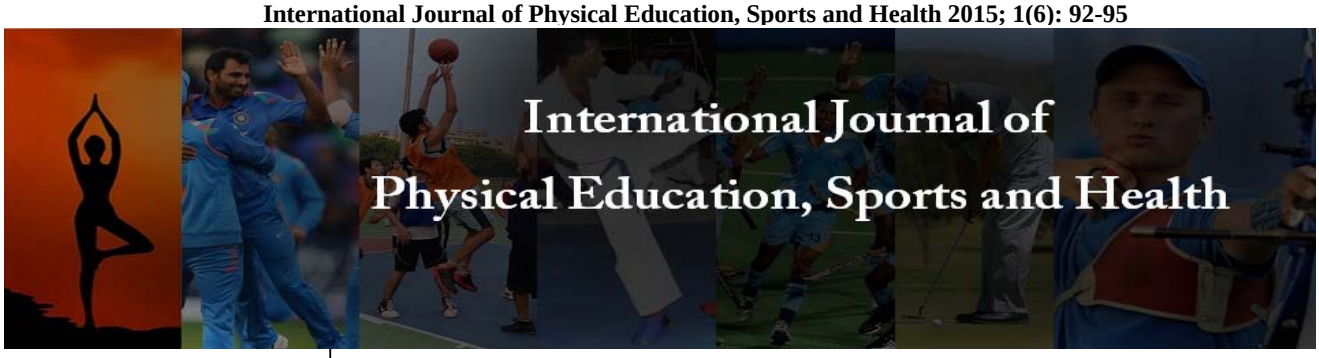

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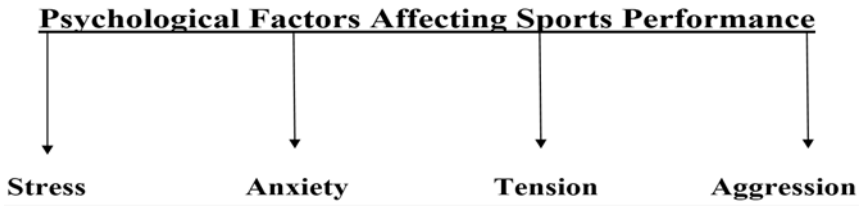
Psychological Factors Affecting Sports Performance

Ashwani Bali

Abstract
Although Psychology preparation is a component that has been often neglected by athletes and coaches alike, studies have shown that mental readiness was felt to be the most significant statistical link with Olympics ranking. Athletes have frequently been quoted to state how the mental aspect is the most important part of one's performance. As Arnold Palmer, a professional golfer suggested that the game is 90% psychological. "The total time spent by the golfer actually swinging and striking the ball during those 72 holes is approximately seven minutes and 30 seconds, leaving 15 hours, 52 minutes and 30 seconds of 'thinking time".
Within the parameters of psychological aspects of athletic performance, it is interesting to note that more than 70 percent questions raised, discussed and debated at the International conferences and seminars on sport psychology pertain to anxiety and aggression as performance to the genre of emotions. They arise under varying sets of circumstances and form a sort of continuum but always moving upward. Their far-reaching consequences for the physical and mental health of the people in general and performing athletes in particular, are an open secret. Stresses result from non-fulfilment of needs; continued stresses create anxieties, and anxiety leads to tension. The residual effect of tension is felt, monitored and evaluated both physiologically and psychologically and is ultimately linked with psychosomatic disorders.

Keywords: Sports Performance, Psychological Factors, Stress, Aggression, Tension.



1. Introduction

Stress

Stress is defined as a physical, mental or emotional, demand, which tends to disturb the homeostasis of the body. It is an everyday part of life; if there were no stresses, we would probably *"dire of boredom"*. Stress is inevitable in life and sport, and all performing actors, artists and athletes perform their tasks with varying stress levels. Used rather loosely, the term may relate to any kind of pressure, be it due to one's job, school work, marriage, illness or death of a loved one. The common denominator in all of these is change. Loss of familiarity breeds this anxiety with any change being viewed as a *"threat"*.

Stress and Sports Performance

Sports performance is not simply a product of physiology (for example stress and fitness) and biomechanical (for example technique factors) but psychological factors also play a crucial role in determining performance. However, every athlete has a certain stress level that is needed to optimize his or her game. That bar depends on factors such as past experiences, coping responses and genetics. Stress during sports, as in anything else in life, may be acute, episodic or chronic. For the most part in sports, it is episodic, whether during a competitive match between friends, or a championship game. While acute stress may actually act as a challenge, if not harnessed, it can evolve to not only an episodic stressor that can affect one in the long term, but can also hamper one's play [12].

