

AN OVERVIEW OF MOOD AND EMOTIONS IN SPORT

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There is no doubt that sport generates powerful emotional responses among participants and spectators alike. The sight of soccer teams and their supporters overwhelmed by euphoria or reduced to despair during the 2002 World Cup is ample testament to this fact. There is also strong anecdotal and scientific evidence that emotions experienced by athletes prior to and during sport performance have a profound effect upon the quality of their performances (see Hanin, 2000). The purpose of this paper is to explore the link between emotional responses and sport performance.

The first section addresses conceptual issues, in particular the distinction between the related constructs of emotion and mood; and presents some of the conceptual models put forward by theoreticians. The second section addresses measurement issues. The third section synthesises research on the relationship between mood and athletic performance. The fourth section explores the use of music as a mood management strategy.

1. Conceptual issues.

Lane and Terry (2000) defined mood as “a set of feelings, ephemeral in nature, varying in intensity and duration, and usually involving more than one emotion” (p. 17). This infers that mood represents a cumulative concept, whereby a series of emotional responses to daily events combine to form a mindset that stays in place until gradually or suddenly changed by future events.

Emotion and mood are commonly distinguished in the literature in terms of the intensity and duration of responses and the specificity of their antecedents, with emotions seen as relatively brief but intense experiences activated by cognitive appraisals of situational factors, and mood generally conceptualised as of lower intensity, longer duration and more diffuse origins. It is further proposed that the consequences of emotion are mostly behavioural, whereas those of mood are mostly cognitive (Ekman & Davidson, 1994).

Given the proposed complexity of the emotion-mood distinction, it may seem perverse to differentiate them on the basis of a simple analogy. However, many elements of the relationship between emotional traits (what we might call temperament), moods, and emotions can be compared to changing weather patterns. Temperament is analogous to the climate of a place; that is, weather patterns that repeat over the years. Just as a climate may include hot, dry summers and cool wet winters so an athlete’s temperament might be characterised by a confident, happy disposition. This is not to say that the athlete always feels confident and happy but these feelings would be characteristic of that person. By the same token, a mood is analogous to the prevailing weather front, which lasts a few hours or several days and may or may not be consistent with normal climatic conditions. For example, just as a summer storm may blow in, so the normally upbeat mood of an athlete may darken, and feelings of anger, tension, and unhappiness may prevail temporarily.

Continuing the analogy, emotions would represent brief changes to the weather such as a cloud passing in front of the sun, a sudden gust of wind, or a light shower of rain. Similarly, a generally buoyant mood may be threatened by brief but intense emotional responses to specific incidents, a soccer player may be irritated by a referee’s decision, frustrated by missing a scoring opportunity, or angered by an opponent’s illegal tackle. These emotions would not necessarily erode the general positivity of the player’s mood unless the frequency and intensity of negative emotional responses were sufficient to precipitate a downturn in mood, in the same way that increasing cloud cover and frequent showers might signal a new weather front.

There is little consensus in the literature about how to best represent the *structure* of emotions and moods. There are many proponents of two-dimensional, bio-psychological models, whereby the constructs of emotion, mood or affect (different authors use different terms) are organised on two orthogonal dimensions. Larsen and Diener (1992) proposed the dimensions of pleasant-unpleasant and high-low activation, Thayer (1989, 1996) proposed energy-tiredness and tension-calmness, and Russell (1980) proposed pleasure-misery and arousal-sleep, labels that vary more in terminology than essence. Usually, these two-dimensional models are presented as a circumplex, whereby emotions are arranged around the perimeter of a circle. Although circumplex models have been pervasive in the recent literature (e.g., Russell & Feldman Barrett, 1999; Watson, Wiese, Vaidya, & Tellegen, 1999; Yik, Russell, & Feldman Barrett, 1999) there is disagreement about where on the circumplex particular emotions should be placed.

Circumplex models of emotion have rarely been applied to research in sport and exercise. More commonly, researchers in these domains have used models based in particular on a series of unipolar dimensions such as tension, depression, anger, etc. (e.g., McNair, Lorr, & Droppleman, 1971, 1992; Terry, Lane, Lane, & Keohane, 1999) but also on bipolar opposites such as happy-sad, relaxed-

tense, etc. (e.g., Lorr & McNair, 1988), or on broad orthogonal dimensions, such as negative affect and positive affect (Watson & Tellegen, 1985). Amid the huge challenge of trying to understand the nature of emotions, “dissecting the elephant” as Russell and Feldman Barrett (1999) referred to it, equally compelling arguments can probably be made to support different models. Watson et al. (1999) called upon future researchers to use “a variety of approaches in seeking to understand this extraordinarily complex domain” (p. 836).

