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## **Mood-Regulating Strategies Used By Athletes**

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### **ABSTRACT**

This study examined strategies used to self-regulate mood dimensions assessed by the Profile of Mood States (McNair, Lorr, & Droppleman, 1971) in athletes. One hundred and seven athletes completed a 29-item mood regulation questionnaire (Thayer, Newman, & McClain, 1994) assessing strategies aimed at regulating anger, confusion, depression, fatigue, tension, and vigor. Results indicated that to 'change location', 'exercise', and 'listen to music' were strategies common to each mood dimension. Findings indicate that there were self-regulating strategies unique to certain mood dimensions; "try to be alone" for anger; "analyze the situation" for confusion; "engage in pleasant activities" for depression; and "use relaxation techniques" for tension. Vigor and fatigue shared the same self-regulating strategies although in different proportions. We propose that identification of strategies used to regulate mood lend support to the notion that mood can be controlled by the individual, and is not simply a reaction to external factors. It is suggested that there is a need for further research to investigate mood-regulating strategies used by athletes.

### **Introduction**

It is generally acknowledged that applied sport psychology interventions should be founded on theory and research. There has been a great deal of research investigating mood in sport (LeUnes, 2000; LeUnes & Burger, 1998). A focus of this research is the relationship between scores on The Profile of Mood States (POMS; McNair, Lorr, & Droppleman, 1971) and performance (Beedie, Terry, & Lane, 2000; Renger, 1993; Rowley, Landers, Kyllö, & Etnier, 1995; Terry, 1995). By contrast, there has been very

little research investigating the antecedents of mood and how athletes deal with intense mood states that might impair performance. The results of mood-performance research would suggest a need for researchers to direct their efforts to understanding how athletes control mood. Meta-analysis results show that mood predicts performance when certain conditions are met (Beedie et al., 2000). Mood is proposed to be a more effective predictor of performance in sports of a short duration, when the sport involves open skills, and when performance is assessed through a self-reference criterion (Beedie, et al., 2000). Since mood is an important predictor of performance, the ability to control mood would be a useful psychological tool for any athlete. Further, it is suggested that the experience of competition teaches athletes to develop methods to manage mood. Teaching athletes strategies to control mood states that threaten performance represents one of the most compelling challenges for applied sport psychologists. The purpose of the present study was to investigate the strategies that athletes use to regulate mood. Knowledge of the strategies that athletes use to regulate mood can help sport psychologists develop interventions designed to improve performance through controlling mood.

One method of mood-management is self-regulation. It is suggested that individuals tend to actively monitor their mood and develop self-regulating strategies to reduce negative mood and increase positive mood (Thayer, Newman, & McClain, 1994). Rusting and Nolen-Hoeksema (1998) defined self-regulating strategies as 'thoughts and behaviors intended to eliminate, maintain, or change emotional states' (p. 790). Conscious recognition of the intensity of mood and the anticipated impact of that mood on behavior is proposed to underlie the self-regulatory process (Mandler, 1984). An important aspect of mood regulation is the notion that it does not necessarily involve mood changes. Regulation is concerned with the cognitive evaluation of the mood and its anticipated impact on behavior. Thus, if the individual is in the appropriate mood, regulation strategies might involve mood maintenance.

Although investigation of strategies to self-regulate mood has received little attention in the sport psychology literature, there has been research in general psychology. Much of the research has focused on mood repair, where the aim is to reduce negative mood or increase positive mood. Research has shown that it is possible to alleviate negative mood using a number of different strategies. These strategies include: a) accessing positive information about the self (Josephson, Singer, & Salovey, 1996; Showers & Kling, 1996), such as thinking about past successes; b) re-appraising the cause of the negative mood (Gross, 1998). This is achieved by focusing on the cause of the problem; c) listening to music, which can be used to reduce tension (Sousou, 1997); d) using relaxation techniques (Berger, Friedman, & Eaton, 1988); and e) anticipating social situations (Erber, Wegner, & Therriault, 1996), for example, thinking about meeting with friends which is expected to be a positive experience.

