

## Psychological Aspects of Staleness and Dependence on Exercise

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### Abstract

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This article discusses the psychological symptoms of overtraining and the relationship between staleness and exercise dependence. Staleness may be prevented by monitoring the mood state of the individual so that, if necessary, appropriate action may be taken to taper the volume of training and maximize performance. The criterion for exercise dependence is difficult to define and some suggestions are made on clarifying the diagnosis and future research in this area.

### Key words

Exercise, dependence, staleness, psychology

### Introduction

A state of staleness occurs when there is an imbalance between training and recovery (3). Overtraining in the short term may result in symptoms of fatigue but recovery and adaptation normally occur within a few days. Chronic overtraining results in a state of staleness in which 1 or 2 rest days provide an insufficient period of recovery for adaptation to occur.

Staleness is characterized by the lack of progress in training or a decreased performance at competition. Some individuals will be more vulnerable than others, but in general it occurs when there is excessively heavy training over a long period of time with many competitive events and little time for recovery between the events.

### Symptoms of Staleness

The syndrome of staleness most resembles clinical depression although the symptoms do vary from person to person. The most common symptoms in the early stages are fatigue, muscle aches or pain, the perception of training as

being more intense, and boredom and lack of enjoyment with the training sessions. When the syndrome is more severe, there may be symptoms of a depressed mood, anhedonia, crying, psychomotor retardation, irritability, anxiety, inability to relax, poor concentration, apathy, insomnia (or occasionally hypersomnia), loss of appetite (or occasionally an increased appetite), weight loss, and a decrease in sexual libido. Individuals may have a low self-esteem, rate their achievements poorly, blame themselves or feel guilty, perceive their present situation negatively and their future to be hopeless. He or she may present to their doctor with symptoms of general ill-health and nonspecific aches and pains. Many cases of staleness are probably wrongly diagnosed by family doctors or sports physicians as "post viral fatigue." Opportunistic infections may well occur as the end result of staleness but this is only part of the diagnosis and socially more acceptable. Whatever the diagnosis, staleness is biologically adaptive as it forces the individual to rest for a longer period until full tissue recovery has occurred.

Staleness is probably not a specific syndrome related to sport as it closely resembles descriptions of "burnout" or "chronic fatigue" in a work environment. It is brought on by a persistent devotion to a goal, the achievement of which is dramatically opposed to reality. Burnout normally affects dedicated idealistic men and women who are motivated toward high achievement and who work in unrewarding situations (11). Elite sportspersons are therefore particularly at risk before they even start to overtrain.

The mood of a sportsperson can be successfully monitored using a simple pen and paper test called the Profile of Mood States (POMS) (4). This is a 65-item self-report inventory which produces a global measure of mood as well as measures of tension, depression, anger, vigor, fatigue, and confusion. The global score is obtained by adding the five negative mood states (tension, depression, anger, fatigue, confusion) and subtracting the one positive mood state (vigor).

The mental health model of Morgan (6) proposes that positive mood states are associated with high performance levels, whereas mood disturbances are predicted to result in poor performance.

As a clinician, I would ideally like to see the results of a randomized controlled trial or an A-B-A experimental design on the effect on performance of psychological monitoring and tapering. Despite this absence, there is reasonably good evidence to indicate the usefulness of psychological monitoring of mood. Professor Morgan and his colleagues (7, 8) have published an important series of papers on the psychological monitoring of the mood of elite swimmers during train-

ing. Over the past 10 years they have monitored over 200 male and 200 female swimmers involved in competitive swimming. In a series of studies they have found that:

1. There is a dose-response relationship so that significant increases in training are associated with an increase in disturbances of mood.
2. The earliest psychological changes of overtraining recorded on the POMS are increases in fatigue and decreases in vigor. Changes in tension, depression, and anger appear to follow with chronic overtraining.
3. Interpretation of individual mood profiles may successfully predict the physiological changes associated with staleness.

The POMS may therefore be an extremely sensitive index of mood states and an early warning system for the onset of staleness. If there are no other explanations for a change in mood such as other life events, the volume of training may be tapered and thus maximum performance achieved.

