

# Some Psychological Factors for Promoting Exceptional Athletic Performance

by Brent S. Rushall - San Diego State University  
Distinguished Lectures/Special Topics

Some psychological factors associated with performance enhancement in serious athletes are discussed. Those factors are delimited to what occurs during a competitive performance. Four mental skills: (a) segmenting, (b) task-relevant thought content, (c) positive self-talk, and (d) mood words are reviewed.

Typical thinking developed through sport participation, a very common control condition, is not conducive to optimal or maximal performance. The implementations of these mental skills produce athletic performance enhancements, even in elite athletes. Any extra effort or physiological cost does not accompany improvements.

It is proposed that the teaching of these and similar skills must become part of an athlete's experience if performance standards are to be improved further.

Psychology is the study of behavior, it being both covert and overt. It is relatively easy to investigate overt behaviors accurately and reliably and to employ independent verification of phenomena, but when it comes to covert behaviors, such as thoughts and emotional interpretations, the ability to verify phenomena independently is usually thwarted.

While it remains possible to manipulate external events and observe behavioral outcomes, functional relationships between environmental psychological factors and performances can be described. It is not scientifically appropriate to attribute outcomes to intermediary events such as thoughts and perceptions when they have not been directly observed.

A position on that restriction has been described elsewhere (Rushall, 1992). While talk is of thoughts and covert activities, it is the external stimulating events that influence them which are really the causal factors in the research works discussed.

## Serious Competitive Settings

A serious competitive setting is where the consequences of performance are most important and strongest for an athlete. Factors that affect an athlete's perception of this setting have been described in the Sport Pressure Checklist (Rushall & Sherman, 1987). Variations in these factors

produce performance inconsistencies (Teed, 1987) as well as suggest patterns that predispose excellent performances (Rushall, 1987).

In challenging and serious performance situations, it has been found that performance-oriented "strategies" (plans) of specific detail have notable effects on performance consistency and reliability (Coles, Herzberger, Sperber, & Goetz, 1975; Vestewig, 1978).

***The need for specific preparations is now commonly recognized in several fields (e.g., business, performing arts) and its founding research so convincing that it is now rarely investigated. However, it is still being neglected in the majority of sporting situations by coaches and sport psychologists.***

Further, when strategies are formulated primarily by athletes they generally produce the following benefits: (a) reduction in uncertainty and interpretive distractions and the stress of negative situations, (b) enhanced performance consistency, (c) improved coping capacity for problems, and (d) minimized performance deteriorations (Averill, 1973; Hollandsworth, Glazeski, & Dressel, 1978).

Research reports of the value of performance strategies in sports have been published (e.g., wrestling, Horton & Shelton, 1978; basketball, Meyers & Schleser, 1980; skiing, Rotella, Gansneder, Ojala, & Billing, 1980; swimming, Rushall, 1978; rowing, Rushall, 1990).

## Factor 1: Performance Segmenting

If an event is of long duration, it needs to be broken into segments. Partitions should be short enough for the athlete to totally concentrate on what needs to be thought of and done in that period.

This assists focusing on the completion of successful competition elements. Structuring performances in this manner is called "segmenting." In the U.S. Navy, a similar approach to combat missions is known as "compartmentalizing" (e.g., TOP GUN).

Segmenting originates from two sources. First, the goal-setting literature has shown that distant goals have less effect on performance than do more proximal goals (House, 1973). Short-term performance goals that focus on the processes needed for successful behavior enhance performance (Harackiewicz, Abrahams, & Wageman, 1987).

Second, individuals faced with extensive tasks usually break them down into more manageable segments (Gibson & Heads, 1989, describing the

across-Australia run by Tony Rafferty). Botterill (1977) noted successful young athletes spontaneously reconstructed an endurance strength-task into shorter performance segments, each having its own goal or goals. A skier overcame difficulties with traversing a slope when attention was shifted to progress by task parts that eventually lead to completion of the total run (Syer & Connolly, 1984).

World-champion target sportspersons have reported attempting to fire "one shot at a time" during extended shooting contests (Wigger, Anderson, Whitaker, & Harmon, 1980). Performing artists have intuitively divided long performances into stages (e.g., acts and scenes, movements) so that performance quality can be maintained. Thus, theory and practice support the notion of segmenting extensive tasks for improved performance outcomes.

Manges (1990) and Wahl (1991) both tested the segmented versus total performance goal-orientation in runners. Using intraparticipant research designs, the value of short-term process goals over terminal (distal) goals was conclusively demonstrated. Manges' three runners improved 2.0-2.7% while Wahl's ranged from 1.1-6.5% with one participant not improving (-0.9%). The performance differences could not be accounted for in terms of altered physiological functioning, a phenomenon noted long ago by Wilmore (1970).

The way segments are structured and their content is particularly individual. Differences in segmenting strategies and moderating factors need to be determined to understand this factor more clearly. The anecdotal and goal-theory literature at present is inadequate for fully explaining this phenomenon.

