

STRESS AND THE PREDISPOSITION TO SPORT INJURIES[†]

HEIN HELGO SCHOMER, B.A. (Hons.), M.A. (Psychology)*

SUMMARY

Stressful experiences like accidents and close misses produce distinct emotional responses in those going through them. Short-term stressors of this kind make one appreciate the effects long-term stressors must have on one's capacity to adapt and react appropriately and safely to an ever-changing, demanding environment. Acute trauma and injuries are associated with an increased perception of persistent stressful events. Studies of athletes indicate that the risk of injury increases in direct relationship to the accumulation of challenging life change events which demand radical adaptation and coping behaviours from the individual experiencing them. Life change events are situations the individual interprets as overwhelming, threatening, unsatisfying and contradictory. The impact of life change events on psychological dimensions constitutes no simple process; it is complex and multi-factorial. Implications for the prevention and rehabilitation of sport injuries have to be appraised with this back-drop in mind.

Stress is here to stay. Modern man lives in a dangerous and hostile world in which the unexpected is always likely to occur. Changes happen with ever-increasing speed and for man to survive our species has to be equipped with enormously effective coping strategies. To cope means to keep the mind and body in a state of relative equilibrium, a state of homeostasis. Anything that upsets our capacity to maintain critical variables within acceptable limits (e.g. self-image, esteem, relation to valued goals and objects) can be conceived as psychological stress. The more violent the changes impinging on a person, the longer it takes for the system to return to a homeostatic state. Changes that are perceived as threatening, overpowering, unpleasant or irreversible give the mind/body few chances to return to normal. In such situations stress becomes highly dangerous — people refer to such situations as “the rat race” or “stress of life”.

For long-term stressors there are no simple short-term solutions, no easy instant remedies, whereas short-term stressors are relatively easily dealt with, e.g. should you dislike the “noise” on the radio, you switch it off. For a person to function at an optimum level, mind and body have to act in harmony. When disruptive stimuli occur, the homeostatic system tends to induce corrective actions. When the corrective actions cannot be made because of overload, or turn out to be inadequate, tensions remain and will seek out a channel of escape, e.g. mild neurosis may escalate.

OPSOMMING

Stremmende ondervindings soos ongelukke en noue ontkominge bring duidelike emosionele reaksies voort in diegene wat geraak word. Diesulke kort-termyn spanninge laat mens die effekte van lang-termyn spanninge op 'n persoon se vermoë om aan te pas en toepaslik en veilig te reageer in 'n immer veranderende en veeleisende omgewing, waardeer. Akute trauma en beserings word geassosieer met verhoogde waarneming van aanhoudende, spannende voorvalle. Studies van atlete dui aan dat die risiko van besering in direkte verhouding tot die akkumulatie van uitdagende lewenservarings styg, wat radikale aanpassing en teregkom (coping) gedrag van die individu verg. Lewensveranderende ervarings (gebeurtenisse) is situasies wat die individu as oorweldigend, bedreigend, onbeveiligend en onkenkend vertolk. Die trefkrag van lewensveranderende ervarings op psigologiese dimensies is geen eenvoudige proses nie; dit is kompleks en multifaktories. Implikasies vir die voorkoming en rehabilitasie van sportbeserings moet met hierdie agtergrond in gedagte, waardeer word.

obsessive and depressive states may flourish or a pattern of social drinking may turn into alcoholism. Stress is at its worst when the individual cannot identify its origin and it is not only the sufferer that is affected. Feelings of stress are conveyed to people close to the person concerned. Long-term stressors lie at the root of much of people's unhappiness.

Long-term stress produces enduring symptoms which include, on an escalating scale of severity, general feelings of anxiety, sleeplessness, interpersonal problems, memory failure, phobias, depression and total mental breakdown.

The most widely accepted theory of stress is that of Professor Hans Selye. He introduced the concept of the **general adaptation syndrome** (GAS) (1980) which defines the response of an individual to stress agents. The response follows three stages: firstly there is the **alarm reaction**, the system's initial response to the stressors; this is followed by the **stage of resistance** when the mind/body attempts to deal with the problems precipitated by the stressors; finally the person shifts into the **stage of exhaustion** where the resistances prove inadequate and a mental breakdown or severe physical illness ensues. Human beings are continually engaged in stages one or two in varying degrees during wakefulness. Stage two constitutes what is commonly known as stress itself. An individual's psychological and physiological constitution determines how long he/she remains in this stage; excessive unrelenting demand on an individual's coping strategies propel the system into stage three.