#### Prevention of Staleness

The experience of staleness is still poorly recognized by sportspersons and coaches and even denied by some. This partly reflects the general stigma of psychological disorder, but in addition the individual may be unable to step back and examine his performance critically and objectively. A coach would normally undertake this role but he may think that staleness reflects badly on his training. One of the most popular myths is that one can "catch up" on lost training, and some individuals may increase the volume of their training and therefore aggravate the condition.

To obtain maximum performance, there should ideally be a tripartite arrangement between the sportsperson or team, the coach, and a sports psychologist. The first problem, at least in the United Kingdom, is that there are insufficient resources for a sports psychologist to be attached to every single elite sportsperson. The second problem is the perceived credibility of the sports psychologist. There often seems to be an unwritten demand that the sports psychologist should be seen to join in the training schedules. He or she may well enjoy training with their client but in general it is not a very efficient use of his or her professional time.

In the absence of a sports psychologist, I believe that coaches should have a greater training in the psychological monitoring of staleness. The POMS appears to be an excellent tool for this purpose. It is extremely low tech, can be easily administered, and the results plotted from week to week and acted upon by appropriate tapering of the training or counseling by another professional.

In addition, there are a number of guidelines developed by sports psychologists for the prevention of staleness. These are:

1. The training program should not be routine and stereotyped. It should be varied, enjoyable, and wherever possible should incorporate other sports.

**Table 1** Criteria for exercise dependence (15)

1. Narrowing of repertoire leading to a stereotyped pattern of exercise with a regular schedule once or more daily.
2. Saliency with the individual giving increasing priority over other activities to maintaining the pattern of exercise.
3. Increased tolerance to the amount of exercise performed over the years.
4. Withdrawal symptoms related to a disorder of mood following the cessation of the exercise schedule.
5. Relief or avoidance of withdrawal symptoms by further exercise.
6. Subjective awareness of a compulsion to exercise.
7. Rapid reinstatement of the previous pattern of exercise and withdrawal symptoms after a period of abstinence.

#### Associated features

8. *Either* the individual continues to exercise despite a serious physical disorder known to be caused, aggravated, or prolonged by exercise, and is advised as such by a health professional, or the individual has arguments or difficulties with his partner, family, friends, or employer.
9. Self-inflicted loss of weight by dieting as a means of improving performance.

2. There should be periods of time-out and rest days from competition and training so that the individual does not become totally preoccupied with the sport.
3. The short-term goals should be appropriate and realistic. They should be negotiated, and the sportsperson should contribute toward the decisions that are made.
4. No season should be too long and there should be clear breaks between the seasons. There should be a realistic number of competitions.
5. The sportsperson should be taught relaxation and visualization techniques.

The principles are simple — the difficulty is in convincing sportspersons to follow them.

#### Treatment of Staleness

If staleness does occur, it is best treated initially by rest or at least a decrease in the volume of training. Competitions should be stopped until recovery occurs. If the staleness is not severe, then the maximum performance levels can return quite quickly within a month or so. The volume of training is less important than the intensity of the individual training sessions to achieve maximum performance.

### Exercise Dependence

Exercise dependence has been documented in numerous case reports under various disguises as "running addiction" (2, 13), "negative addiction" (5), "obligatory runners" (17), "running anorexics" (10), and morbid exercising (1). The crucial feature of any dependence is the negative mood states in the absence of the drug, object, or activity (12). Withdrawal symptoms are not exclusive to alcohol or drugs and are documented in other activities such as high-frequency gambling (16). The degree of dependence may be related to the amount of negative mood state, which may range from mild discomfort to extreme distress or to the amount of difficulty the individual experiences or the amount of effort he has to make without the drug or activity.

I have previously suggested borrowing the World Health Organization criteria for alcohol or drug dependence and applying them to exercise (Table 1) (15). As with other dependence syndromes, it does not imply any particular etiology and degrees of dependence exist with many gradations. Mild degrees of dependence are regarded as insignificant or even positive. However, the individual is unlikely to enjoy fully their exercise or achieve maximum performance. Individuals with moderate degrees of dependence will need to weigh up the risks and benefits and may start to have problems. Severe degrees of dependence are likely to occur in only a tiny minority of sportspersons but have a high risk of significant problems.

