realizing potential when it matters, has become increasingly severe; that is why individuals like clinical psychologists have become involved in sport.

### *The psychological needs and problems of athletes*

Yaffé (1979) conducted a study on the psychological factors that competitors at the Edmonton Commonwealth Games thought were necessary to do well at their sport, that is, on the psychological determinants of success (*Psychological Report on the Commonwealth Games, Edmonton 1978*, British Olympic Association, unpublished). A random sample of individuals (coaches and competitors) was interviewed and the total population was asked to complete a questionnaire prepared for this evaluation. Seventy-two per cent of the England team competitors filled in the questionnaire and participated in the survey. Attempts were made to encourage the rest, but it is seldom possible to get 100% return in investigations of this kind. Unfortunately, the ones who did not respond were probably the very ones that would have merited further attention. The questionnaire asked about the factors considered necessary, but not in themselves sufficient, for success in their sport. The result was that 31% of the male competitors and 25% of the female competitors said that concentration, while 33% of the male competitors and 36% of the females said that self-confidence was the most important factor for doing well in competition. As to the problem that people said they had in relation to the factors they felt were the most important, 18% of the men and 24% of the women said that concentration was a problem for them; 40% of men and 39% of women said that they had difficulty in relaxing; 29% of male competitors and nearly 50% of females said that they had problems with their self-confidence – they had doubts about their capabilities.

The coaches consistently overestimated the presence of problems, and this suggests their threshold for problem detection is more sensitive, or perhaps due to mis-labelling of psychological states.

There are specific categories of participants in each sport who present with psychological problems. Ogilvie & Tutko (1966) in California defined six different categories:

1. *The deliberate transgressor of the rules*: it is difficult to know whether cheating can be considered a component of mental health, and to what extent it is sanctioned by various organizations. One of the best known examples is Onyshenko, the Soviet pentathlete who deliberately short-circuited his epee in the fencing event at the Montreal Olympics, but there are likely to be others, including those taking illicit drugs in order to potentiate performance, who are never discovered.

2. *The hyper-anxious individual*, is the one who appears most frequently in the problem category: the person who peaks too early, who peaks too late, or perhaps does not peak at all, and whose arousal levels are beyond the optimal level. Hyper-anxious athletes not uncommonly do significantly better in training compared with competition, for this reason.

3. *The coaching-resistor*, usually a senior member of a squad, is another interesting individual who presents himself in training. In professional soccer there are prima donnas who will not be coached; and they often intimidate some younger members of the team, annoy others, and provide a poor model for identification. These are especially problematical in team sports, where the age range of competitors is broad.

4. *The success-phobic* is a specific kind of individual, described in detail by Ogilvie and his colleagues. These are individuals who have all the physical capabilities of doing well, but when it really matters they fail. This occurs for a multiplicity of reasons of which I will mention just two: there is the individual who deliberately does not compete and uses this as a weapon to get back at someone to whom he is hostile, perhaps an aggressive parent who pushed him into sport, wanting him to do all the things that the parent never did himself. Second, there is the individual who in a body-contact sport is reluctant to establish the full body contact necessary for doing well at the top level of such competitions.

By contrast the counter-phobic individual is fearful, but his fear is countered by aggressiveness.

5. *Injury-prone people*: these individuals present repeatedly with some kind of physical complaint, often when an organic basis cannot be found; but sometimes an individual like the counter-phobic gets injured in order to avoid worse injury – the kind of individual who in soccer uses his head where other people would perhaps hesitate to use even their feet.

6. *The depression-prone person.* Some people are very sensitive to failure, or to the possibility of failure and quite often the depression is subclinical; but when it presents clinically medication is sometimes indicated. These are individuals who never seem to do as well as everyone thinks that they ought to.

This group includes sports people with long-term injuries who feel that they should have fully recovered long ago and also sports addicts who develop a 'deprivation crisis' (Little, 1969; 1979) as a result of being kept out of sport by some minor physical illness.

## *Investigations and treatment of athletes*

Over the past 10 years much attention in sports psychology has been directed towards groups rather than individuals (e.g. Straub, 1978); the emphasis has been on the assessment and prediction of group motivation, leadership style and team cohesion in particular. However, in dealing with someone who has a specific problem a combination of techniques to suit the individual has to be worked out using a standardized behavioural analysis procedure.

