ANXIETY AND ATTRIBUTIONAL RESPONSES OF COMPETITIVE SQUASH PLAYERS

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A tendency has been noted, mainly in laboratory contrived situations, that individuals attribute failure at a task to external causes — powerful opponents, luck, and success to internal causes — ability and effort (e.g. Miller, 1976). This has been explained in terms of a self-serving bias in which the individual attempts to protect his self-esteem. However, several recent field studies have found conflicting results, particularly with respect to the association between failure and external attribution (e.g. Scanlan and Passer, 1980). The present study was designed to investigate the extent of self-serving bias in the individual sport context, where little previous research has been undertaken.

Twenty-six male North-West league squash players acted as subjects, and were asked to attribute causality for competitive performance outcomes to nine selected internal factors and nine selected external factors. They were also required to complete pre- and post-match state anxiety questionnaires. The causality questionnaire was administered 30 min after the match and the anxiety questionnaire immediately prior and subsequent to the match.

Main hypotheses were that pre-match anxiety affects performance adversely, post-performance anxiety levels rise after failure and fall after success, and winners attribute more internally than losers. No relationship was found between pre-match anxiety and performance. Analysis of post-match anxiety scores revealed that winners' anxiety fell ($p < .001$) and losers' anxiety rose significantly ($p < .05$). Although winners were found to attribute more internally ($p < .001$) and less externally ($p < .001$) than losers, the latter still assessed internal attributes to be the most important determinants of match outcome. It was argued that social norms/constraints associated with squash tend to limit the acceptability of external attributions.

References

- Miller, D. T., 1976 "Ego involvement and attributions for success and failure". *Journal of Personality and Social Psychology* 34: 901-906.
- Scanlon, T. K. and Passer, M. W., 1980 "Self-serving biases in the competitive sport setting: an attributional dilemma". *Journal of Sport Psychology* 2: 124-136.

CIRCADIAN VARIATION IN VENTILATORY AND METABOLIC ADAPTATIONS TO SUBMAXIMAL EXERCISE

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Circadian rhythms are extensively documented for resting physiological functions, ventilatory and metabolic cycles following the body temperature curve with an afternoon peak (Minors and Waterhouse, 1981). Such rhythms could have implications for training as increasing internal resistance to muscle contraction with lowered temperatures would raise the energy demand and adversely affect mechanical efficiency. Additionally, there is some theoretical foundation but no experimental evidence for the claim that attainment of physiological equilibria after onset of exercise is retarded at night. This study was undertaken to determine whether resting rhythms persisted in steady-rate conditions and whether the rate of acute response to exercise and the mechanical efficiency fluctuated with the time of day.

A longitudinal study ($n=37$) over 16 weeks was employed using a single-subject design for effective control of major zeitgebers in the nycthemeron. A male athlete performed 2 consecutive 5 min cycling bouts of 80 and 150W at 6 times of the solar day. Pre-exercise 10 min rest measures were obtained for rectal temperature (Tr), pulse rate (fH), oxygen uptake (VO_2) and minute ventilation (VE). VO_2 and VE were measured continuously during exercise by an automated on-line system: gross, net and delta "muscular efficiency" were calculated according to Donovan and Brooks (1977). The rate of adaptation was assessed by reference to the fifth minute value for each load.

Cosinor analysis established significant resting periodicities in Tr , fH , VO_2 and VE ($p < 0.005$): fH led the others in phase, VE also leading VO_2 and Tr signifi-