Possibly the most comprehensive research on self-regulation of mood was that of Thayer et al. (1994). Thayer et al. (1994) conducted a series of studies to investigate the frequency and effectiveness of mood-regulating strategies used by the general population. The purpose of their first study was to develop a tool to assess mood-regulating strategies

through open-ended questions. The second study was an investigation of the self-regulating strategies used to eliminate bad moods, to increase 'energy', and to decrease 'tension' (Thayer conceptualized mood on two continua; energy and tension). The authors found that the most common self-regulating strategies used to eliminate 'bad moods' were; 'call, talk to, or be with someone' (54%), 'control thoughts' (51%), 'listen to music' (47%), 'avoid the thing causing the bad mood' (47%), and 'try to be alone' (47%). The authors found that the most effective self-regulating strategy was 'exercise', although this was only used by 37% of the sample. In terms of regulating feelings of energy, Thayer et al. (1994) indicated that the most common strategies used were; 'rest, take a nap, close eyes, or sleep' (68%), 'take a shower, bath or splash water on face' (55%), 'go outside and get some fresh air' (45%), 'do something to keep busy' (43%), 'drink coffee or other caffeinated beverage' (41%), and 'listen to music' (41%). 'Listening to music' was judged the most effective of these, followed by 'take a shower, bath, or splash water on face' and 'exercise'. The most commonly cited strategies to reduce tension were; 'call, talk to, or be with someone' (59%), 'control thoughts' (58%), 'listen to music' (53%), 'exercise' (44%), 'use relaxation techniques' (44%), and 'rest, take a nap, close eyes, or sleep' (37%). The most effective self-regulating strategies for reducing tension were to 'engage in religious activity', 'listen to music', and 'exercise'. Thayer (1996), in reviewing his work, suggested that 'exercise' was probably the most effective strategy for improving mood states. Thayer (1996) suggested that exercise is proposed to increase energy (by increasing arousal and activation), and reduce tension (by reducing skeletal-muscular tension).

The present study extends the work of Thayer et al. (1994) by examining the frequency and effectiveness of strategies to self-regulate mood used by athletes. As previous research has typically used the POMS, the present study investigated the strategies that athletes use to regulate the mood dimensions of anger, confusion, depression, fatigue, tension, and vigor. Thus, the purpose of the present study was to investigate whether athletes use strategies common to all mood dimensions. Research in sport psychology has proposed that discrete mood states influence performance differently (see Lane & Terry, 2000 for a detailed discussion). For example, Lane and Terry (2000) argued that research should assess tension and depression independently rather combining them to form a single mood state called negative mood. Lane and Terry (2000) proposed that tension can have a motivating effect when it is experienced independently of depression. Tension can act as a warning signal, informing the individual that unless a great deal of effort is made, performance would not match expectation. By contrast, when tension and depression are experienced simultaneously, the negative nature of depression can lead to symptoms of tension being interpreted as inability to cope, and thus tension can debilitate performance. According to Lane and Terry (2000), tension and anger are mood states that feel unpleasant but athletes can use to positively. It is hoped that through identification strategies athletes use to manage mood can lead to developing intervention strategies designed to improve performance through managing mood.

## Method

### Participants

The participants were 107 athletes ( $M = 19.68$  years,  $SD = 2.81$  years; Male  $N = 64$ , Female  $N = 43$ ) representing a range of different sports including, badminton ( $n = 2$ ), basketball ( $n = 11$ ), hockey ( $n = 17$ ), karate ( $n = 3$ ), netball ( $n = 20$ ), rugby ( $n = 21$ ), soccer ( $n = 22$ ), swimming ( $n = 4$ ), and track and field ( $n = 7$ ). All participants had competed to at least to county standard in the UK, although at the time of testing participants ranged from recreational to international. All participants were undergraduate sport science students at a University in the United Kingdom.