Generally, investigations of mood in sport and exercise have been blighted by a lack of theory to underpin research questions. A recent model of mood-performance relationships (Lane & Terry, 2000) emphasised the pivotal role of the depression component of mood. In rationalising this pivotal role, Lane and Terry proposed that the negative cognitive generalizations that characterise depression have a pervasive effect and act as a catalyst for other unpleasant dimensions of mood. A depressed mood also promotes a focus on negative previous experiences, which may reduce perceptions of ability and coping (Rokke, 1993), and requires more regulation than other moods, reducing capacity for alternative types of regulation such as physical performance (Muraven, Tice, & Baumeister, 1998).

Key to the Lane and Terry model is the notion that depressed mood moderates the mood-performance relationship for anger and tension. In contrast, even though depressive symptoms are proposed to reduce vigour and increase confusion and fatigue, vigour remains facilitative of performance and confusion and fatigue remain debilitating. The proposed moderating influence of depressed mood on some mood-performance relationships but not others can be explained by the nature of anger and tension.

Spielberger (1991) suggested that anger-related thoughts are directed either inwardly towards the self (suppressed) or externally toward other individuals or objects (expressed). The distinction between suppressed and expressed anger is important for sport performance. According to Spielberger, the self-blame element of suppressed anger is proposed to intensify feelings of hopelessness, and thus lead to poorly motivated behaviour causing performance decrements. By contrast, expressed anger tends to be directed at the source of the original frustration, or else displaced toward another object or person. While this process would not in itself benefit performance, the anger may be channelled into, or manifest as, determination to succeed. Importantly, the tendency to suppress anger is closely associated with depression.

Tension, like anger, is associated with heightened arousal. Schwarz and Bless (1991) contended that states such as tension serve a functional role by signalling whether conditions warrant action. Pre-performance tension may signal the likelihood of poor performance unless some form of action is taken, such as increased effort or concentration. In this instance, tension may provide a motivating effect if performance outcome is considered by the individual to be important. In a depressed mood, rather than initiating a search for solutions, it is proposed that tension is directed toward negative self-thoughts, engendering a de-motivating effect.

The model proposes four testable hypotheses. The first is that anger, confusion, fatigue and tension will be higher and vigour will be lower among athletes experiencing depressed mood than those experiencing no symptoms of depression. The second hypothesis is that inter-relationships among anger, confusion, fatigue, tension and vigour will be stronger for athletes experiencing depressed mood. The third hypothesis is that vigour will facilitate performance, and confusion and fatigue will debilitate performance, regardless of the presence or absence of depressed mood. The fourth hypothesis is that anger and tension will debilitate performance among individuals reporting symptoms of depression, whereas anger and tension will show a curvilinear relationship with performance among individuals reporting no symptoms of depression.

In preliminary tests of the model (Lane & Terry, 1998, Lane, Terry, Karageorghis, & Lawson, 1999; Owens, Lane, & Terry, 2000), the first and second hypotheses were strongly supported, the third and fourth hypotheses partially so. Recent, more comprehensive tests of the model, by Lane, Terry, Beedie, Curry, and Clark (2001) and Janover and Terry (2002) have provided further support. Collectively, early tests of the model suggest that it has the potential to help increase understanding of the relationship between mood and athletic performance.

2. Measurement issues

The measurement of any psychological construct is a key challenge in the process of testing theory or investigating hypothesized relationships. Measures vary substantially in terms of their scientific rigour, psychometric integrity, degree of invasiveness (and therefore viability in the athletic context), influence by confounding variables, cost, and so on.

A range of behavioural, cognitive and psychophysiological indices of emotional responses exist. However, self-report measures are undoubtedly the most common method of assessing moods and discrete emotions. Typically, respondents are presented with a series of Likert or analogue scales and rate the extent to which they feel particular emotions or mood descriptors. Some of the more

common self-report measures of affect used in the sport and exercise environments include the Profile of Mood States (POMS: McNair et al., 1971, 1992) and its derivatives (see Shacham, 1983; Grove & Prapavessis, 1992; Terry et al., 1999), the Positive Affect Negative Affect Scale (PANAS: Watson, Clark & Tellegen, 1988), the Activation-Deactivation Adjective Check List (Thayer, 1986), the Multiple Affective Adjective Checklist – Revised (Zuckerman & Lubin, 1985), and measures developed specifically for the exercise environment, such as the Exercise-induced Feeling Inventory (Gauvin & Rejeski, 1993) and the Subjective Exercise Experience Scale (McAuley & Courneya, 1994).

