Association–Dissociation Patterns of United States Olympic Marathon Trial Contestants

John M. Silva III and Mark I. Appelbaum
University of North Carolina-Chapel Hill

The association–dissociation cognitive patterns of United States Olympic Marathon Trial contestants were investigated on the basis of responses to the Running Styles Questionnaire. The night prior to the Olympic Trials, 32 subjects responded to 12 multiple-choice-type questions and 6 open-ended questions that probed the type of cognitions processed by the athletes at different stages of the race. Discriminant function analysis resulted in a significant multivariate solution (p < .01), with 5 of the 12 multiple-choice questions maximizing the separation of athletes into groups of top- and lower-place finishers. The composite of these 5 questions suggested that top finishers employed cognitive strategies that utilized both associative and dissociative techniques. Lower finishers demonstrated a composite that indicated the early adoption and maintenance of a dissociative strategy. On the basis of the multivariate solution, athletes were classified to appropriate group membership with 71.88% overall accuracy. The results tend to support the contention that cognitive strategies employed during marathon racing are related to the participant's performance level.

KEY WORDS: sport psychology; cognitive styles; association–dissociation patterns; psychology of marathoners.

It is widely recognized that long-distance running places many physical and psychological demands upon participants. The mental demand of distance running often challenges the participant as much as the physical demand. While physiological and anthropometric characteristics of long-distance runners have been well documented (e.g., Kroll, Clarkson, Melchionda, & Wil-
cox, 1981; Pollock, Jackson, & Pate, 1980), examination of psychological and cognitive styles of long-distance runners is noticeably lacking in the current literature. Morgan and Costill (1972) have provided profile information on a sample of high-caliber marathon runners, and research by Morgan and Pollock (1977) and Morgan (1978) has reported data on the cognitive strategies of elite long-distance runners. Results of the Morgan and Pollock (1977) study, which tested 19 high-level performers, determined through interview techniques that elite runners utilize associative cognitive strategies (body monitoring) while less elite runners employ dissociative strategies (distraction). The authors state that the different cognitive strategies exhibited by elite and nonelite runners is "the major distinguishing psychological dimensions of the elite marathoner" (Morgan & Pollock, 1977, p. 402). As often happens in sport psychology, the results of this study have been popularized to the point where one study employing interview techniques and some physiological measurements of high-level distance runners has become the definitive statement on the cognitive style of the elite distance runner! Are elite distance runners basically engaged in an associative strategy over the course of races that may cover from 10 kilometers (6.2 miles) to 26.2 miles?

The previously mentioned study by Morgan and Pollock (1977) found an associative strategy to be the dominant style employed by word-class runners. However, in one of the few controlled studies examining the attentional cognitive processes of individuals engaged in exercise, Pennebaker and Lightner (1980) found that subjects exposed to distracting stimuli that increased the chances for dissociation reported less fatigue and exhibited fewer fatigue symptoms than subjects who heard an amplification of their own breathing. The authors also found evidence that subjects jogging cross-country or lap courses exhibited frequent attentional shifts from internal to external stimuli. Additionally, individuals attending to external stimuli actually recorded better times. Research by Morgan, Hortsman, Cymerman, and Stokes (1983) examined the effect of cognitive style upon the physical performance (treadmill running) of healthy young men on active duty with the United States Army. Subjects performed at 80% of maximal aerobic power after being assigned to either a dissociation, placebo control, or control condition. The dissociation group evidenced superior performance when compared with the placebo or control groups. In a second experiment the authors compared the dissociation and control groups on various physiological parameters as well as performance. The results suggested that there were no significant physiological differences in blood lactate levels; however, plasma catecholamine levels were higher and performance gain greater for the dissociative group. Morgan et al. (1983) concluded that the distraction strategy enabled the dissociation group to tolerate a greater amount of discomfort for a longer period of time. Morgan et al. (1983) suggested that in an endur-