### Self-Regulating Strategies of Mood Questionnaire

The Self-Regulating Strategies of Mood Questionnaire was the 29-strategies identified by Thayer et al. (1994). Participants were first asked if they thought it possible to change a mood state. If they believed it was possible to change mood, they were asked to nominate a strategy (ies) from the list of 29 items. These items include: 'Analyze the situation', 'Avoid the cause', 'Call, talk to, or be with someone', 'Change location', 'Control thoughts', 'Drink alcohol', 'Drink coffee or other caffeinated beverage', 'Eat something', 'Engage in emotional activity', 'Engage in a hobby', 'Engage in pleasant activities', 'Engage in self-gratification', 'Engage in stress management', 'Exercise', 'Go shopping', 'Listen to music', 'Put feelings in perspective', 'Rest', 'take a nap, sleep', 'Take a shower, bath, or splash water on face', 'Try to be alone', 'Use humor', 'Use relaxation techniques', and 'Watch TV'.

In the present study, participants were asked the extent to which these strategies were directed to changing a bad mood and the mood dimensions used in the POMS. Participants were asked:

"Indicate what strategies you adopt if you are angry, and you try to change that feeling" (anger);

"Indicate what strategies you adopt if you are confused or mixed-up, and you try to change that feeling" (confusion);

"Indicate what strategies you adopt if you are sad or downhearted, and you try to change that feeling" (depression);

"Indicate what you usually do if you are tired, but need to do something that requires you to be alert and attentive within the next 30 minutes" (fatigue);

"Indicate what strategies you adopt if you are nervous, tense, or anxious, and you try to change that feeling" (tension);

"Indicate what strategies you adopt if you are lethargic, but need to do something that requires you to be active and energetic within 30 minutes" (vigor).

As Thayer et al. (1994) did not use an athletic population in their validation studies, an open-ended question was included to allow participants to add any strategy not included on the list in the present study. In addition to nominating strategies, participants

also rated the relative effectiveness of the strategy used to regulate mood. Perception of strategy effectiveness was recorded on a 9-point Likert scale anchored by 1 = 'not at all effective' to 9 = 'extremely effective'.

## Procedure

The Self-Regulating Strategies of Mood Questionnaire was administered away from the site of competition. Participants were asked to read the strategies, nominate strategies they use to change each mood dimension, and to rate the effectiveness of the method/s. Instructions also asked for any strategies that were not listed, but used by the athletes, to be written in the corresponding space. This procedure was conducted for strategies to regulate anger, confusion, depression, fatigue, tension, and vigor. Owing to the nature of some of the strategies, participant confidentiality was essential to ensure honest responses; therefore, the only participant details recorded were gender and age. Sport and level of competition were noted separately since this information might have reduced confidentiality.

Consistent with the methodology used by Thayer et al. (1994), data were analyzed by conducting frequency counts to show the percentage of participants who used each self-regulating strategy. This was repeated for each mood dimension.

Thayer et al. (1994) analyzed effectiveness scores using factor analysis. A limitation of using factor analysis to examine scores for the effectiveness of mood-regulating strategies stems from the number of missing data from individuals who do not report using a particular strategy. Tabachnick and Fidell (1996) proposed that factor analysis should have at least 10 individuals per item, and, therefore, excluding missing data points poses a problem for conducting factor analysis through insufficient sample size.

It is possible to interpret a response of not using a strategy as being the same as it not being at all effective and computing all missing data with a score of 1 ('not effective at all'). A limitation of this technique would be that it could produce misleading results whereby results to show strategies rated as very effective but used by only a small percentage of participants will be masked. For example, if only 10 of the participants used a certain strategy and each assessed it as extremely effective (9 on the Likert scale), it would have a mean score of 9 for effectiveness. However, if all missing data were computed with a score of 1, the mean score for effectiveness would be 1.75, falsely suggesting the strategy is ineffective.

In the present study, ratings of effectiveness were used as a mechanism of identifying strategies which have the most value to athletes rather than using to develop self-regulatory themes by using factor analysis. Thus, factor analyses were not conducted. Themes of the type and effectiveness of self-regulating strategies in the present study were examined by considering the percentage number of participants who used the strategy and the mean rating for its effectiveness. Greater attention was given to frequency counts as using a strategy implies effectiveness. A MANOVA was used to compare the effectiveness of strategies reported to be common to all mood dimensions.