Derivatives of the POMS are available in several languages, including Afrikaans (Terry, Potgieter, & Fogarty, in press), Arabic (Terry & Ahmed, in preparation), Chinese (Cheung, 1999), Dutch (Wald & Mellenbergh, 1990), French (Fillion & Gagnon, 1999), German (Bullinger, Heinisch, Ludwig, & Geier, 1990), Korean (Shin & Colling, 2000), and Spanish (Arce-Fernandez, Andrade-Fernandez, & Seoane-Pesqueira, 2000; Perczek, Carver, Price, & Pozo-Kaderman, 2000).

Self-reports have the obvious advantage of simplicity and convenience. They are also relatively inexpensive and minimally invasive when used appropriately. Further, when a researcher is interested in the conscious experience of moods and emotional states, self-reports offer the most direct route to what a person felt. However, there are potential hazards in the use of self-report mechanisms. Response distortion may occur due to the effects of social desirability, reactivity to the researcher, disinterest, lack of insight, faking good or bad, and order effects, all of which should be considered prior to assessment. Moreover, on all standardized tests important issues of psychometric integrity come into play; namely, validity, objectivity, and reliability. Further threats to the integrity of the data are associated with the assessment of emotional responses retrospectively and these receive particular attention in this paper.

The reference period included in instructions to respondents is one of several important considerations in the assessment of mood or emotions. This reference period is usually known as the response timeframe. McNair et al. (1971) offered four alternative response timeframes for the original POMS; (1) the standard instructions, “How have you felt over the past week including today?” (2) “How do you feel generally?” (3) “How do you feel today?” and (4) “How do you feel right now?” The PANAS (Watson et al., 1988) offers a similar range of response timeframes.

Watson (1988) is one of very few researchers to have addressed the impact of response timeframe on mood assessments. Watson found that, although the factor structure of mood remained constant, inter-correlations among mood dimensions and test-retest coefficients varied as a function of the timeframe used. Inter-correlations were weakest and test-retest coefficients highest with a “past year” timeframe, suggesting that a trait-like construct was being assessed, whereas a “right now” timeframe was associated with high inter-correlations among mood dimensions and low test-retest coefficients, appearing to reflect person-environment interactions at the time of testing.

More recently, Winkielman, Knauper, and Schwarz (1998) found that with a short response timeframe such as “Have you felt angry today?” participants reported less intense experiences compared to longer timeframes such as “Have you felt angry this week?” The authors suggested that respondents interpret longer timeframes as an inference that the researcher is interested primarily in intense reactions, as it would seem unrealistic to list every incident that generated a mild response. This perception appeared to strengthen as the response timeframe grew longer, for example to six months or a year, and therefore mood summaries over a long time period may be influenced unduly by relatively short but intense feelings, which inflate scores for the assessed moods.

The literature generally indicates that retrospective measures have limited accuracy. For example, Rasmussen, Jeffrey, Willingham, and Glover (1994) showed that an “over time” assessment of mood for a period of three days differed significantly from the mean of 18 “right now” assessments collected during the same time period. The questionable accuracy of retrospective recall has also been identified in many other areas of investigation (see Cohen & Java, 1995; Eich, Reeves, Jaeger, & Graff-Radford, 1985; Ptacek, Smith, Espe, & Raffety, 1994) and explained variously as resulting from faulty or incomplete encoding, memory decay, or distorted recollections (Smith, Leffingwell, & Ptacek, 1999). Recall of mood over time appears especially problematic given the proposed influence on memory of ambient mood (i.e., mood at the time of recall). Mood-congruency effects have been postulated whereby people tend to seek information from memory that is consistent with ambient mood (e.g., Bower, 1981; Parrott & Sabini, 1990) and, moreover, that memories are more readily accessible when mood is similar to when the memories were originally encoded (see Blaney, 1986). Recent research in sport has further illustrated the impact of response timeframe on measures of mood. Stevens, Lane, and Terry (2001) conducted two studies to compare mood scores using different timeframes. In both studies, “past week” mood assessments yielded higher scores than multiple “right now” assessments, and were particularly associated with ambient mood for confusion, depression, and vigour. It may be concluded that retrospective reports should not be treated as equivalent to measures

taken with greater temporal proximity to the experience of interest, and it is therefore essential that researchers give due consideration to the influence of response timeframe on mood assessments.