### **Factor 2: Task-Relevant Thought Content**

Performance efficiency is reduced by distraction and enhanced by relevant concentration. There are some minor exceptions to this principle (e.g., cognitive interference), but in tasks performed under stressful circumstances, the focus of attention has to be on the processes for completing the performance to achieve the highest level of outcome (Jones & Hardy, 1989).

This is particularly true in sports. Cognitive concepts such as "attentional focus," "concentration," and "flow" are characterized by a singular task-orientation, although that orientation varies according to the stage and type of activity.

"The focus on task-relevant information is intended to ensure that all resources available to an athlete in a competition are used fully and in

the most efficient manner possible" (Rushall, 1995, p. 8.13).

While task-relevant concentration might seem to be an obvious characteristic of performance control, it is surprising how few athletes develop it effectively through normal training experiences. Training seems to develop a form of habitual/practice thinking that does not transfer effective benefits to competitive settings.

Intraparticipant alternating-treatments designs have been used to compare "normal/habitual" thinking with sport-specific task-relevant thinking that has been individualized to the participant. The experimental variable in this paradigm is confounded between individuality and task-specificity.

Some studies have introduced other unrelated thinking conditions (e.g., Chorkawy, 1982; Ford, 1982; McKinnon, 1985) for further comparisons. Group designs (Crossman, 1977; Selkirk, 1980) do not demonstrate effects as well as single-participant experiments.

Task-relevant thinking appears more consistent in influence the higher the standard of the athlete:

- \*Canadian elite rowers (N = 5) improved an average of 3.5% on an ergometer task (Rushall, 1984b).
- \*Canadian national team cross-country skiers improved an average of 1.96% over a training track lap (Rushall, Hall, Roux, Sasseville, & Rushall, 1988).
- Norwegian junior national team cross-country skiers improved an average of 2.5% using both skating and classical techniques over a training track lap (Kristiansen, 1992).

A common feature of these studies was the opportunity for the athletes to individualize the content and nature of their thoughts after receiving instructions. That feature may be a very significant moderating variable.

The normal/habitual thinking developed through training and coaching is far from optimal in its effect on performance. Even though coaches commonly claim to teach and stress "technique," it was only after instructions and practice to use self- and activity-specific detailed content that performances improved.

### **Factor 3: Positive Self-Statements (Thinking)**

Positive thinking is the covert utterance of positive self-statements. Taylor's work (1979) showed that under a positive mental orientation, the body's physiology performs more efficiently than when under an aversive or negative mind-set

(see also Schuele & Wisenfeld, 1983; Vera, Vila, & Godoy, 1994).

Positive self-talk is also related to factors associated with improved performance, such as coping (Girodo & Roehl, 1978), self-concept (Smit, 1992), and self-efficacy (Weiss, Wiese, & Klint, 1989).

Dalton, Maier, and Posavac (1977) reported the direct effect of negative thoughts on swimming performance. Among 24 junior tennis players during tournament matches it was found that negative self-talk was associated with losing, and players who used and reported believing in the utility of positive self-talk won more points than players who did not (Van Raalte, Brewer, Rivera, & Petitpas, 1994).

Positive self-talk was an important part of a game strategy for improving basketball performance (Kendall, Hrycaiko, Martin, & Kendall, 1990), for learning compulsory figures in ice-skating (Ming, 1993), and for increasing the number of games won from deuce-point in a tennis player (Desiderato & Miller, 1979).

Intraparticipant investigations on the effect of positive self-talk on performance in a variety of settings produced results similar to those of task-relevant thinking:

- Canadian rowers improved from 1.21-2.20% on an evaluative ergometer task (Rushall, 1984b).
- A wide range of Norwegian cross-country skiers improved an average of 3.63% over a test distance (Holingén & Vikander, 1987).
- Superior Canadian age-group swimmers improved from 1.39-2.13% over two distances (Rushall & Shewchuk, 1989).

An emphasis on positive self-talk while performing a task enhances performance. This further supports the inadequacy of habitual sport thinking for provoking an optimal training or competitive response. Self-talk is an individual skill that needs to be practiced before it is evaluated for influence.

The general level of effect is marginally less than that of task-relevant thinking, but that is not surprising considering it usually does not entertain direct effects on skill economy. Rather, it sets the "atmosphere" for efficient physiological functioning which then has to be translated into efficient movement patterns.

There are certain characteristics of positive self-talk which are recommended for use in practical situations (Rushall, 1995). Positive self-

statements should not be trivial, cheerleader-type expressions (e.g., "go, go, go," "let's do it now").

Four appropriate uses in competitions are: (a) encouraging oneself, (b) handling effort, (c) evaluating segment goals, and (d) general positive self-talk to maintain atmosphere. It should be spread throughout a strategy. It could be most effective when second-person phrasing is used (e.g., "you," "your"), which produces a perception of control over oneself. The dynamics of positive self-talk in sport settings need to be delineated further.

#### **Factor 4: Mood Words**

Another form of covert vocabulary involves particular words that emote or energize the individual. Language has basic words which, when said or thought with appropriate feeling and emphasis, have some movement or emotional outcome.