## Results

Table 1 shows the results of the frequency counts along with the mean and standard deviation effectiveness scores for strategies used to regulate anger, confusion, depression, fatigue, tension, and vigor. Consistent with the approach used by Thayer et al. (1994), Table 1 shows only the scores for items nominated by at least 10 participants. No additional mood regulating strategy was nominated by 10 or more participants. As Table 1 indicates, there are a different number of strategies used to regulate each mood dimension. Participants reported using 13 strategies to regulate anger, 10 strategies to regulate confusion, 16 strategies to regulate depression, six strategies for regulating fatigue, 16 strategies for regulating tension, and six strategies for regulating vigor. Of the 29 strategies listed, results found three common strategies to regulate ('change location', 'exercise', and 'listen to music') each mood dimension.

Strategies	<u>Anger</u>			<u>Confusion</u>			<u>Depression</u>			<u>Fatigue</u>			<u>Tension</u>			<u>Vigor</u>		
	F (%)	M	SD	F (%)	M	SD	F (%)	M	SD	F (%)	M	SD	F (%)	M	SD	F (%)	M	SD
Change the situation				20.56	6.45	1.30												
Identify the cause	22.43	6.21	1.64															
Talk to, or be with someone	22.43	7.04	1.57	44.86	7.31	1.26	57.01	7.30	1.42				37.38	6.63	1.67	10.28	6.09	
Change location	22.43	6.54	1.10	12.15	6.00	1.58	16.82	5.78	2.02	19.63	6.10	1.34	14.02	6.20	1.32	11.21	6.25	
Change thoughts	29.91	6.69	1.23	28.97	6.65	1.52	12.15	7.00	1.08				35.51	6.58	1.64	11.21	6.25	
Drink alcohol							18.69	5.05	2.09				13.08	6.79	2.29			
Drink coffee or other caffeinated beverage										42.06	6.33	1.38				26.17	6.89	
Exercise							20.56	5.41	1.62	33.64	5.86	1.66	16.82	5.67	1.68	27.10	5.93	
Engage in emotional activities	16.82	6.33	1.37				12.15	6.08	1.93									
Engage in a hobby							12.15	6.38	1.19									
Engage in pleasant activities	12.15	5.92	1.75				21.50	6.74	1.25				11.21	5.92	1.44	11.21	7.00	
Engage in self-compassion							11.21	6.58	1.44									
Engage in stress management				15.89	7.06	1.64							17.76	6.63	1.50			

Exercise	37.38	7.15	1.55	21.50	6.70	1.55	30.84	7.28	1.46	42.99	6.67	1.59	28.04	6.40	1.79	29.25	6.79
Listening to music							15.89	6.18	1.13								
Listening to music	44.86	6.96	1.29	20.56	6.55	1.77	51.40	6.76	1.72	52.34	6.48	1.60	41.12	6.73	1.52	51.40	6.65
Putting feelings in perspective				20.56	6.14	1.64	14.95	5.94	1.39				17.76	5.68	0.95		
Take a nap, sleep							12.15	5.85	1.46				13.08	6.64	1.15		
Take a shower, bath, or splash water on face	12.15	5.92	1.75	12.15	6.08	2.02				68.22	6.79	1.39	14.02	5.60	1.35	60.75	6.74
Try to be alone	30.82	6.64	1.17	17.76	6.58	1.46							12.15	6.62	1.66		
Use relaxation techniques	18.69	6.00	1.62				17.76	6.63	1.83				19.63	6.14	1.65		
Use relaxation techniques	14.95	6.06	1.81										28.97	6.55	1.41		
Watch TV	11.21	4.75	1.60				13.08	5.64	1.78				13.08	5.29	1.59		