3. Mood-performance relationships.

A link between mood and sport performance may have strong intuitive appeal but researchers have not had great success in elaborating what constitutes the “ideal mood” for best performance. Indeed, it is difficult from the body of research to conclude even that mood and performance are closely related (see Renger, 1993; Rowley et al, 1995). It is possible however, that much of the equivocality that typifies findings in this area can be explained by methodological factors.

Firstly, researchers have not always distinguished adequately between level of performer and level of performance. Given the transient nature of mood, there is no compelling reason why mood profiles should distinguish between performers at different levels of achievement. Elite athletes do not have a monopoly on positive moods. However, its very transience is suggestive of a link with performance, in that an individual would be more likely to perform optimally when in their “ideal” mood than any other mood. Unfortunately, some research designs, ostensibly addressing the mood-performance link, have sometimes lacked precision in their research question.

Secondly, there are several potential confounds that have been generally overlooked by researchers. Task characteristics such as increasing duration, complexity, and number of co-acting performers have the potential to restrict the impact of mood on performance and should be considered carefully (see Terry, 1995). Similarly, personal characteristics such as skill and conditioning clearly have a major impact on performance and, therefore, need to be controlled for if the effects of mood are to be identified.

Finally, the measure(s) of performance used is critical in investigating mood-performance relationships. It appears likely that the use of objective performance indicators, such as win-loss record or selection to a national team, that are insensitive to the relative quality of performance for a particular athlete, may have often masked the effects of pre-performance mood.

From the pioneering work of William Morgan and his colleagues, an association was proposed between athletic success and a mood profile, based on the POMS, typified by above average scores for vigour and below average scores for tension, depression, anger, fatigue, and confusion; a pattern of mood responses referred to by Morgan as an iceberg profile (Morgan, 1980). Over recent years, there has been a growing realisation that any link between athletic achievement and mood responses is probably more subtle and complex than can be explained readily by the iceberg profile. For example, narrative reviews by Renger (1993) and Terry (1995) have cast doubt on whether it is reasonable to expect mood profiles to predict athletic achievement, and a meta-analysis of pertinent studies by Rowley, Landers, Kylo, and Etnier (1995) concluded that the iceberg profile accounted for less than 1% of the variance in performance outcome and that the “utility of the POMS in predicting athletic success is questionable” (p. 185).

Further, normative mood data for athletes published by Terry and Lane (2000) showed that, when plotted against the psychiatric outpatient or student norms (see McNair et al., 1971) that were used as the point of reference by almost all previous studies, an iceberg profile is typical of athletes regardless of their level of competition. Collectively, the more recent evidence does not mean that previous emphasis on the desirability of the iceberg profile was misplaced but, given the normality of such a profile among athletes, perhaps its importance was overstated.

Nevertheless, some findings remain supportive of the notion that athletic achievement can be differentiated from mood scores (e.g., Morgan, Brown, Raglin, O'Connor, & Ellickson, 1987; Trafton, Meyers, & Skelly, 1998) precipitating two recent meta-analyses by Beedie, Terry, and Lane (2000) that summarised the findings of 13 published studies investigating whether mood responses can differentiate athletes of varying degrees of achievement and 16 published studies investigating whether mood responses can differentiate performance outcome among athletes of similar ability. Beedie et al. concluded that mood responses have significant utility in the prediction of performance outcome but not in the prediction of level of achievement.

The meta-analysis of Beedie et al. (2000) showed that, when studies investigating level of achievement and studies using inappropriate methods were excluded, the mean effect of mood on performance was small-to-moderate (Mean ES = .31). Effects were moderate for vigour, confusion, and depression, small for anger and tension, and very small for fatigue. All effects were in the direction predicted by Morgan's (1985) Mental Health Model. Notably, effects were larger in sports of short duration, in sports involving open skills, and where performance was judged using self-referenced criteria such as achievement of performance goals or percentage of personal best. Overall, it appears that when certain conditions are met, mood profiles taken at the pre-performance stage are significant predictors of subsequent performance.