Persons exposed to an environment where they ceaselessly experience challenging events are frequently taken to their limits. Simpler life styles based on largely agriculturally managed economies tend to reduce the stress risk. Cultural factors also play a role as societies vary in what is defined as reasonable and normal in regard to the display of emotions. Where less inhibited displays are the norm, people end up

[†] This paper is based on the talk “The Role of Psychology in the Prevention and Rehabilitation of Sport Injuries” held at the **Symposium — Management of Sport Injuries**, UCT, 17 April 1982, organized by the SA Society of Physiotherapy (Western Province Branch).

* Lecturer and Practical Co-ordinator, Dept. of Psychology, University of Cape Town.

Received 10 May 1982.

less stressed, than those who conform to present a cool exterior to their fellow citizens.

It is widely documented that the onset of illness is significantly associated with an increase in stress (Rahe *et al.* 1964; Holmes and Rahe, 1967). Illness tends to be preceded by an expanding agglomeration of social events that require high energy coping strategies from the individual experiencing them. These social events are perceived as being overpowering, menacing, unsatisfying or conflictual. In such situations the individual is exposed to a high degree of stress.

Bramwell *et al.* (1978) found the same significant association to exist between sport injuries and an increased perception of stressful events: the risk of time-loss injury tends to increase in direct relationship to the accumulation of stressful life events. The study concentrated on university football team members. The following life change events were perceived by the players to demand high energy coping behaviours: death of a spouse or close friend, marriage, divorce, marital separation, job loss, personal injury or illness, change in health of family member, beginning or cessation of formal education etc. On the basis of the number and importance of life change events experienced by the players during the past two years, players were divided into low-risk, moderate-risk and high-risk groups. The players' injury records were then compared with the risk categories. The analysis was based on major time-loss injury only; the criteria being: a player had to miss three or more practices and/or one or more games due to a specific injury. Missing less than three practices or only part of a game reflected minor injury commonly suffered by contact sport participants.

In the low-risk group 30 per cent of the players suffered major time-loss injury; 50 per cent in the moderate-risk group; and 73 per cent in the high-risk group. The higher the risk rating, the higher the percentage injury suffered by the players.

Accumulating life change events, i.e. chronic stress periods, tend to hinder a person's concentration on environmental cues that are crucial to optimal performance. Previously learned adaptive responses fade and are totally blocked under stress. The sport participant's focus of attention is warped by the unconscious tensions within the homeostatic system. Of course one is dealing with a multifactorial process here. Very much depends on the individual's interpretation of the life change events he/she has been experiencing in the recent past. The process involved in the complex interaction of conscious/unconscious accumulations of stressful events are as yet not fully explained. Nevertheless, the message is clear: sport participants experiencing a high degree of chronic stress are at a proportionately higher risk of sustaining injuries.

One cannot hope to eliminate stress completely if one lives a real life in a real world. The only way out would be to lead a vegetable-like existence that never puts the individual in any challenging situation. Under such circumstances life might be secure and safe but also deadly dull. What one has to do is develop dynamic adaptive coping strategies. Instead of avoiding life one can learn how to manage it. The main target of such training would be the systematic desensitization of an individual to stressful events, followed immediately by progressive assertiveness training to face and deal with life change events when they occur, avoiding the advance of chronic stress conditions. Often it is a matter of identifying the origin of a stressful situation. Here the role of a psychologist is obvious, though a trusted friend can sometimes be of help in homing in on the source of conflict generating prolonged states of stress.

A psychologist will inevitably recommend the training in anxiety management techniques to sport participants overtly

negatively affected by stress. Such techniques range from progressive relaxation and biofeedback training to cognitive coping strategies such as stimulus cueing and autogenic phrases (Ziegler, 1978). Their effectiveness is widely acknowledged (Swinn & Richardson, 1971; Hennenhofer & Heil, 1976; Schomer, 1981).

To underestimate the psychological perimeter of sport is a costly exercise. Prevention and treatment of sport injuries does not only happen on a physiological/technical level. The mind is very much in charge.

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Dear Madam,

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Yours sincerely,

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