

# Exercise dependence: a problem for sports physiotherapists

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Twenty-four postgraduate-trained sports physiotherapists were interviewed to investigate their experiences with exercise dependent patients. The respondents identified exercise dependent patients as likely to continue physical activity when injured. They were described in terms such as anxious, obsessive, overachieving and addicted to feelings. The majority of physiotherapists (71 per cent) reported problems in communicating with and gaining compliance from exercise dependent patients. Treatment approaches listed by the respondents included education, prescribing reduced or alternative activities, referral and psychological strategies. Most physiotherapists reported that they used combinations of these strategies. Within the limits of generalising from the present sample, it appears that sports physiotherapists are aware of the difficulties of managing exercise dependent patients and have developed specific techniques to cope with the problems of treating them.

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It is well established that involvement in physical activity can facilitate increased physical and psychological health (Biddle and Fox 1989, Blair et al 1992). However, when exercise becomes a compulsive behaviour, health can be jeopardised and the likelihood of experiencing illness or injury increased (Anthony 1991).

The phenomenon of compulsive or excessive exercise has been labelled exercise dependence (Thompson and Blanton 1987). Exercise dependence has been defined as physical activity with a regular schedule once or more daily where the individual gives the exercise increasing priority over other activities (de Coverley Veale 1987). On the basis that exercise in large quantities must be a beneficial process, this phenomenon was described by Carmack and Martens (1979) as a positive addiction. However, exercise dependence has been found to result in seriously negative consequences in vulnerable individuals (Anthony 1991, Diekhoff 1984, Yates et al 1983). Exercise dependence has also been referred to as negative addiction (Hailey and Bailey 1982, Morgan 1979), morbid exercise (Chalmers 1985), fitness fanaticism (Little 1979),

athletic neurosis (Little 1969), and obligatory running (Yates et al 1983). For the purposes of the present paper, the term exercise dependence was used to describe the phenomenon of compulsive physical activity.

Exercise dependence can increase an individual's risk of injury. In a study of 68 runners, Diekhoff (1984) found that compulsion to run, as assessed by the Commitment to Running Scale (Carmack and Martens 1979), was correlated significantly with number of visits to physicians. In fact, Diekhoff (1984) reported that more than a quarter of the variance in running injuries was explained by compulsivity scores. As well, injured runners were found to be more addicted to running, and to run further in terms of weekly mileage.

Dependent individuals will often continue to exercise despite the risk of worsening a serious injury, even when advised to discontinue the activity by a health professional. Morgan (1979) cited evidence of runners who, ignoring stress fractures or other injuries, continued to exercise even though a physician had recommended inactivity. Similarly, Yates et al (1983) described the case of a 31-year-old male who ran at least 80km per week despite severe pain from tendonitis that he had suffered for three years.

Exercise dependence therefore can have wide-reaching implications. Not only is there an increased risk of injury

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among exercise dependent individuals, but there is also evidence of problems in achieving treatment adherence.

Typically, diagnosis of exercise dependence has been performed by self-report questionnaire (Pierce 1994). However, in a clinical setting, it is preferable for diagnosis to be made as a result of the clinician's observations, especially when there is some contention as to the most effective self-report instrument (Kirkby and Adams 1996). Clinical diagnostic criteria for the assessment of exercise dependence has been provided by Veale (1991). These include: a stereotyped pattern of exercise in which the patient exercises on a very regular basis, typically at the same time each day, with multiple sessions daily, and a lack of rest days; withdrawal symptoms (characterised by depressed mood, irritability, anxiety, fatigue, and sleep disturbances); relief or avoidance of withdrawal symptoms (characterised by the use of exercise to relieve withdrawal); subjective compulsion to exercise (characterised by compulsive thoughts regarding the need to exercise and irrational thoughts when an exercise session is missed); and rapid reinstatement of previous exercise patterns (characterised by a rapid rather than gradual reintroduction to activity levels after a period of forced abstinence).

Although diagnosis can be relatively simple, treatment of exercise dependence is not. As exercise dependent patients could present to a health professional with an injury (Morgan 1979), treatment for the injury can be conducted by the clinician. However, once exercise dependence is diagnosed, the addictive element requires more complex treatment. In severe cases, this is best provided by a qualified sports psychologist with experience in treating addiction (Miller 1993).

Given the relationship between exercise dependence and increased prevalence of injuries, it seems likely that sports physiotherapists will be consulted by exercise dependent athletes. The present study was

undertaken to further investigate the experiences of physiotherapists with this group of patients. The primary aim of the study was to determine physiotherapists' awareness of exercise dependence and to examine the strategies physiotherapists use to treat exercise dependent patients.