Several commentators on the literature (e.g., Hanin, 1997; Prapavessis, 2000) have proposed the advantages of an idiographic rather than a nomothetic approach to unravelling the complexities of the effects of human emotions on performance. While the results of more than 300 cross-sectional studies conducted in the area have offered many insights into the mood-performance link, there is little doubt that models that emphasise an intra-individual focus, such the Individual Zone of Optimal Functioning (Hanin, 1997), offer great potential for refining our understanding.

By definition, moods are influenced by situational factors. The emotional responses that underlie mood change are initiated by our interaction with other individuals and environmental forces that we encounter as we move from situation to situation. Few studies have investigated the effects of situational factors on mood, particularly in athletic environments, although in a cross-sectional study of the mood responses of more than 2000 athletes assessed either before competition, after competition or away from the competition environment, Terry and Lane (2000) found that athletes reported higher tension, depression, anger and confusion prior to competition than at the post-competition stage. Away from the competition environment, such feelings were at levels midway between the pre- and post-competition situations.

Just as the prospect of public speaking or a visit to the dentist has the capacity to change a person's mood so, it would appear, has the prospect of impending athletic competition. For example, research conducted at the 1993 World Rowing Championships (Hall & Terry, 1995), in which the moods of 12 athletes were monitored daily during the pre-event training camp and throughout the competition period, revealed significant mood fluctuations as the competition drew nearer. In all 12 cases, the eventual performance of the athletes could be dichotomised into "performance to expectations" or "underperformance" from the mood profiles taken on the eve of competition, with the better performances associated with higher vigour and lower anger, confusion, depression, and fatigue. Those athletes who underperformed reported more mood volatility and a deteriorating mood as the competition approached whereas those athletes who performed to expectations showed greater mood stability and a gradually improving mood.

The authors suggested that these data might reflect the success or failure of the final preparation period, whereby the training load was increased and then tapered prior to the start of competition. Based on unsolicited comments from some of the rowers, the authors speculated that the significant fluctuations in anger, depression, and confusion among under-performing athletes, and their general mood disturbance, appeared to be associated with difficulties meeting the physical demands of training.

Specific examples of the effects of situation on mood responses come from my applied work with elite athletes. Figure 1 shows the mood profiles of a medal-winning athlete taken periodically during the 1998 Olympic Winter Games in Nagano, from the day the team arrived in Japan until the competition days. It was apparent to me from his mood profiles that the athlete was experiencing a degree of mood disturbance, evidenced particularly by uncharacteristically low levels of vigour, high levels of anger and depression, and the general volatility of mood responses. Discussion with the athlete revealed the huge impact of situational factors on his mood, in particular the travel fatigue and jet lag associated with the journey, the unsettling experience of being in an Olympic environment, and a family-related issue. His mood profile returned to, what was for him, the ideal only on the second day of competition when the medals were being decided.

Figure 1
Mood profiles of a medal-winning athlete during the 1998 Olympic Winter Games