How does Stress Affect Performance?

The relationship between stress and performance has been portrayed by the stress response curve created by Nixon P. in 1979. In addition, pressure, an important stressor, has also a crucial influence on an individual's response to stress.

One of the most noticeable effects of stress in one's life is the changes in his performance. While we can easily recognize the consequences of normal or excessive amounts of stress through mere observation, it's best to learn about the scientific relationship between stress and performance [8, 12].

The Stress Response Curve

To better understand the effects of stress to performance, Nixon, P. (1979) created the following graph of the stress performance curve explaining how stress affects performance in theoretical terms.

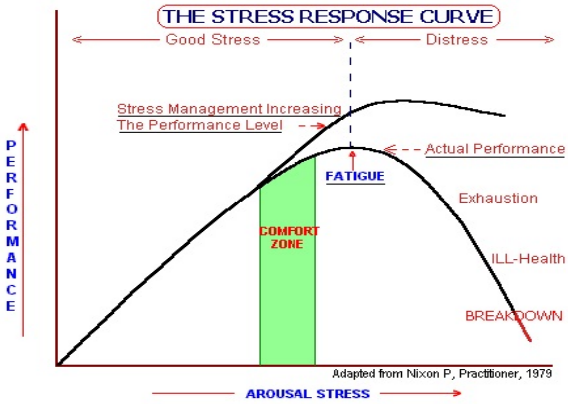


Fig 1: *The Stress Response Curve*

The curve shows that as the level of stress increases, the performance level also increases, to the point of eustress, or healthy tension. Near the point of fatigue, an identified area called the Comfort Zone indicates the range of stress levels that we can absolutely manage and facilitates good performance levels.

As stress begins to be perceived as overwhelming or excessive, the person reaches a fatigue point wherein the performance levels starts to decline. The ultimate end of overwhelming stress, called burnout, can be exhaustion, ill-health or breakdown.

Positive Effects

As shown by the graph, performance levels increase when stress management is effective. Stressors such as pressure and demands can facilitate better stress response and thus, higher levels of performance. For instance, a basketball player tries to run faster, shoot a three-point shot and succeeds in it because of the pressure he has obtained from the audience, the close scores and the tough opponents.

Negative Effects

When stress is perceived as uncontrollable or unmanageable, the person begins to experience a gradual to drastic decrease in performance levels, causing a decline in productivity and enthusiasm to respond to the stress.

For instance, a very tight deadline is given to an office employee who has to take care of her four children at home and a sick mother at the hospital. This overwhelming mix of situations, if not managed carefully and totally, will result to a poor performance at work, bad relationships with other members of the family, ill health, and burnout.

Pressure and Performance

Pressure, one of the significant life stressors, affects performance, as shown by the "Inverted-U" graph below, which was created by Robert Yerkes and John Dodson in 1908.

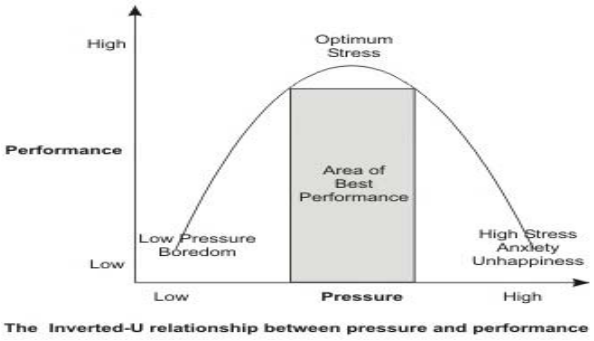


Fig 2: *The Inverted-U Model or the Yerkes-Dodson Law*

Looking at the left side of the graph, you will notice that low pressure or low levels of stress results to s person's stress response as "boredom" or unchallenging. Even if the task is of great important, in the absence of an appropriate level of pressure, attention and concentration to perform the task are significantly low.

On the other hand, extreme levels of pressure doesn't mean high performance levels; rather, it's the same as the result from low pressure – low performance levels due to "unhappiness" or negative feelings due to overwhelming stress.

However, there's a region called the "area of best performance". In this region, moderate pressure resulting to optimum stress or stress that is totally manageable leads to the highest level of performance [9].

Notwithstanding the common coping strategies for effectively managing emotional responses like anxiety, stress, tension, aggression etc., in the athletic context, here are a few simple approaches to tackling of stress:

(a) When stress comes simply as a stimulus causing distraction, modification of the stimulus itself may be sufficient to reduce stress.

(b) Stress as a perception of threat would require the athlete to learn to feel that demands of the situation are not difficult for him/her to meet.

(c) In situation where stress becomes an illogical perception of a threat, the coach must make efforts to change the athlete's thinking and ward of illogical fears.

