Peak Performance: A Literature Review

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Introduction

Achieving peak performance is the primary goal of most athletes. Coaches too, are constantly striving to help their athletes reach their potential and achieve peak performance. Interestingly, although the field of sport psychology has focused almost exclusively on peak performance in athletes, it is a common concern and goal for musicians, actors / performers, academics and business people as well. Thus, the topic has wide-ranging implications for our society.

In this paper, I will provide an overview of the peak performance concept and the definitions of peak performance. Then I will critically appraise the research literature investigating the psychological experiences in peak performance states, and the psychological skills involved in achieving peak performance.

An Overview of Peak Performance

Peak performance is a state that is also known as peak experience, the zone of optimal functioning and flow. It refers to a moment when an individual puts it all together, when they are in the zone, when everything flows, and when they achieve an exceptional performance. Peak performance has been said to be the ultimate high that can be reached in human performance (Privette, 1983), and described as the prototype of the superior use of human potential (Jackson & Roberts, 1992). Unfortunately, they are also rare and may be involuntary (Williams & Krane, 1993). The literature investigating peak performance is somewhat limited, perhaps because of the rarity of the moment and, therefore, the difficulty in studying the phenomenon.

Although the concepts of peak experience and peak performance are often referred to synonymously in the research, it is important to distinguish between them to avoid misunderstanding the construct of peak performance. Therefore the distinction between peak experience and performance that Privette and Bundrick (1991) made will be employed in this paper. These authors suggested that peak performance and peak experience are positive extremes of performance and feeling, respectively. Peak experience, they said, describes the upper limits of joy and positive feeling, whereas peak performance involves optimal functioning. Thus, peak experience and peak performance are not mutually exclusive, but are described as being separate.

The Definitions of Peak Performance

Several definitions of peak performance appear in the literature. Maslow (1968) originally introduced the concept to explain when an individual experiences feelings of total unity, inner strength, and wholeness of being in his context of the hierarchy of needs. Peak performance has also been defined as a state of superior functioning whose characteristics are clearly focused attention, lack of concern with outcome, effortless performance, perception of time slowing down, and a feeling of supreme confidence (Brewer, Van Raalte, Linder, & Van Raalte, 1991).

Further, Privette (1983) defined peak performance as behaviour which exceeds one's average performance, or an episode of superior functioning.

All the definitions of peak performance that were found in this review of the literature were consistent in their suggestion that peak performance involves a state of optimal or exceptional functioning. Thus, I propose that a synthesis of the various definitions of peak performance would yield the following definition:

Peak performance is a state of exceptional functioning.

This definition was chosen because it does not include the characteristics of peak performance, but seeks to explain the phenomenon in terms of its extraordinary nature. An examination of the characteristics of peak performance, however, may allow for the development of a better understanding of the concept.

The Characteristics of Peak Performance

Several authors have examined the psychological characteristics present during peak performance states. These results were usually obtained by asking athletes to recollect their experiences, perceptions, and feelings during exceptional moments in sport. The results of the studies are presented in Table 1.

A number of characteristics seemed to be reported by most of the athletes in all of the studies. When, I noted how many of the studies presented each of the characteristics, some interesting trends emerged. Feelings of being in complete control were reported in all of the studies. Three of the 4 studies indicated that the athletes experienced effortless / automatic performances, a narrow focus of attention, being relaxed, feeling confident, and not having a fear of failure during their most exceptional moment in sport. These characteristics were present most consistently in the results of the 4 papers. Of course, this is not a scientific method of determining which responses were the most popular, only a means of determining the consistency with which a particular characteristic is reported in the literature.

Additionally, the psychological construct, flow, has often been associated with peak performance. Hogg (1995b) described flow as an optimal mental state that involves total absorption in the task or activity, which is characterized by a sense of self, full focus, complete involvement, a loss of personal ego, and total confidence. Earlier definitions of flow suggested that it was the state in which people are so involved in an activity that nothing else seems to matter (Csikszentmihalyi, 1990). Flow may be the basis for intrinsically motivated experiences (Csikszentmihalyi, 1985) or a precursor for the psychological process underlying peak performance (Jackson, 1988). Jackson (1991) also noted that athletes' descriptions of peak performance coincided with those characteristics of flow. Flow may be required as a foundation upon which peak performance may occur, but it is not the same as peak performance, that is, you can experience flow but not peak performance.