## Method

### Design

Physiotherapists were surveyed about their experiences with exercise dependent patients. As inclusion criteria, each respondent was required to be currently employed in physiotherapy, to be formally trained at postgraduate level in sports physiotherapy and to have been working with sportspeople for at least two years. The experiences of the physiotherapists with exercise dependent patients were obtained by a brief, standardised telephone interview.

### Participants

The respondents were 24 sports physiotherapists (17 males and 7 females) working in sports medicine centres in greater Melbourne. All participants possessed a degree in physiotherapy and were either graduates of, or had partially completed, postgraduate education in sports physiotherapy. The sample was recruited from the 43 students of the Graduate Diploma of Sports Physiotherapy at La Trobe University for the previous three years, and the current year (completing in 1996). All 43 were telephoned and contact was made with 24 (56 per cent), all of whom agreed to participate in the study.

### Interview

The structured interview consisted of six questions relating to the therapist's experiences with, and opinions about, exercise dependence. The questions were:

1. What qualifications do you have in physiotherapy and, particularly, in sports physiotherapy?
2. For how many years have you

been practising?

3. Please describe your understanding of exercise dependence/addiction.
4. What proportion of your patients would you regard as exercise dependent/addicted?
5. What problems have you had in treating exercise dependent patients?
6. What particular strategies do you have for the treatment of exercise-dependent patients?

### Procedure

The workplace of each participant was telephoned by one of the investigators, who asked to speak with the physiotherapist in question. The physiotherapist's agreement to participate in the survey was sought prior to presentation of the interview. All of the physiotherapists who were contacted agreed to be involved in the study, however, for five subjects, a more convenient time was arranged to complete the interview. Once the physiotherapist had agreed to participate, the interview continued, typically taking 3-4 minutes. For the purposes of the interview, exercise dependence was described to the physiotherapist, after he or she had responded to Question 3, as "a condition in which a patient might place his or her health at risk by excessive exercise, and in which the patient might continue to exercise despite injury, or the advice of a health professional."

## Results

**Question 1:** What qualifications do you have in physiotherapy and, particularly, in sports physiotherapy?

The telephone interviews confirmed that all respondents had undergraduate qualifications in physiotherapy and had completed ( $n = 17$ ) or were completing ( $n = 7$ ) postgraduate training in sports physiotherapy.

**Question 2:** For how many years have you been practising? The participants reported that they had been practising for a mean (SD) of 9.5

(4.3) years. They reported a mean (SD) of 7.7 (4.2) years experience in sports physiotherapy. All had been practising in the sports area for more than two years.

**Question 4:** What proportion of your patients would you regard as exercise dependent/addicted? The subjects reported that on a weekly basis they treated an average (SD) of 2.4 (2.3) patients they would classify as exercise dependent. This represented a mean (SD) proportion of 6.2 (5.2) per cent of patients seen.

The responses to Questions 3 and 5 were examined for modal responses by an independent sports scientist. The reviewer was asked to examine the respondents' answers and to group similar responses into categories.

**Question 3:** Please describe your understanding of exercise dependence/addiction. According to the synthesis of responses, exercise dependent patients were identified by more than half of the sample (54 per cent of answers) as likely to experience some form of negative affect without regular exercise (eg "person who becomes depressed if he or she ceases exercise", "suffers some type of negative mood without ... exercise") and by almost half of the respondents ( $n = 10$ , 42 per cent) as likely to continue exercising even when injured or advised otherwise (eg "non-compliant", "despite injury or professional advice still continues to exercise"). Seven physiotherapists (29 per cent) described exercise dependent patients in terms such as obsessive, anxious, or overachieving. Five respondents (21 per cent) identified exercise dependence as an addictive process (eg "addicted to exercise", "... body or brain produces a high", "addicted to feelings ... from aerobic exercise"). Finally, five respondents identified specific activities in which they had observed exercise dependence: three cited aerobics and another listed running, while one respondent reported exercise dependence in a football player.

**Question 5:** What problems have you had in treating exercise dependent patients? While seven (29 per cent) of the respondents said that they had no

special problems in treating exercise dependent patients, the majority (71 per cent) reported problems with both communication of the desired treatment regimen and patient compliance. The most common response (29 per cent of respondents) was that exercise dependent patients ignored the advice of the physiotherapist.

**Question 6:** What particular strategies do you have for the treatment of exercise dependent patients? Responses to this question are shown in Table 1. The 24 participants listed a total of 44 strategies. These could be categorised under six headings. The first related to explanation (42 per cent of responses), in which the physiotherapist attempted to educate the patient about his or her injury and likely outcomes. Three physiotherapists (12.5 per cent of respondents) said they sometimes used scare tactics such as warning the patient of serious consequences if he or she were to continue exercising at the same level.