(d) In case of stress as an anticipated negative consequence, the performer needs to overly rehearse the behaviour (routine) to the point at success is more likely to occur, and expectation of failure corresponding to decrease.

(e) Where stress occurs as a tension response, deep muscle relaxation technique or biofeedback acts as the best strategy.

(f) If stress comes as an important negative consequence, the athlete must be made to realize the importance of and increase (chances of) success and minimize failure by rationalizing his thinking about the level and importance of competition [4, 12].

In nutshell, in dealing with stress as a process objective, external circumstances are perceived and interpreted by the athlete, thus leading to responses, the consequence of which may lead to changing the external situation and/ or modifying the athlete's perception of these external circumstances.

Anxiety

Anxiety means a disturbed state of mind, emotional reactivity; arousal; nervousness; and unrealistic and unpleasant state of mind. Anxiety is an essential ingredient of any competitive situation and without certain level of anxiety, there cannot be competitive performance. Neither too high, nor too low level of anxiety is conductive to sports performance. Adequate level of anxiety produces best results. Unless sports persons learn to cope up with stressful competitive situations by managing anxiety, they would fail to achieve their goal.

Anxiety has both psychological and physiological implications in sport performance. For example, once aroused, it raises the general arousal level of the player to such an extent that he finds it hard to concentrate on his game due to constant bombardment on his nervous system and his inability to diffuse tension caused by rising anxiety level. The ability of the player to monitor and judge situations correctly is reduced. His information-processing mechanism gets over stressed resulting either in wrong or slow response even to emergent situations. Under such a condition, the player is not focused-he wishes to do on thing but does something else. He loses control over his body and mind.

The relationship between anxiety and athletic performance has been a subject of various theories sprung up from time; for example drive theory in 1943, and inverted U-hypothesis or optimal arousal level in 1962. The latter was formed on the notion that there is an optimal amount of arousal that an athlete will perform at. However, if that level of arousal is passed then the level of performance will decrease. The same thing happens when the level of arousal is lower than the optimal level. Though this hypothesis has had much support for many years, it too has fallen out of favour due to its oversimplification on a subject as complex as brain and behaviour [9, 3, 12].

How to Prevent Anxiety in Sports Performance

1. Diaphragmatic Breathing

The diaphragm is a muscle between the chest and the stomach cavity. The breathing done by contracting this muscle is known as diaphragmatic breathing. It requires simple practice to learn and then it should be repeated several times daily. The link will guide you to learn the technique.

2. Relaxation Technique

When the athlete feels the symptoms of anxiety such as increased heart rate, increased blood pressure or difficult breathing, a relaxation technique can help in controlling the anxiety. In one relaxation technique, the athlete is asked to lie down in a darkened room and think about relaxing his body from the outside inward. As a result, the blood pressure, breathing and hearth rate normalizes. If the anxiety attack is more severe, then massaging the body can relax the individual to a great extent.

3. Visualization

Visualization is a technique, used by the athletes to control their anxiety. In this technique one visualizes himself in a situation similar to the actual event. The athlete visualizes himself winning in front of the entire crowd where the event is to take place. Below are more ways you can use visualization to combat performance anxiety.

(a) ***Visualizing Yourself***

This is one of the exercises of visualization in which athlete visualizes themselves. The athlete is asked to visualize every physical aspect of their body with their eyes closed. While visualizing the body, the athlete tells himself that each of these body parts is fine and in good working condition.

(b) ***Visualizing Your Game***

Another exercise requires the athlete to visualize the actual sport they are to play. The athlete visualizes the events starting from the preparations before going onto the field and the first move, and finally the victory.

(c) ***Visualizing Your Opponents***

So far, you have visualized yourself and your game. In this exercise the athlete is now required to imagine how he sees his opponent playing. While visualizing his opponent's moves, he is supposed to tell himself that his moves are better than his opponent, and visualize how he should combat his opponents' moves.

4. Muscle Relaxation

Anxiety results in stiffness of the muscles. Muscle relaxing practices are done to avoid this happening during the actual game. In this technique, the athlete tenses a particular muscle of the leg, abdomen, hands or face for 10 seconds with the eyes closed. After 10 seconds of tension, 20 seconds of relaxation should be practiced before moving to the next muscle.

5. ***Focusing on What Can Be Controlled***

Athletes should remind themselves that they are better trained, they have developed better techniques, but should not try to control things that are not in their control such as the audience or the opponent.