There remain a number of practical difficulties in trying to differentiate a "case" of exercise dependence from the normal elite sportsperson who has a realistic chance of obtaining a world record or gold medal. A number of the criteria are also characteristic of staleness and it may be that some elite sportspersons show some of the features of dependence. However, the model would predict that he or she is unlikely to reach maximum performance with such a pattern of behavior. This hypothesis remains to be tested and so far there are no longitudinal data correlating performance with the features of dependence.

Agreeing upon the criteria for exercise dependence is important for research for different centers to be able to study similar subjects. On the basis of the cases that I have interviewed over the past couple of years, I shall reexamine each of these criteria in turn and suggest how they might be improved.

#### 1. Stereotyped Pattern of Exercise

A routine and stereotyped pattern of exercise may be relatively common among sportspersons and a major contributory factor toward staleness. It may therefore be too sensitive as a criterion for dependence. An alternative would be to narrow the criterion to those exercising in a stereotyped pattern twice or more daily with no rest days.

#### 2. Salience

A total dedication and commitment to their sport is a common feature among many elite sportspersons and may be another contributory factor toward staleness.

Again, this criterion is probably too sensitive in its present form as a criterion for dependence.

#### 3. Tolerance to Exercise

The concept of tolerance is a pharmacological one and it is difficult to apply to exercise. In my experience, individuals who are dependent on exercise do not increase their training to obtain the same psychological effect and it is difficult to separate from a motivation to improve performance or to lose weight. This criterion is therefore probably best abandoned.

#### 4. Withdrawal Symptoms

Minor symptoms of depressed mood, anxiety, irritability, fatigue, and sleep disturbances in the absence of exercise appear to be extremely common among athletes (9, 14). Symptoms of withdrawal have not been specifically studied in subjects who are also experiencing staleness but could be an important factor for overtraining. Withdrawal symptoms are a fundamental feature of dependence but the criterion may need to be narrowed to those with significant or severe withdrawal symptoms.

#### 5. Relief or Avoidance of Withdrawal Symptoms

If the withdrawal symptoms are severe enough, then the individual will tend to use exercise to relieve or avoid the symptoms. This appears to be a relatively uncommon feature among sportspersons and I believe this should remain as a criterion for exercise dependence.

#### 6. Subjective Compulsion to Exercise

A subjective sense of compulsion to exercise may be difficult to assess, occurring relatively frequently. The criterion is similar to symptoms of withdrawal and may be best restricted to those with significant sense of compulsion to exercise.

#### 7. Rapid Reinstatement to Previous Pattern of Exercise

Most sportspersons will gradually increase the volume of their training after an enforced absence. A rapid reinstatement to the previous pattern of exercise after abstinence is relatively uncommon but may occur in staleness. It should therefore remain as a criterion for dependence.

### Relationship between Staleness and Dependence

Staleness and exercise dependence appear to share a number of important characteristics although the latter may represent a more severe form of overtraining. I have already discussed how some of the proposed diagnostic criteria in dependence may be relevant to the onset of staleness. One might predict that anyone dependent on exercise would also be stale but not vice versa. If this is the case, then those individuals dependent on exercise will also have a psychological disorder and this may be tested on the POMS. In my ex-

perience, dependence tends to affect nonprofessional or non-elite sportspersons in whom there are different and varied motivations. The biggest single motivation is the desire to lose weight or "balance the intake of calories", in which the exercise may be secondary to an eating disorder. These subjects appear to have more severe symptoms and problems. It is interesting that Morgan et al. (8) have reported that one of the contributory factors to the symptoms of fatigue in swimmers who were overtraining may be a failure to eat sufficient carbohydrates. Subjects who are dependent frequently diet (in the absence of an eating disorder), and they too may be having an insufficient carbohydrate intake which may be contributing toward their symptoms. Further research should be directed at the effect of sufficient nutrition and weight restoration on the symptoms of staleness and dependence. Further research is also required on subjects with exercise dependence who have no significant eating disorder with the greater use of in-depth interviews and longitudinal studies to determine what happens to such individuals over a given period.

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