Based upon the studies reviewed, the most consistently reported psychological characteristics of peak performance include feeling completely in control, relaxed, and confident, and having a

narrow focus of attention and no fear of failure. When the results are presented in this manner, one begins to doubt if achieving peak performance is involuntary. Each of the above characteristics may be developed during training by using physiological or psychological techniques. Perhaps, then, the rarity of peak performance is due to the lack of specific mental training that is implemented in typical programs. An examination of the differences between high and lower performers may shed some light on this consideration.

The Reported Psychological Differences Between Highly Successful and Less Successful Athletes

Additional research concerning peak performance has been focused on the psychological differences between successful and less successful athletes. The results from 6 studies that investigated this topic are presented in Table 2. The data reported in these studies was obtained using objective psychological inventories that were completed by the athletes.

The following psychological characteristics of higher performers were reported most consistently in the research. All of the 6 studies in this part of the review suggested that higher self-confidence was a distinguishing factor between highly successful and less successful athletes. Other characteristics that were reported include; (a) used internal imagery more (reported in 5 of the 6 papers); (b) had lower anxiety / used anxiety control techniques more (reported in 4 of the 6 papers); (c) used positive self-talk more (reported in 3 of the 6 papers); and (d) were more focused and/or had better concentration (reported in 3 of the 6 papers). The research in this area examined sports that involve closed skills (e.g., diving) and open skills (e.g., wrestling), and the results were similar in both cases.

Researchers have also examined the psychological skills utilized by successful elite athletes. In interviews with 75 Olympians, Orlick and Partington (1988) found that the best athletes consistently utilized several skills. Their study employed a research design that included the use of a standardized interview guide, as well as a sub-sample of interview transcripts that were sent back to the athletes to be sure that they accurately represented their accounts. The common elements of success they found for all the highest performing athletes included quality training, clear daily goals, daily use of internal imagery, and systematic mental preparation for competition.

These authors also analyzed results from a questionnaire that was given to 160 Olympians and determined that there were strong statistical links between mental skills and Olympic performance outcome. They found that stepwise linear regression of readiness variables (physical, technical, and mental) indicated that mental readiness was the highest significant predictor of Olympic percentile rank (r=.40, p<.0001). Other results indicated that 99% of the athletes used mental imagery as a preparation strategy. On average, the athletes reported using preplanned systematic performance imagery at least once a day, 4 days per week, for about 12 minutes each time. Athletes' focus of attention prior to and during competition was also reported to be a significant predictor of Olympic percentile ranking. Results suggested that attentional focus prior to the event was an important predictor of performance success in male athletes, whereas focus during the event was more important for females. These authors synthesized their research findings from qualitative and quantitative analyses into the following conclusions:

1. Mental readiness is an extremely important factor influencing athlete's performance.
2. A large percentage of Olympic athletes did not perform up to their potential at the Olympics because they were not prepared for the distractions they faced.
3. Mental readying is derived from a number of learned mental skills that must be continually practiced and refined for athletes to perform up to their potential on a consistent basis.
4. Attentional focus and the quality of performance imagery were the most statistically significant athlete skills directly related to high level of performance at the Olympics.
5. Several common elements of success included total commitment to excellence, quality training, daily goal setting, quality of practice, quality mental preparation, and internal imagery.

Orlick and Partington's (1988) results were corroborated when research on the psychological skills utilized by successful athletes was analyzed in chart form (see Table 3). The results from several studies indicated that the most common mental practice elite athletes employed was attentional and focus skills (reported in 4 of the 4 papers that were reviewed), followed by daily internal imagery, emotion control skills, competition simulation (reported in 3 of 4 papers), and relaxation techniques, positive self-talk, goal setting and a commitment to excellence (reported in 2 of 4 papers).

Thus, the research suggests that certain skills and characteristics are consistently present in high performance athletes. This consistent skill and characteristic set may allow these elite athletes to achieve a state of peak performance most consistently and when it counts the most (i.e., the Olympic Games). These findings support my contention that peak performance is not involuntary, but is the result of the convergence of skills, characteristics, and situational demands and opportunities.