**Table 1** Frequency and Effectiveness Scores For Mood-Regulating Strategies Used By Athletes

Results show that seven strategies were used by 20% or more of the sample to regulate anger. The strategies included 'listening to music' (44.86%), 'exercise' (37.38%), 'try to be alone' (30.82%), 'control thoughts' (29.91%), 'change location' (22.43%), 'avoid the cause' (22.43%), and 'call, talk to, or be with someone' (22.43%). For confusion, results show that six strategies were used by 20% or more of the sample. These strategies included 'call, talk to, or be with someone' (44.86%), 'control thoughts' (28.97%), 'exercise' (21.50%), 'analyze the situation' (20.56%), 'listen to music' (20.56%), and 'put feelings into perspective' (20.56%). For depression, 'call, talk to, or be with someone' (57.01%), 'listen to music' (51.40%), 'exercise' (30.84%), 'engage in pleasant activities' (21.50%), and 'eat something' (20.56%) were used by over 20% of the sample. For fatigue the strategies used included; 'take a shower, bath, or splash water on face' (68.22%), 'listening to music' (52.34%), 'exercise' (42.99%), and 'eat something' (33.64%). For tension, strategies used included, 'listening to music' (41.12%), 'call, talk to, or be with someone' (37.38%), 'control thoughts' (35.51%), and 'use relaxation techniques' (28.97%). For vigor strategies used included; 'take a shower, bath, or splash water on face' (60.75%), 'listen to music' (51.40%), 'exercise' (29.25%), 'eat something' (27.10%), and 'drink coffee or other caffeinated beverage' (26.17%).

A MANOVA was conducted to investigate whether participants reported differences in the perceived effectiveness of the strategies 'listening to music', 'exercise', and 'change location'. These strategies were reported to be effective regulators of all six mood

dimensions. MANOVA results indicated a significant effect (Wilks' lambda 15.92  $p < .001$ ,  $\eta^2 = .43$ ). Univariate results indicated significant differences for the use of music as a strategy to regulate each mood dimension ( $F_{5,102} = 9.19$ ,  $p < .001$ ). Music was reported to be more effective at regulating anger, depression, fatigue, tension, and vigor than confusion. Univariate results for exercise ( $F_{5,102} = 4.02$ ,  $p < .01$ ) indicated that it was reported to be significantly more effective regulator of fatigue than confusion. Univariate results for location were not significant ( $F_{5,102} = 1.87$ ,  $p > .05$ ).

## Discussion

The purpose of the present study was to investigate strategies used to self-regulate POMS dimensions by athletes. This study extends the work of Thayer et al. (1994) who investigated strategies used to regulate mood in the general population. To date, there has been no published research that has extended Thayer et al.'s work. The present study found three common strategies ('change location', 'exercise', and 'listen to music') to regulate anger, confusion, depression, fatigue, tension, and vigor. Further, MANOVA results indicate that there are no significant differences in the perceived effectiveness of listening to music and exercise as a strategy for regulating anger, depression, fatigue, tension, and vigor.

Findings showing that exercise was an effective self-regulation strategy lend support for previous research on self-regulation strategies used by the general population (Thayer et al., 1994). Research findings are generally supported of the notion that exercise is associated with improved mood (see Berger & Motl, 2000 for a review). However, the mechanisms that bring about mood enhancement following exercise are unclear. Berger and Motl (2000) proposed a framework to explain factors that influence the extent to which exercise is associated with improved mood. The framework proposes that enjoyment of the activity, the intensity of exercise, duration, and regularity of participation interact with mode requirements. The mode requirements include abdominal and rhythmical breathing, the relative absence of interpersonal competition, and closed, predictable, repetitive movements (Berger & Motl, 2000). Examples of activities that meet these criteria are aerobics, jogging, swimming, and Tai chi.

It is suggested that the extent to which participants use exercise as a strategy to self-regulate mood is an additional factor contributing to the influence of exercise on mood. If those who exercise regularly do receive more psychological benefit from exercise than those who do not exercise, it is reasonable to expect exercise to be used as a mood-regulating strategy more often and to greater effect by athletes than it is for the general population, since they exercise more regularly than the general population. In addition, for the present sample, it is possible that athletes have more access to the necessary resources to take part in exercise whenever they feel the need.