Techniques must be fitted to individuals, rather than the other way round. The latest developments in psychology, general as well as clinical, are in the cognitive sphere. In sport what seems to be important is to help people to become non-judgemental, or to reduce the judgemental statements they make, to prevent people from talking themselves

into doing badly or making excuses. Cognitive behavioural interventions were originally applied with success clinically to treat neurotic or reactive stress and pain (e.g. Meichenbaum, 1977) and depression; the approach has great validity and usefulness in sport; it facilitates access to thoughts and feelings and provides the possibility of the modification of these where they are considered inappropriate.

Behaviour must be measured in order to obtain a base-line before any kind of intervention is attempted; there are basically six different approaches which are not necessarily exclusive:

*The behavioural interview* involves a face-to-face discussion of relevant issues with the psychologist in order to establish the onset and determinants of the problem behaviour; it may or may not be structured.

*Self-report schedules and inventories* (where available) are used to build up a picture of antecedents and consequences of the stressor (Table 1) and to compare the subjects' response profiles with an appropriate reference group (e.g. Martens, 1977).

*Self-monitoring procedures* involve documenting the frequency of particular behaviours, thoughts or feelings.

*Analogue measures* involve controlled experiments to see to what extent the problem behaviour can be replicated in a simulated or representative situation.

*Direct observational procedures* are usually readily available in sport as arenas are generally designed with this purpose in mind.

*Psycho-physiological procedures* concern the measurement of physiological parameters such as galvanic skin (sweating) response, pulse and respiration rate.

There are three different kinds of channels of response to consider. Taking anxiety as the example:

(1) Cognitive: refers to what people say to themselves or others about their state, e.g. 'I feel worried', 'I feel anxious' or 'I'm not going to succeed today'.
(2) Physiological: is there an increased sweating response, or pulse rate?
(3) Behavioural: does the person look tense? Does he run away from competition, literally or in some other way?

Sometimes there is a combination of all these three, sometimes two are present and sometimes only one; it is important therefore to measure each of these parameters as fully as possible.

Clinical psychology has developed, on the behavioural front at least, a very strong battery of techniques, based on learning theory principles, which are very effective in resolving these simple interference factors that prevent people from doing, under the stressful environment of competition, what is within their physical capabilities. Seven main techniques are available for individuals training for competition:

*1. Autogenic training* – literally 'self-generating' training originated in Berlin at the turn of the century, since developed by Schultz & Luthe (1969). It is a combination of relaxation and suggestion exercises, and is used very commonly by the East Germans. The Soviet technique of psychic self-regulation is slightly different, but all these techniques overlap to a greater or lesser extent.

*2. Hypnosis* is something about which we know less. There are no controlled studies in the literature on sport but several case studies are reported, e.g. Naruse (1965).

**Table 1.** A-B-C of pinpointing stress and anxiety (after Carr-Kaffashan *et al.*, 1978)

| Antecedent = stress = external event | | Behaviour = thoughts and actions | Consequences = bodily sensations = emotional reactions |
|---|---|---|---|
| When<br>(1) Date,<br>(2) Time,<br>(3) Location | What<br>(4) What was I engaged in?<br>(5) Who was there with me? | Thoughts<br>(6) What was I expecting to happen?<br>(7) What image or memories were called up?<br>(8) What worries, concerns, or doubts was I reminded of?<br>(9) What was I saying to myself (self-statements)?<br>(10) What core beliefs or assumptions are relevant?<br><br>Action<br>(11) What was I talking about?<br>(12) What did I do in reaction to this situation? | Labels<br>(13) What sensations, labels, or words best describe what I am feeling?<br><br>Rate<br>(14) How severe are the feelings I am experiencing?<br>1 2 3 4 5<br>slight some moderate severe very severe |
| Fictional example in sport<br>(1) 21 July 1978<br>(2) 2.30 pm<br>(3) Swimming pool | (4) Preparing for final of breast stroke competition (Commonwealth Games)<br>(5) Other competitors including current world champions | (6) To win by large margin; maybe break a world record<br>(7) My last encounter with the champion when he just beat me<br>(8) I never seem to do as well in big competitions compared to smaller ones or in training<br>(9) Go off very hard, and keep your rhythm<br>(10) My value as a person depends on how I do in competition<br>(11) I was silent<br>(12) Started to shake, heartbeat raised significantly | (13) Nervous, light-headed<br>(14) No. 4 |

*3. Relaxation training* is the simplest way to learn to relax, usually using the Jacobson progressive muscle training exercises (Bernstein & Borkovec, 1975).