Achieving Peak Performance – How Does One Get There?

Several researchers have already addressed the question of how one can create the peak performance state.

Mahoney and Avener (1977), for example, suggested that athletes who dealt more readily with mistakes, showed greater anxiety coping skills, possessed higher levels of self-confidence, engaged in positive self-talk, and were able to employ mental imagery to their advantage were more likely to have experienced a peak performance state.

A further investigation of literature examining self-confidence raises some interesting points. Self-confidence may influence peoples' perceptions of performance ability. For example, Males and Kerr (1996) found that those athletes with higher self-confidence tended to perceive their anxiety as positive and facilitative of a good performance, whereas those with lower self-confidence thought of anxiety as debilitative. This conclusion may be specific to athletes, however. Since anxiety produces the stress response described by Selye (1979), an increased release of fight or flight hormones would prepare many types of athletes to perform. These hormones probably are not needed by the general population for performance of daily tasks.

Athletes may notice increased heart rate, muscular tension, and nervousness and use these changes as cues to apply their coping techniques. In addition to coping, labelling these responses positively may help athletes achieve optimal performance (Kerr & Leith, 1993). Examples of some specific techniques that may help with this relabelling include developing productive thoughts, mental images, and self-statements (Kerr & Leith, 1993).

Loehr (1977) proposed a number of factors that could trigger an increase in the probability of a peak performance. They included high energy (challenge, inspiration, determination, intensity), fun and enjoyment, no pressure (low anxiety), optimism and positiveness, mental calmness, confidence, being very focused, and being in control. However, his hypothesis was never tested, and therefore, has limitations.

Goal setting has also been shown to influence performance. Several studies indicated that the goals that result in the highest level of performance are those that are specific and challenging (Theodorakis, 1995). According to Lazarus (1988), stressors that are appraised as challenging are eustressors (positive stressors). Therefore, setting challenging goals may elicit a eustress response and an increase in performance. Easy goals are likely to result in a lack of effort, and unrealistic goals would likely result in failure and a lack of motivation (Weinberg, Burton, Yukelson & Weigand, 1993).

Locke and Latham (1989) cited 11 studies as showing that self-efficacy influences the level of difficulty of goals that athletes set (Theodorakis, 1995) as well as positively affects performance (Treasure, Monson, & Lox, 1996). Bandura and Garden (1991) explained this relationship more clearly. They stated that the higher the self-efficacy, the more past successes, and the more challenging the goals that are set (Theodorakis, 1995). Bandura and Garden indicated that self-efficacy influences performance both directly and indirectly through cognition and emotions (as cited in Treasure et al., 1996). They continue by saying that high levels of self-efficacy and challenging goals activate positive self-evaluation, which could result in the perception of peak performance. Self-efficacy, which Bandura (as cited in Treasure et al., 1996) described as the belief that one has in one's capabilities to engage successfully in a course of action sufficient to satisfy the situational demand, may also directly facilitate peak performance. Treasure et al. explained this by stating that the way individuals think about their abilities to accomplish a task may influence their response to the environmental conditions that, in turn, may increase the likelihood of their performing at the limit of their capabilities. Self-efficacy is also influenced by past performance, with successful previous attempts positively influencing self-efficacy (Theodorakis, 1995).

Eklund (1991) suggested that changes in confidence may affect levels of performance. He found that (a) low self-confidence and self-doubts accompanied low levels of performance, (b) low confidence and / or self-doubts accompanied moderate performance, and (c) high-level performance was accompanied by high and consistent self-confidence.

Hogg (1995) suggested that when athletes' totally focus their energies, they will begin to experience peak concentration, which would then lead them to a state of flow. It is in this state that Hogg believes that lifetime best performances occur. However in the state of total concentration and flow, the athletes need to become totally aware of themselves in order to lose

all conscious self-awareness while in the act of performance. Obviously this is where problems with over-thinking and the loss of peak performance occur.