The second category involved referral (20 per cent of responses). Most physiotherapists reported that they used referral in conjunction with other strategies; only one physiotherapist said that referral was used as his sole treatment tool. Psychologists were the health professionals to whom exercise dependent patients were most likely to be referred.

The third category concerned prescribing alternative training or activities (18 per cent) in which the physiotherapist recommended a reduction in, or change to, the patient's activity of choice, so that ongoing exercise that would not further aggravate the injury. In its most radical form, this included the use of splints or casts to limit movement.

The fourth category (14 per cent of responses) comprised psychological approaches and included use of behaviour modification, modelling, counselling and sport psychology techniques. Two unclassified responses "honest, personal, approach" and "offer reassurance" made up the fifth

category. The final category concerned one respondent who said that he treated exercise dependent patients with specific regard to their individual needs and, as such, was unable to provide a general strategy for the treatment of such patients.

It was noteworthy that there were overlaps between these categories. For example, 50 per cent of the respondents indicating alternative or reduced activity as their major treatment strategy also reported using explanation of the injury. Similarly, 56 per cent of physiotherapists citing referral also utilised education and explanation in the treatment of exercise dependent patients.

## Discussion

When asked to describe exercise dependence, the large majority of sports physiotherapists responded in terms of either mood change or compliance. Fifty-four per cent of respondents associated exercise dependence with negative mood as a consequence of reduced activity. These descriptions are consistent with earlier findings (Conboy 1994, Crossman and Jamieson 1987). Forty-two per cent of the physiotherapists linked exercise dependence with problems in adherence to treatment recommendations. This was reflected in comments such as non-compliant, despite injury or advice still continues to exercise and neglect treatment instructions. These perceptions support anecdotal evidence reported in the literature (Morgan 1979, Yates et al 1983).

Some respondents described their exercise dependent patients in terms such as Type A, overachieving, and obsessive. In his study, Diekhoff (1984) reported that injured runners were not only more likely to be addicted to running but furthermore, were more likely to be of Type A personality. As Carver et al (1981) pointed out, Type A athletes are more vulnerable to injury because of their inclination to ignore signals, such as indications of injury, which threaten achievement of their goals.

**Table 1.**

**Responses to the question: "Do you have any particular strategies for the treatment of exercise dependent patients?" by 24 sports physiotherapists (classified according to primary response).**

### Explanation and education

- 1 Explanation most important strategy, counselling - alternative forms of exercise, maintain good cardiovascular fitness but not continue loading problem area.
- 2 Very definite in advice, provide scenario of what could happen if advice not taken, give recuperation goals including an idea of the length of recuperation, be very assertive.
- 3 Provide a likely scenario if patient does not reduce exercise levels (worst possible scenario) - use of scare tactics.
- 4 Modelling: refer to international star (ie even top athletes rest when injured). Modelling with other patients. Emphasis on explanation and education.
- 5 Use sports psychology, attempt to make patient realise what he or she is doing and the possible consequences. Inform of potential injuries.
- 6 Lots of education. Realistic education based on their needs. Diversional activities.
- 7 Possibly shock tactics depending on patient Honest personal approach. Try to use behavioural modification.
- 8 Education. Making the patient aware of what he or she is doing. Question the patient about whether it is a good thing that he or she is becoming dependent.
- 9 Provide an educational role, explain the value of rest. Take explanation to a physiological level, (ie virtues of time to heal). Would consider referral.
- 10 Make the patient aware of the problem, and that he or she has to slow down. That it is the patient's problem, onus on control of their own treatment. Would consider referral if had network for sports psychologist.
- 11 If patient is an athlete use as much anatomy and physiology as possible, otherwise keep explanations straightforward and simple.
- 12 Lots of talking and reinforcement, have to tell them (the patient) "300 times" to get them to understand that there is a problem. If physical problem not improving would consider referral.
- 13 Explain physiology, time of healing, use examples (eg decreased bone density). Offer alternative exercises that are non detrimental (eg if lower body injured give upper body exercises).
- 14 Lay it on the line. Get patient to understand the consequences of their actions, they must take control. Paint a bleak picture of what might happen (ie negative outcomes). Worst cases will eventually come round, despite possible relapses.
- 15 Exercise dependent patients are receptive because of their injury, so explain the problem in detail, good level of communication required, use of behavioural modification, possibly, refer to a sport psychologist.
- 16 Make sure they know the rules. Modify their behaviour (reduce rather than stop altogether). Possibly refer, depending on the level of sport. Difficult to make non-elite athletes accept problem.
- 17 Work with them, encourage patient's understanding of his or her condition, offer alternatives to current exercise, ie water-based program or cycling. Plenty of reassurance. Refer in extreme situations.