They cause a physical reaction in the body. Some languages/cultures use these words more frequently (e.g., Italian, Arabic) than others (e.g., English). Performing artists frequently use simple words emoted in a particular way to promote a behavior that expresses a mood. Mood words require no translation. The expressive thinking of words should produce a feeling appropriate for some performance capacity. If a feeling does not occur, then the content is inappropriate and will be ineffectual.

Mood words can reflect various performance capacities. Typically, a list of monosyllabic synonyms for strength, power (force), speed, agility, balance, and endurance are presented to an athlete. The athlete selects from the lists, or augments personal words that have a similar meaning, the capacities and words that are meaningful to him or her.

Those words are then inserted into a performance strategy at the time and during the appropriate task-relevant thoughts when they will be most effective. For example, a rower taking the catch in a stroke might think "BOOM" as a way of elevating the power of that part of the stroke. Rowers have reported that this does increase performance over thinking normally or imaging what is intended. That talk is more effective than imagery during performance has been reported (Oei & Barber, 1989).

Mood words of this type increase the effectiveness of thinking. When one wants to be powerful, thinking words that make one feel powerful will increase the actions of power. Rushall (1984a) reported unpublished data on a grip-strength test with four Canadian rowers.

Three thought-content conditions were used: (a) normal thought content as a control, (b) the utterance of a phrase that had the correct meaning but was unrelated to the emotional state needed to be strong (e.g., the words "exert force"), and (c) the utterance of mood words, such as "crush," "grind," etc., of the athletes' choosing.

All athletes recorded the strongest grip under the emotive mood word condition. Mood words enhance performance marginally better than either task-relevant content or positive self-statements (Holingén & Vikander, 1987; Kristiansen, 1992; Rushall, 1984b; Rushall et al., 1988; Rushall & Shewchuck, 1989).

### **Closure**

Task-relevant content, positive self-statements, and mood words presently are perceived to be the structures that should be employed as thought content during a segmented competitive performance. They should be integrated into a meaningful dialogue by each athlete, and practiced, performed, and evaluated for effect and possible improvement.

Their inclusion in training programs is not difficult, and practice could constitute "sporting homework" in a fashion that is not possible with other performance factors. The magnitudes of the performance enhancements reported in controlled research settings with high-level athletes makes the use of thought-content skills an imperative for athletes wishing to maximize their performance and for coaches seeking to optimize their effectiveness.

These four psychological determinants of performance produced enhancements and alterations in a large number of the studies and participants considered. Performance improvements occurred without any notable extra perceived exertion (Chorkawy, 1982; Ford, 1982; McKinnon, 1985), increase in direct measurements of physiological parameters (Kristiansen, 1992; Morgan, Horstman, Cymerman, & Stokes, 1983; Rushall et al., 1988; Wilmore, 1970), or other increased thought dynamics, such as the degree of concentration or "trying harder" (Chorkawy, 1982; Ford, 1982; McKinnon, 1985).

These mental activities are a "painless" avenue for assisting athletes to improve. When athletes are exposed to these skills and evaluate their effects they are particularly enthusiastic about their value and use.

Psychology offers many performance determinants, only a few being addressed here. It needs to be recognized that psychology becomes

more important, the higher the standard of competitor. It has been reported that psychological factors are better discriminators of high-level performance capacity than physiological measures (McDonald, 1984). For example, Silva, Shultz, Haslam, Martin, and Murray (1985) found that psychological variables discriminated Olympic wrestling team qualifiers from nonqualifiers better than physiological variables.

Psychology has a major role to play in determining the levels of performance achieved in competitive settings. Athletes should be appraised of the techniques and provided practice opportunities for their implementation as part of the evolving professions of coaching and sport psychology.

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**ABOUT THE AUTHOR:** Brent S. Rushall, PhD, RPsy, is professor of exercise and nutritional sciences at San Diego State University. An Australian who has taught in Australia, Canada, and the U.S., Dr. Rushall was the first student to graduate with the DPE (honors) degree from Sydney Teachers College and the first student to

graduate with a PhD degree in human performance from Indiana University. Among his many distinctions, he started the first postgraduate degree in the study of the theory of coaching in the Western world, and is recognized as the founding scholar in the field of behavioral sport psychology and as a world authority in coaching science. Dr. Rushall has written 74 books and technical manuals and has published more than 380 articles, book chapters, and sport psychology tests. A featured keynote speaker at many world and international congresses and symposia around the world, Rushall is also a four-time Olympic Team psychologist for Canada (for the sports of wrestling, swimming, ski-jumping, and cross-country skiing) and the first sport psychologist to be appointed to a Canadian Olympic Team and to become a member of the Olympic Club of Canada. He has represented Canada and the U.S. at Olympic Games, Commonwealth Games, World Championships, and World Cup events in a number of sports. In addition, he has consulted with over 80 international organizations in the fields of sport psychology, coaching science, coaching education, and systems design, and has coached world-record holders and served as psychologist to some of the world's best athletes.