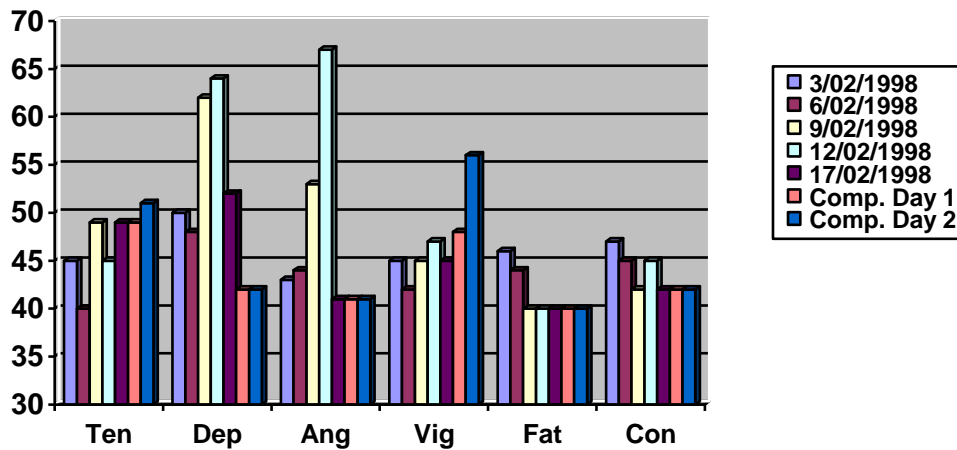
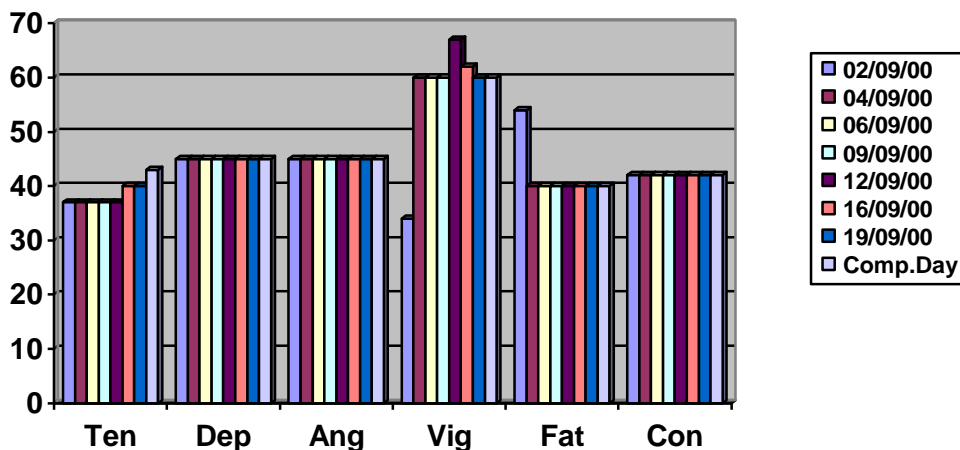


Figure 2 shows the mood profiles of an Olympic champion from the 2000 Olympic Games in Sydney, assessed from the day after arriving in Australia from Europe until the morning of competition. In this instance, the pattern is one of an early adjustment to the fatiguing effects of travel and jetlag followed by an extended period of mood stability, with a slight increase in tension as competition approached. It should be noted that the scores for this performer, which are plotted against athlete norms in standard score format (see Terry & Lane, 2000; Terry, Lane, & Fogarty, 2003), represent raw scores of zero on the scales of depression, anger and confusion throughout the assessment period and on the tension and fatigue scales for the vast majority of the assessment period. Moreover, given that the optimum pre-competition mood profile for this athlete had been identified during previous events, the challenge was to identify when the optimum mood was achieved (in this case, as early as the first week in Australia) and to attempt to maintain emotional stability thereafter using a range of mood management strategies.

The critical importance of situational factors in managing the Olympic experience was recognised by this athlete after he had found the experience of the 1996 Olympic Games in Atlanta to be an emotionally overwhelming occasion. Therefore, in 2000 he opted out of the Olympic Village environment, stayed in a house in the Sydney suburbs with a fellow athlete, their coaches and the sport psychologist, used his own transport and generally tried to create a “home from home” atmosphere.

Figure 2
Mood profiles of an Olympic champion during the 2000 Games in Sydney



4. Mood management.

Evidence about mood management strategies in sport is scarce. There is consensus in the literature that people tend to monitor and evaluate their own moods, and develop and implement self-regulation strategies (see Wegner & Pennebaker, 1993). Often the role of the applied practitioner is to monitor and help direct this naturally occurring process.

The list of strategies used by different individuals is long and varied. A study by Thayer, Newman, and McClain (1994), which investigated the incidence and efficacy of different categories of mood-regulating behaviours among the general population, found that the most common behaviours to reduce nervousness, tension, or anxiety in the short term were affiliative-communicative (e.g., call, talk to, or be with, someone), exercise, relaxation techniques, rest, music, and food. To enhance the energy component of mood, Thayer et al. found that the most effective strategies were to control thoughts through self-talk, listen to music, take a shower, exercise, take a nap, do something to keep busy, eat something, or drink a caffeinated beverage. Among athletes, Stevens and Lane (2000) found that athletes reported exercise, listening to music, talking to or being with someone, and thought control as the most common mood-regulating strategies, although their relative effectiveness was not established in this study.

Given the extensive range of potential mood management strategies, I will focus in this paper solely on the use of music to influence mood. Music pervades deep into many aspects of society and has, for example, become a ubiquitous element in the modern exercise experience. The psychophysical effects of music in sport and exercise are numerous. For example, it appears that the synchronisation of sub-maximal physical activity with music tempo can reduce perceived exertion and increase work output (see Lucaccini & Kreit, 1972; Karageorghis & Terry, 1997 for reviews). The effects of asynchronous (background) music are less clear but research has shown that well-chosen music has the potential to generate significant improvements to mood (e.g., Boutcher & Trenske, 1990; Kodzhaspirov, Zaitsev, & Kosarev, 1988).

