

POSITIVE STRESS MANAGEMENT IN SPORT THROUGH HYPNOTHERAPY

Dr Pieter JOUBERT (South Afr)

1. INTRODUCTION

The relationship between emotional arousal and athletic performances as well as the related topics of stress and anxiety, has been of central importance throughout the history of sport-psychology (Griffith, 1932; Vealy, 1988; Bird & Cripe, 1986; Copx, 1990; Gill, 1986; Silva & Weinberg, 1984; Williams, 1986).

Psychological stress has robbed more athletes of physical energy, victory and enjoyment in sport than any other factor. Stress can destroy self-confidence by leading athletes to believe they are incompetent. It can deny athletes the joy of demonstrating skills they have mastered through countless hours of practice. Stress is an insidious disease and when sustained, manifests itself in the form of burnout - an affliction not only of athletes but of coaches as well.

Performance anxiety often generated by fear and/or guilt, is the major enemy of athletic success (McCardle, Katch, Katch, 1991). Fear or guilt can also interrupt muscle performance by inducing a greater secretion of adrenaline, which accumulates throughout the body and adversely affects muscle performance (Verny & Kelly, 1981).

Cognitive restructuring techniques have been the treatment of choice for clients interested in improving their athletic performance. The value of hypnosis as one such option in enhancing sport performance has been the subject of considerable debate over the years. It is now understood that hypnosis can be of great value in reducing stress, anxiety and fear if it is correctly utilised in sports; but it can also be a disaster if it is incorrectly applied to the performance realm (Unesthal, 1983).

In this paper it will be explained how athletes can be taught through hypnotherapy to use positive motivation and clear thinking to direct their body's actions and at the same time to minimize stress, anxiety and fear. It will be argued that it is possible through hypnosis to focus on athletes awareness while, seemingly paradoxically, inducing a state of calmness and relaxation.

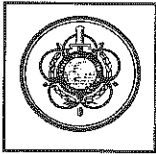
The following topics will be touched upon in this paper:

- a) Stress: What is it; what causes it?
- b) The importance of the mind in sport.
- c) Hypnosis and sport performance.
- d) A strategy for peak performance in sport.

2. STRESS

At the top level in sport, there is very little difference in the skill levels of the participants and the major factor likely to distinguish the winner from the loser is the ability to cope with psychological pressure. Take golf for example, in which all the players in the top twenty, say, are very much on a "par" as far as skill level is concerned. In theory, if skill level is the only factor influencing performance, they should all shoot the same score on each and every round. But they do not. Why does one golfer shoot a three-under-par whilst another, that same day, shoots three-over-par with the intriguing possibility that this situation might be reversed the following day?

Whilst physical conditions, such as the weather and speed of the greens, might be more suited to one golfer than to another on a particular day, it is much more likely that the discrepancy in the two



scores is again due to psychological factors. These factors might include motivation, effort, concentration, confidence and so on, but one consistent and crucial factor is the ability to handle the stress of competition. Today's top-level sports is not only highly competitive, but invariably well covered by the media and the rewards for success (and, conversely, the disappointment associated with failure) are often great. These are clearly factors which are likely to cause stress. In fact one study carried out in America found that elite wrestlers between the ages of 15 and 19 were anxious or worried in 66 per cent of their matches (Jones, 1991, in Bull, 1991).

The sporting world is littered with performers who have enormous potential and perform brilliantly in training but who seldom reproduce this level of performance in competition. The vast majority of individual sports' performers who have approached me for help and advice have experienced problems coping with the pressure of competition and have identified themselves as being too anxious, both before and during performance. These performers have been from a range of sports including athletics, rugby, karate and cricket. Most of them have possessed the physical attributes and skills required to compete at top level, but have needed to acquire appropriate mental skills in order to realise their full potential. Clearly, stress is a crucial factor in sport (Martens, 1987; Bull, 1991).

2.1. THE ORIGIN OF STRESS AND ANXIETY

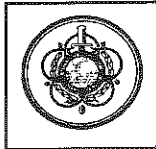
In his most - intriguing book *The Secret Life of the Unborn Child* (1981), Dr Tomas Verny gives a lot of concrete evidence about the existence of pre-birth memories of unborn children. The connection between hypnosis and stress is even significant here in the sense that one was used to identify the existence of the other in the unborn foetus.

According to Verny (1981) recent neurological studies not only prove that consciousness exists in utero, but pinpoint the time it begins. Dr Dominick Purpura, editor of the highly respected journal *Brain Research*, Professor at Albert Einstein Medical College and head of the study section on the brain of the National Institutes of Health, puts the start of awareness in a foetus between the twenty-eight and thirty-second week. By this point, he notes, the brain's neural circuits are just as advanced as a new-born's. This is critical because messages are relayed across the brain and from the brain to various parts of the body through those circuits. At about the same time, the cerebral cortex matures enough to support consciousness. This is equally important, because the cortex is the highest, most complex part of the brain - the part most distinctly human. It is what we use for thinking, feeling and remembering.

A few weeks later, brain-waves become distinct - making it easy to distinguish between the child's sleeping and waking states. Even asleep he is mentally active now. From the thirty-second week on, brain waves tests begin picking up periods of REM sleep, which in adults signify the presence of dream states. And while it is impossible to say whether foetal REMs signify the same thing, if the child does dream, Verny (1981), suspects - apart from the difference in experience - his dreams not to be very different from ours.

According to Verny (1981) the first thin slivers of memory track begin streaking across the foetal brain sometime in the third three months, though exactly when is hard to pinpoint. *There is, however, no question that the unborn child remembers or that he retains his memories* (Verny, 1981).