### Alternative training/activity (including reduction)

- 18 Give them something else to do (cross training); explanation of the injury and its consequences. Would consider referral, depending on the patients receptivity.
- 19 Continue with exercise in an alternative manner (ie swimming instead of running).
- 20 Depends on the injury. Apply tape or cast, splint to prevent physical activity. Verbal communication to inform about consequences of continued exercising. Would consider referral.
- 21 Change type of exercise (eg from running to swimming).
- 22 Minimise exercises given, provide models of other overexercisers and the damage that they can do to themselves. Would consider referral, possibly to a psychologist.

### Referral to other health professional

- 23 Referred to sport medicine doctor - who referred to psychologist.

### Other

- 24 No specific strategies, depends on the individual , take it as it comes.

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Other physiotherapists used descriptions such as exercising beyond their physical capacity, expectations (of exercise dependent individuals are) much higher than normal patients. This view of the dependent exerciser as an overachiever is congruent with the concept of these individuals as workaholics (Yates et al 1983).

Several of the physiotherapists interviewed in the present study likened the enthusiasm for physical activity to an addictive state. This was interesting in the light of the explanation by Thompson and Blanton (1987) of exercise dependence as a process of addiction. This explanation, labelled the sympathetic hormonal arousal hypothesis, suggests that, over time, exercise training leads to a tolerance of the hormonal release of the catecholamines epinephrine and norepinephrine. Thus, to experience the same level of physiological arousal, a greater intensity or duration of exercise is required to stimulate the same level of hormonal release. Essentially, an increase in fitness leads to increased metabolic efficiency and lowered sympathetic output of epinephrine and norepinephrine. This, in turn leads to lowered arousal, lethargy, or fatigue. To combat these states, an increased level of activity is required to produce levels of arousal similar to the pre-exercise state. Pierce et al (1993c) suggested that the habituation effect seen in many runners (that is, increased dependence with increased running) and the negative withdrawal symptoms experienced by dependents when deprived of exercise were indicative of an addiction process and, in fact, were consistent with the opponent process model of addiction (Solomon 1980).

In terms of treatment, the responses of the physiotherapists indicated that they used specific techniques to increase compliance. The most common strategy related to educating the patient about the injury and the potential consequences of not adhering to treatment recommendations (eg "lay it on the line", "(patient) must take control", "explain physiology, time of

healing", "lots of talking and reinforcement"). Three physiotherapists said that they resorted to shock tactics (ie descriptions of worst possible outcomes) to motivate compliance. The second most common treatment approach involved referral. The third strategy concerned prescribing limited activities or alternative behaviours that would allow some physical involvement without further aggravation to the injury (eg "including some exercise during treatment", "allowing for some training through the injury", "allow patient to think they are still exercising adequately"). One respondent said that he would use tape, casts, or splints to limit activity. Other treatments included psychological strategies such as behaviour modification modelling, counselling and sport psychology techniques. Only one physiotherapist reported that he did not have any specific treatment approaches for exercise dependent patients, but preferred to utilise therapies most appropriate to the particular circumstances.

The scientific literature is relatively sparse regarding treatment for exercise dependent patients. Some advice has been supplied in more popular literature such as athletics magazines, however, most of this advice is oriented toward a psychological approach. For example, Miller (1993) suggested that the process of treatment and recovery should be likened to current psychological treatments for addiction. In short, a search of the scientific literature reveals no objective recommendations for sports physiotherapists in treating exercise dependence but instead, the scientific literature suggests that psychological techniques are the most successful resources for the treatment of exercise dependence (Wichmann and Martin 1992). It appears that a proportion of physiotherapists are aware of this, as evidenced by the respondents in the present study who reported using referral to a psychologist or who utilised psychological techniques themselves.

The findings of the present survey

should be viewed within the constraints of the experimental method. The sample was small and not randomly selected. Although the group did include most of the students who had been involved for the past three years in a major postgraduate program in sports therapy, the sample might not have been a valid representation of the total population of practising sports physiotherapists. Furthermore, the interview was limited to six brief questions and was conducted over the telephone. However, it should be noted that according to Rintala and Williams (1991), telephone interviews have been found to be as reliable as face-to-face interviews.

Notwithstanding these criticisms, the present study provides a starting point for further research into the difficulties of treating musculoskeletal injuries in exercise dependent patients. The results of the present survey suggest that, within the limits of the sampling, sports physiotherapists are aware of problems relating to exercise dependent athletes and have developed specific techniques to manage these individuals.

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