There are several factors that influence the effectiveness of music as a mood enhancer, some associated with the characteristics of the music and others associated with the characteristics of the listener. A study by Karageorghis, Terry, and Lane (1999) identified four key features, which they termed *rhythm response*, *musicality*, *cultural impact* and *association*. Rhythm response refers to the characteristics of the music that inspire movement, such as its rhythm, tempo, and stimulative qualities. Musicality refers to the melodic and harmonic aspects of the music that shape the listener's interpretation and thereby influence his/her emotional response. Cultural impact refers to the familiarity and preferences of a particular musical piece or genre in the cultural context of the listener. Association refers to the extra-musical associations evoked by the music; the images generated by particular pieces that, for example, relax or motivate or inspire. Karageorghis et al. (1999) proposed that these four factors determine the motivational qualities of music, which in turn mediate the psychophysical effects.

In an applied context, music often plays an important role in pre-competition routines. Specific examples from my applied work would include using stimulative music combined with verbal suggestions as part of an energising strategy, using music with sedative qualities as a backdrop to relaxation techniques, or using music with associations of glory in the face of adversity to inspire athletes prior to important international competitions. The music used by three gold medallists from the 2000 Olympic Games in Sydney illustrates its potential to influence pre-competition mood. For rowing champion, James Cracknell, listening to "Blood Sugar Sex Magik", an album by the Red Hot Chilli Peppers, proved an effective pre-competition strategy for optimising the arousal and aggression components of mood and shutting out potential distractions. Audley Harrison, the super-heavyweight boxing champion, listened to Japanese classical music to ease his pre-fight nerves coming into the final, and Richard Faulds the winner of the double trap shooting was inspired to seize the moment, in the tensest of shoot-offs, by Whitney Houston's classic "One Moment in Time". In summary, music can act as a potent mood enhancer but choice of music demands great sensitivity to the personal preferences of the athlete, the match between the characteristics of the music and the target emotion, and the associations engendered by a particular piece of music.

5. Future directions.

The study of emotion and mood in sport and exercise settings shows no sign of abating. If anything, the burgeoning literature in the area (see LeUnes, 2000) suggests that interest is increasing. However, the type of investigation will probably change. For example, it appears likely that the number of descriptive studies conducted in this area of research will decline. In particular, it is difficult to see a compelling rationale for further cross-sectional group comparisons of mood responses, except perhaps for those that investigate specialised or marginalized populations. Instead, there are likely to be more intra-individual and longitudinal investigations, and an increasing use of qualitative techniques to enrich our understanding of emotional processes.

There is a particular need for the further development of theoretical models to explain the structure and function of emotions and moods, and how they influence performance in sport. In turn, there is considerable potential for testing existing and future conceptual models in the sport domain. Concomitant with theoretical developments is the requirement to review and refine measures. This

process should include rigorous evaluation of the validity of existing measures of emotions and moods, some of which will be found wanting, and the subsequent development of new measures based on revised theoretical positions.

From a more applied perspective, there is much scope for innovation in the systematic monitoring of emotional responses among athletes and the evaluation of the effectiveness of mood management strategies. To this end, normative datasets for specific athletic populations are needed and intervention studies are required to assess the efficacy of particular mood management techniques and the mechanisms by which mood enhancements occur.

6. Conclusions.

The first conclusion to be drawn is that the need for conceptual clarity when investigating and especially when measuring moods and emotions is paramount but seemingly problematic. Consensus among researchers of the distinction between what constitutes a mood and an emotion is still to be achieved, although there are signs that researchers in the sport and exercise domains are seeking to reconcile conceptual differences.

A second conclusion is that the evidence leaves little doubt that emotions, moods and sport performance are closely linked, even if the exact nature of the relationship is still to be fully elucidated. Much of the research in the area has given insufficient consideration to important measurement issues and has overlooked important individual and situational variables that may have confounded results.

Finally, there appear to be benefits in monitoring the emotional responses of athletes on a regular basis in the lead up to competition. The potential uses of mood profiling in sport have been elaborated previously (see Terry, 1995, 1997) and applied practitioners are encouraged to consider its implementation.

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