Flow may be an underlying element in the development of peak performance states. Csikzsentmihalyi (1975) posited the original definition of flow as an autotelic state of consciousness when people are engaged in an activity they enjoy and when they are functioning at their fullest capacity. He further suggested that flow involves the centering of attention, total immersion in the activity, clear demands for action, unambiguous feedback, merging of action and awareness, feelings of being in control, and intrinsic rewards. Csikzsentmihalyi believed that flow occurs when there is a perceived balance between one's competencies and the demands of a task. It is this balance between ability and demand that may free athletes from concerns about the outcome, and enable them to immerse themselves totally in the activity, which brings about the potential for human performance (Csikzsentmihalyi, 1975). Csikzsentmihalyi (1975) observed that two critical elements may contribute to the creation of flow in an individual. They are perception of ability and challenge. He suggested that flow is more likely to arise when individuals perceive that their ability is sufficient to meet the challenge of achieving a goal or performing a task. Further, he hypothesized that a state of flow is a necessary precursor for athletes who elevate themselves into a state of peak performance, or that athletes are in a state of flow during peak performance.

Since flow may be a necessary precursor to peak performance, factors that may increase the likelihood of athletes' experiencing flow should be investigated. Nicholls (1984) argued that ability can be perceived as the striving to achieve mastery or to demonstrate learning at a task. The goal then becomes to do the best that one can within the achievement situation, not to "win" or defeat an opponent. This is termed mastery orientation. Duda (1989) suggested that athletes with high mastery orientation experience greater intrinsic interest in tasks and are more likely to be performing the task for its own sake. Nicholls hypothesized that individuals with high mastery orientation are more likely to display the components of flow and, thus, may be more likely to experience the flow state (Nicholls, 1989). When Jackson and Roberts (1992) tested these hypotheses they found a positive association between mastery orientation and flow, and between high-perceived ability and flow. Those athletes with high mastery orientation experienced flow more often than athletes low in mastery orientation, and athletes with high-perceived ability experienced flow more often than athletes low in perceived ability. Further analysis by Jackson and Roberts indicated that flow is experienced to a greater degree during the athletes' best performance than when they normally compete. However, only 114 of the 220 athletes interviewed mentioned components of flow in their descriptions of their best ever performances, which suggests that these states, while related, are probably not one and the same.

Limitations of the Peak Performance Research

There are several limitations to the literature investigating peak performance. The first is the assumption that psychological differences between successful and less successful athletes were critical to the performance outcome. The research in this area has not established a cause and effect relationship, only a correlational relationship. Heyman (1982) observed that these psychological differences may not have contributed to the performance outcome as much as they reflected previous experience and successes. The peak performance experience is an exceptional

one that is often associated with best ever performances and usually results in a favourable perception of the event. Consequently, may be possible that the subjects' recollections of the event may have been influenced by the perceived outcome. Brewer et al. (1991) demonstrated that subjects who received positive feedback reported greater focus and confidence than those who received failure feedback.

Conclusions and Future Directions

Researchers to date have documented the psychological characteristics of the peak performance state and the psychological skills and characteristics of peak performers, and have introduced ideas on how to increase the likelihood that one can enter the peak performance state. Unfortunately, this information does not answer the question of exactly how this state is created. Why is peak performance still so elusive? We know the preconditions for peak performance (skills, characteristics, etc.) and we can describe it in some detail, yet it is still not an experience that can be created with any consistency. More research, therefore, is required to determine exactly how this state is created. This research would have to determine which combination of activation, internal and external pressures, technical, physical and mental skills, preparation and readiness, physical and mental relaxation, levels of focus and attention, confidence and many other factors work together to enable individuals to achieve a state of optimal functioning and peak performance. In addition, the physiology of peak performance needs to be examined. For example the hormone levels during a peak performance moment may be a factor that allows an individual to enter into this state. There may be a genetic predisposition for the ability to achieve the feelings associated with peak performance, and this is another area of research which could be investigated.

This review of the literature investigating peak performance has revealed that peak performance may not be as elusive as previously stated. If one looks at each of the characteristics associated with peak performance individually, you can immediately see that these are traits and skills that can be learned and practiced. Thus, it is the conclusion of this author that peak performance is a state that can be entered into through careful training and preparation during a moment of optimal motivation. The information about how to enter into peak performance states and the characteristics of peak performance may have implications for the athletic arena, where the pursuit of peak performance is an ongoing goal, and also may be applied by sport psychologists to other areas such as business (e.g., public speaking, meeting deadlines), the arts (e.g., music or dance performances) and academia (e.g., writing exams or presentations).

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