An overview of the results of research on anxiety with elite athletes as subjects of study makes an interesting reading, even though the conclusions are at great variance across sports:

(a) Athletes (especially gymnasts, track & field athletes, basketball, and tennis players) who interpreted their anxiety as harmful had higher intensity of anxiety than those who reported it as being an aid.
(b) The more experienced athletes were found to have lower level of cognitive anxiety. This makes some sense because as an athlete gains experience (especially while playing competitive fixtures), he or she learns tricks of the game and knows how to manage stress.
(c) The level of confidence and that of anxiety is said to be closely related. The higher an athlete's confidence, the less he or she will feel anxious about the competition (and its outcomes) because they know they are ready to take the bull by the horn. Likewise, an over-anxious athlete exhibits sign of self-doubt.

Athletes who are made to practice, as also compete, under high anxiety conditions, are better able to manage their anxiety and keep its level optimal, which is conductive to top performance.

Tension

As already hinted at, tension is that state of body and mind, which results from the internal and/or forces acting in opposition to each other such in emotional reactions like anger or fear. In one sense, tension may refer to the residual effect of mental or emotional strain reflected in a person's appearance and/or behaviour; in another sense, it means tonus-a state of partial contraction when muscles are not actively working. Excessive tonus is called tension, which may result from excessive stimulation or from strains and stresses upon the organism. This kind of tension is not as harmful as kind of

tension which arises from a state of persistent unsatisfied wants and desires. Physiologically and psychologically as long as a person's wants are unsatisfied he remains in a state of tension [5, 12].

Tension Regulating Skills

An athlete's tension level in a particular competition generally consists of two parts:

1. his basic tension level (i.e. the average tension level when awake, in other words, the activation level);
2. and the situation rise in tension due to competition (i.e. competition fever equivalent of examination fever).

There seems to be a positive correlation between 1 and 2. A high level of basic tension will easily cause an athlete to choke under the perceived impact of impending competition or during a critical part of the competition. The Inverted-U model is often used to describe the influence of activation, arousal and tension on performance. The model says that an athletic performance will lose in quality if the tension level is either very low or very high, however the optimal level of activation arousal, tension and motivation is the one at which an athlete performs at his/her best or close to his/her maximum. This optimal level varies from athlete to athlete and in the same athlete from time to time depending upon the sport, how well learned it is (automatization) and on the interpretation of bodily arousal (fight/fight). However, this ideal level is difficult to measure in an objective way expect the athlete or the coach identifying and analyzing feelings, moods and mind states [2, 8, 12].

Aggression

Aggression, in its broadest sense, is behaviour, or a disposition, that is forceful, hostile or attacking. It may occur either in retaliation or without provocation. In narrower definitions that are used in social and behavioural sciences, aggression is an intention to cause harm or an act intended to increase relative social dominance. Predatory or defensive behaviour between members of different species may not be considered aggression in the same sense. Aggression can take a variety of forms and can be physical or be communicated verbally or non-verbally. Aggression differs from what is commonly called assertiveness, although the terms are often used interchangeably among laypeople, e.g. an aggressive salesperson.

Aggression is defined as threats or harmful actions directed toward another individual and can include threat displays, lunging, growling, snarling snapping and biting. In animals, aggressive behaviors are a means of communication. Dogs and cats use aggressive displays, threats and attacks to resolve competitive disputes over resources (territory, food) or to increase their reproductive potential, or to escape threatening situations. "Aggression" describes the behavior, but does not give any information about underlying motives or causes. Aggression can have multiple motivations [6, 7, 12].

Aggression in Sports

There are three major viewpoints (theories) seeking to explain violent aggression in sports:

(a) The *biological theory*, proposed by Konrad Lorenz, sees aggression as a basic, inherent human characteristic. Within this context, sport is seen as a socially acceptable way to discharge built-up aggression, a safety valve.

(b) The *psychological theory* states that aggression is caused by frustration; it is situational. Frustration results when one's efforts to reach a particular goal are blocked. In sports, frustration can be caused by questionable calls by officials, failure to make a particular play, injuries that interfere with optimum performance, heckling from spectators, or taunts by coaches or players.

(c) The *social learning theory* has received the most empirical verification and maintains that aggression behaviour is learned through modeling and reinforced by rewards and punishments. Young athletes take sports heroes as role models and imitate their behaviour. Parents, coaches and teammates are also models who may demonstrate support for an aggressive style of play.

For managing or controlling stress, anxiety, tension and aggression a variety of coping skills, strategies and intervention techniques such as behavioral modification, positive reinforcement, mental imagery, visualization, relaxation, cognitive strategies, muscular and mental relaxation, behavioral modification, visualization, Zen meditation, imagery skill training, goal-setting, positive self-talk, pep-talks, hot baths, desensitization, inner mental training etc., have been suggested in literature [6, 7, 8, 12].

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