*4. Systematic de-sensitization* is a technique aimed specifically at the alleviation of maladaptive anxiety. It involves the pairing of relaxation with imagined scenes depicting situations that the subject has indicated cause him or her to feel anxious. It is generally found that experiencing relaxation rather than anxiety while imagining such scenes leads to much less discomfort when the real-life situations are confronted.

*5. Bio-feedback* is a procedure developed 10 years ago, which is very useful for teaching people to modify their bodily responses. It was not appreciated until relatively recently that heart rate can be made to go up and down while sitting in one place (Suinn, 1978, unpublished paper presented at the Congress of Canadian Society for Psychomotor Learning and Sport Psychology, Toronto); sweating response and several other parameters can be affected, even peripheral blood supply can be changed. It has been found that using autogenic training – a combination of suggestion and relaxation – body surface temperature can be changed by up to 3° C, which is quite considerable. In bio-feedback the mode of feedback can be auditory or visual; most individuals learn very quickly to change skin conductance or other parameter by monitoring their signals on devices that are often portable and so enable homework to be carried out in the person's home environment.

Spectators and even hardened coaches, sometimes show marked physiological changes in response to the ups and downs of their teams during competition. Two examples cited in the literature are: the pulse rate of a swimming coach rose from 122 to 160 while watching his swimmers and that of a baseball coach in the US varied between 90 and 150 during a game in which his team was involved.

*6. Assertiveness training.* There are many individuals who find it difficult to assert themselves and this can be a considerable handicap in sport, e.g. forwards in soccer who are easily knocked off the ball, and techniques developed in clinical practice have been shown to be very effective in getting people to externalize their feelings and to be aggressive, rather than violent (Alberti & Emmons, 1978). Aggressiveness and assertiveness do not have the negative connotations of violence which is more extreme and inappropriate in sport.

*7. Mental rehearsal.* People can learn how to develop appropriate movements and body responses in their sport using mental rehearsal, in the same way that individuals learn languages. If sequences and moves, or whatever skills need to be learned in the particular sport, are rehearsed in a systematic way, generally speaking, performance on the particular task can be improved. Such techniques are very useful indeed if combined with cognitive strategies (Suinn, 1978, unpublished). Mental practice can thus be used in many ways to improve skills, to reduce stressful situations and to think up coping images – when you are a striker and 3-1 down at half-time, you have to think about when you scored a superb goal in the past.

## The contribution of sport to mental health

Observations of the addictive potential of running suggested a few years ago that exercise might change psychological characteristics in normal and psychologically-disturbed individuals both positively (Glasser, 1976) and negatively (Morgan, 1979). So it is no

surprise to learn that 2 years ago there appeared a paper on running as a treatment for depression (Greist *et al.*, 1979). Only a few studies have been carried out (e.g. Blue, 1979) and they have not been very adequately controlled, but they are extremely valuable in suggesting ways in which sport can be used to help individuals who have destructive life-styles.

*Sport in depressive states*

The typical study in this area is that reported by (Greist *et al.*, 1978) at the University of Wisconsin, Madison. They did a pilot study into the question of whether running has beneficial effects for patients seeking treatment for neurotic or reactive depression. They treated twelve male and fifteen female reactive depressive, but not psychotically-depressed, individuals, between the ages of 18 and 30, and assigned them randomly to one of three groups: (1) a running group; (2) an individual psychotherapy group for ten sessions; (3) an individual psychotherapy group for unlimited time. They assessed all the individuals physically and also did a maximal stress exercise treadmill test. The running group involved emphasis on running either with a leader or by the individuals themselves. The study lasted 10 weeks. The authors emphasized to the runners the importance of pain and fatigue, and stressed the need for walking if they wanted to – they were not pressured to run. The focus, though, was on the running itself – they were instructed to think about the foot strike, the stride, the arm carry and about the appropriate running equipment. There was no focus on depression, or discussion of it in the running group throughout the entire programme. There were two drop-outs in the running group, one in the time-limited psychotherapy group and two in the unlimited psychotherapy group. Only two out of eight in the running group showed little improvement, one because she had an extremely poor level of fitness initially, and another because she said that running could not be treatment and so would not participate. The conclusion of the study was that running was as effective as psychotherapy in alleviating depressive symptoms, as assessed by a check-list.

A second study was done over a period of 12 weeks, with raised criteria for getting into the group. There was a similar outcome, showing that graded skill training, in terms of running, had a positive effect in reducing depression. This result is very encouraging.

There are advantages in treating people this way: it is cost effective, there are no negative side-effects compared to drugs, and it is useful as a prophylactic prevention of future depressive episodes.