Although exercise was cited as an effective mood regulating strategy, it might also be a double-edged sword. Research has found that excessive exercise loads leads to negative mood (Morgan, Brown, Raglin, O'Connor, & Ellickson, 1987). Where exercise is the source of negative mood, it is unlikely that it would be used as a self-regulation

strategy. It is suggested that there is a need for research to investigate athlete's perception of exercise as a mood-regulatory strategy throughout the training year. Such research would facilitate examination of the extent to which current training volume influenced the perceived effectiveness of exercise as a mood-regulatory strategy.

'Listening to music' was a strategy reported to regulate each mood dimension by athletes. Music may be an effective regulator of the different types of negative mood as different types of music may elicit different responses. This finding lends support to the theoretical propositions on the effects of music on psychological state (Karageorghis & Terry, 1997). Karageorghis and Terry (1997) argued that music can have a stimulating effect or a sedative effect on mood. Further, they argued that the influence of music on psychological state is dependent on individual factors such as age and musical preferences. It is also influenced by cultural factors such as socio-economic status, class, and race. Thus, given the varied nature of music, future research may need to specify on the type of music adopted to regulate moods.

'Change location' was a strategy used to regulate all mood dimensions. We propose that changing location may influence mood in at least two ways. First, it may be used as a distraction, in an attempt to reduce the negative mood by removing the stimulus responsible for initiating the negative state, or by distracting attention. Second, searching for more positive stimuli elsewhere may be used in an attempt increase positive mood.

'Call, talk to, or be with someone', was a strategy reported to be used to regulate anger, confusion, depression, tension, and vigor. Talking to someone might be used to ventilate frustration or to ask advice of those whose opinions we value. Indeed, athletes may talk to someone as a form of social support when confused or depressed and as an object at which they can vent their frustration when experiencing angry or tense moods. Carver, Scheier, and Weintraub (1989) proposed that people seek social support for one of two reasons; a) to seek advice, assistance, or information, or b) to receive sympathy, understanding, and moral support. Although this conceptual difference exists, it is difficult to separate the two in practice as they often occur simultaneously.

We suggest that there is need for further research to investigate the topic of conversation associated with regulating mood. At present, is it not known whether athletes will attempt to regulate the mood response by confronting the perceived cause of the mood, or whether the athlete will attempt to regulate the mood by distracting attention away from the cause of the mood. In the athletic environment, the athlete is likely to approach the coach, fellow athlete, or in cases where there is one available, a sport psychologist. Consequently, members of the athlete's support team should be aware that the athlete might be using conversation as a strategy for regulating mood. Coaching staff are often concerned that an athlete initiating conversation is not focused on the event and try to discourage such behaviour.

Other items offered as self-regulating strategies may also be open to multiple interpretations, and need to be adapted for future research. For example, taking a shower, or splashing water on the face is usually thought to be invigorating, while taking a bath is

usually relaxing. However, Thayer et al's (1994) questionnaire combines these in the item 'take a shower, bath, or splash water on face'. An individual might take a shower to reduce fatigue, splash water on one's face to increase vigor, and take a bath to reduce tension. Thus, a limitation with the present study is that results are unable to differentiate between the influence each strategy has on an individual's psychological state.

The results showed that athletes believe that they are able to control their moods, and generally have a bank of strategies that are used to alter certain mood states that might not be conducive to optimum performance. Some strategies are proposed to be more popular and more effective than others. Coaches and athletes might use this information to analyse their own pre-competition preparation routines. It is important to remember, that although the study has identified certain strategies that are common to all moods, the effectiveness of any given strategy is subjective.

An acknowledged limitation of the present study is that data were analyzed by sport or gender due to the small sample size for each group. It is suggested that there is a need to cross-validate findings of the present study to a larger sample before findings from the present study be used to inform practice.

## **Summary**

The present study has found that the main strategies used by the athletic population to regulate negative moods were to 'listen to music', 'change location', and to 'exercise'. 'Call, talk to, or be with someone' was also cited as a strategy for regulating certain mood states. Findings lend support to the proposal that negative mood should be conceptualized through a number of different constructs, and therefore, for example, strategies used to regulate anger might not be effective strategies to regulate confusion. Further research into the effects of different types of music as a mood-regulation mechanism is needed. Specifically future research should identify the effects that different types of music have on the different mood dimensions.

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