*Sport in other mental states*

Sport has not only been used for depressives. In the US it has been employed as a treatment adjunct for hard-driving people who have had coronaries and are worried about whether they will ever be men again, sexually and with respect to fitness; getting them to run seems to improve their self-esteem considerably (Hackett & Cassem, 1978; Froelicher, Battler & McKirnan, 1980). It has also been used in a wide variety of psychiatric, psychosomatic and somatic symptoms including aggression, obsessionality and hypochondriasis (Solomon & Bumpus, 1978; Lion, 1978; MacKinnon, 1980; Folkins, 1976). There are, in addition, references in the literature on treating phobic anxiety states by running (Greist *et al.*, 1979; Orwin, 1974) including agoraphobia – the fear of crowded

and public situations (Orwin, 1973). Moreover, Clark *et al.* (1975) hypothesizing that restricted physical activity – seen as a decrement in sensory stimulation – could be a factor contributing to the boredom and deterioration commonly found in an ageing population, conducted a 12-week physical activity programme with 23 geriatric patients from a mental institution. They found that their general activity level and self-care standards were increased during the daily routine, though not to a significant level compared with a social group who underwent conventional recreational therapy, which consisted of activities such as games and conversation.

Turner & Dyer (1969) developed an aquatics programme for neuropsychiatric patients whose symptoms included restlessness, hyperactivity, aggressiveness, apathy, inactivity and withdrawal, and discovered major improvements in socialization, a more positive outlook towards recovery and increased tolerance to discomfort. Stubbert *et al.* (1975) developed a physical exertion programme for a 17-year old obese patient who had been a suicide attempter and destructive to property; this included swimming, calisthenics, stretching and tennis, and after 6 weeks she was behaving in a sociably acceptable manner and after 9 months had lost 60 lbs in weight. Simpson & Meaney (1979) demonstrated significant improvement in self-concept of mentally retarded boys and girls (IQ range 40–60; age 14–20 years) which was related to the success achieved in a 5-week learning to ski course.

## Sport and enjoyment

For the past 5 or so years a 'new wave' has made its presence felt in sport; this evolved out of the humanistic approach to psychology whose philosophy centres on the search for inner-directed growth of human potential as opposed to one provided by advanced technology and material wealth (Rowan, 1976; Sugarman & Tarter, 1978; Maslow, 1968). In sport the principal proponents of this development which emanated from California are Nideffer (1976), Sheehan (1978) and Leonard (1975); similar views have been expounded in a number of texts including Spino (1976, 1977) and Andrews (1979) on running, by far the most common activity described. The essential focus of this approach is on participation for its own sake rather than on a philosophy of win at all costs. This does not mean that winning is less likely to occur, but that the preoccupation many sportsmen have about 'getting it right' is essential for neither enjoyment nor success; what seems to be important is the meaning exercise and sport have for individuals.

One way to examine experiential states of mind is to study individuals who are deeply involved in activities which require great expenditure of time, effort and skill for which there seem to be little or no extrinsic (e.g. financial or status) rewards. Csikszentmihalyi (1975) did just that with, amongst others, dancers and basketball players. He found that 'enjoyment of the experience and the use of skills' and 'the activity itself: the pattern, the action, the world it provides' were the most important, though the sportsmen appeared to be motivated more than the dancers by competition and by the chance to develop their physical skill; the dancers, on the other hand, responded more strongly to the feedback from kinaesthetic sensations. On the basis of interview and questionnaire data, Csikszentmihalyi showed that: 'People who enjoy what they are doing enter a state of "flow": they concentrate their attention on a limited stimulus field, forget personal problems, lose their sense of time and of themselves, feel competent and in control, and

have a sense of harmony and union with their surroundings'. A flow activity, he says, 'provides opportunities for actions which match a person's skill, limits the perceptual field, exclude irrelevant stimuli, contains clear goals and adequate means for reaching them, and gives clear and consistent feedback to the participant'. The central element of the flow state is a feeling of control over the environment, but internal skills one brings to the situation must be balanced against external challenges before a flow state can be experienced. (Fig. 1). The estimations of skills and challenges depend on cultural convention and are open to interpretation and change by the individual. Csikszentmihalyi provides methods by which to assess the flow potential of activities and persons. He documents that the extent to which one can control one's environment by limiting one's

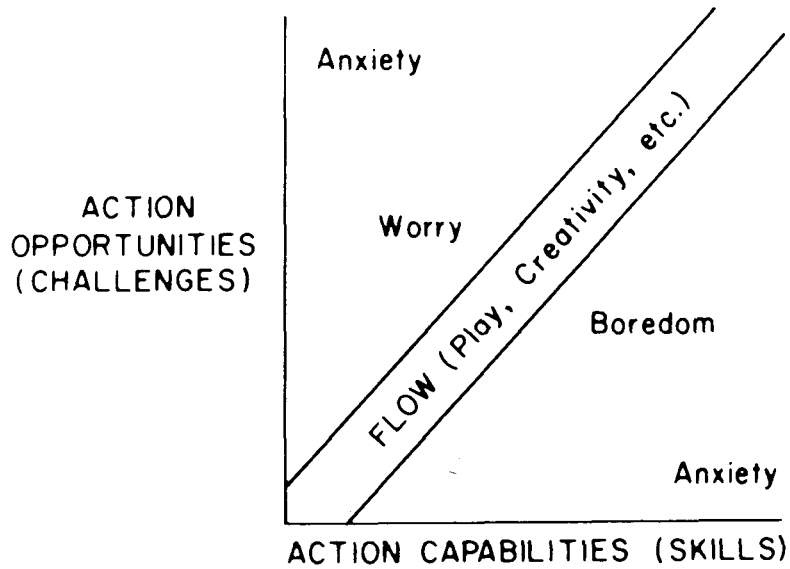


**Fig. 1.** Achievement of flow state by balancing internal skills against external challenges.

stimulus field, establishing clear goals and norms, and developing suitable skills, will determine the extent to which one can experience flow. Importantly, at the peak of involvement with their activity, whether indulging in dance or sport, individuals report that they lose a sense of themselves as separate entities, and feel harmony and even a merging of identity with the environment.

These phenomena are similar to those Maslow (1968) lists as components of the 'peak experience', namely: temporary transcendence of self, total engrossment, narrow focus of attention, everything is perfect, total control, total loss of fear, and effortless movement; and Murphy & White (1978) have fully documented links between such experiences described by athletes and Eastern mystics. In sport several practices are considered to facilitate the heightening of the level of consciousness, as well as improving the stream of flow; these include: breathing exercises, meditation, guided fantasy, and centering (balancing of energy) according to Spino (1976).

In 1974 a US tennis coach published a book called *The Inner Game of Tennis* which changed a nation's view of sport and their involvement with it (Gallwey, 1974). He has since written another volume on skiing (Gallwey & Kriegel, 1979) and the third on golf is in preparation. Inner game concepts include: teaching people how to develop the ability to concentrate in a relaxed way, to become non-judgemental, to focus on the here-and-now, and to 'let' things happen, and are closely related to the kinds of therapeutic interventions made by psychologists in clinical practice. They have been introduced as a way of helping to modify behaviour patterns in persons who, for example, overwork and are highly vulnerable to coronary heart disease, the so-called Type-A behaviour pattern (Rhoads, 1977; Friedman *et al.*, 1968).

Clearly psychology has a great deal to offer the sports person, and involvement in sport is now accepted as having psychological benefits for both the mentally healthy and those suffering from mental illness. But as Ogilvie (1979) points out, our attention needs to be drawn to issues of prevention of problems rather than on treatment, and he rightly questions the structure and social aims of children's participation in sport: 'Is the sports experience really child centred or are we imposing a model for participation derived from our observation of professional sports?' He suggests that if the sports activity is to be child centred, we must remind parents, coaches, and fans that the rewards for the child must be determined on the basis of their intrinsic needs. Parents and coaches need to be prepared to be more objective in their determination of the child's readiness to compete in highly demanding athletic programmes. This must be a focus for future concern if fun and enjoyment from sport are valued as part of the experience of participation.

The next breakthrough, however, might well be biochemical as recent research (Stein & Belluzzi, 1979) suggests that endogenous morphine-like chemicals (endorphins) in the brain, conceived as natural analgesic substances for regulation of the response to pain (Belluzzi *et al.*, 1976), may well mediate feelings of pleasure and reward. Endorphins might be released more readily during physical exercise than during more sedentary activities.

But the final word must go to Sir Francis Galton who in 1869 had this to say about oarsmen of the time:

> 'The successful rowers are mostly single men, and some of the best have no children. One well-known (Newcastle) man, who has trained for an enormous number of races, and during the time of each training was most abstemious and in amazing health; then, after each trial was over, he commonly gave way, and without committing any great excess,remained for weeks in a state of fuddle. This is too often the history of these men'.

Times have not changed very much over the past 111 years.

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