In his book *Realms of Human Unconscious* (1976), Czechoslovakian psychiatrist Stanislav Grof tells how one man, under hypnosis, portrayed his foetal body very accurately - how large his head was in comparison to his legs and arms - what it felt like to be in warm amniotic fluid, and to be attached to his placenta. Then, while describing his heart sounds and those of his mother, he suddenly broke off midway and announced he could hear muffled noises outside the womb - the laughter and yelling of human voices and the tinny blast of carnival trumpets. Just as suddenly and inexplicably, the man declared he was about to be delivered.



Intrigued by the vividness and detail of his memory, Dr Grof contacted the patient's mother, who not only confirmed the details of her son's story, but added that it was the excitement of a carnival that precipitated his birth. Still, the woman was surprised by Dr Grof's query. She had deliberately kept her visit to the carnival secret all these years because she had been warned by her mother that such a thing might happen if she went. How, she wondered, had the doctor learned of her visit?

Whenever I include this story in a lecture, lay people invariably nod their heads knowingly. The notion that an unborn child remembers strikes them as quite natural. The same is true of foetal consciousness: Most people find it is a perfectly logical idea, especially women, though, is the claim that an unborn child can sense his mother's thoughts and feelings. How, people ask, can a child decode maternal messages that say "love" and "comfort" when he is absolutely no way of knowing what these feelings states mean?

The first glimmerings of an answer to that question came in 1925, when American biologist and psychologist W.B. Cannon demonstrated that fear and anxiety can be biochemically induced by the injection of a group of chemicals¹ called catecholamines, which appear naturally in the blood of fearful animals and humans. In Dr Cannon's experiments, the catecholamines extracted from already frightened animals were injected into a second group of relaxed animals. Within seconds and without provocation, all the calm animals also began acting terrified.

Dr Cannon subsequently discovered that what produced this unusual effect was the catecholamines' ability to act like a circulating fire alarm system. Once in the bloodstream, they produce all the physiological reactions we associate with fear and anxiety. And whether the blood system happens to be in an animal or unborn child makes little difference. The only distinction in the foetus' case is the source of these substances; they come from his mother when she becomes upset. As soon as they pass the placental barrier, they upset him as well.

Strictly speaking, that makes the unborn child's anxiety and fear largely physiological. The direct, immediate and most measurable impact of maternal hormones is on his body, not his mind. But, in the process, these substances do begin prodding him towards a primitive awareness of himself and of the purely *emotional* side of feeling states.

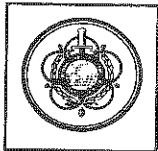
Dr Thomas Verny (1981) argues very succinctly that exposure to excessive amounts of specific maternal hormones produces organically based personality changes in an unborn child; it forms the crux of eventual situations/challenges later in life.

2.2. DEFINING STRESS AND ANXIETY

Although our psychological make-up comprises our thoughts, emotions and behaviour, and how we interact with others, it is clear that the fact that different individuals act differently to external challenges and circumstances can fundamentally be traced back to early life experiences and even pre-birth-experiences. (As will be explained in this paper, this is exactly why hypnotherapy can be such a powerful instrument to alleviate emotional stressors in athletes).

Our psychological make-up exerts major influences on how we ultimately behave (perform) in sports. It follows that control of these psychological variables is essential if we wish to ensure that we can always produce a particular behaviour (winning) (Noakes, 1992).

¹ This group which includes epinephrine, norepinephrine, acts as transmitter within the automatic nervous system.



A first step to understanding how this control is achieved, consider the following diagram:

STIMULUS → RESPONSE (BEHAVIOUR)

This simple diagram indicates that observable behaviour occurs in response to various stimuli. However as mentioned above, the behaviour of different humans to the same response is not always predictable, and alternatively, different stimuli can produce the same response in different people. This is because behaviour is not a simple reflex response to each and every stimulus. A stimulus is processed in the brain and is interpreted in terms of what psychologists call each individual's "belief system" according to the diagram below:

STIMULUS → BELIEF SYSTEM → RESPONSE(BEHAVIOUR)

The belief system is an in-built system that interprets all incoming stimuli and then activates the response that is appropriate for that individual, depending on what the athlete believes about him or herself and the prevailing situation.

Another important concept is that the belief system, although strongly ingrained, is not fixed and is subject to modification. Thus, many athletes who performs less well than they should, do so because they have belief systems that are programmed for failure. The only way such athletes will ever perform up their potential is if their belief system can be successfully reprogrammed; an aspect that will be dealt with later. At present there is a lack of consensus over the meaning of STRESS. I tend to agree with Dr Graham Jones (1991) and Tim Noakes (1992) that the *interactionist* approach currently represents the most popular and accepted approach to stress in sport psychology. The interactionist position states that an individual's emotional response, or "affective experience" as it is referred to in Figure 1, is the result of an interaction between the individual and the environment. Stress is therefore a stimulus which is present in the form of demands placed upon the individual by the environment. A crucial component in the equation is the individual's thought processes or cognitive appraisal of the stressor which forms a mediator between the stimulus and the response.

Competition, for example, is one such stressor. Whether the competitive environment causes an anxiety response depends upon sports performer's appraisal of their ability to meet the demands of the situation. Because this appraisal is so important, it should be clear that what causes anxiety in one person may not in another. What is very evident from interview with athletes was that stress was not necessarily always perceived as a negative phenomenon: on the contrary, several of the athletes reported that stress could be a very positive factor. In fact, they stated that they tried to perceive or appraise the stress of competition in a positive way. So, according to the model depicted in Figure 1, the stress of competition can be perceived in two different ways -negatively, leading to anxiety and (negative) stress symptoms, or positively, in which case the performer is coping with the (positive) stress. I believe the research that Verny has done in this regard about the origins of pre-natal stress-experiences (which was touched upon earlier in this paper) plays a more significant part with regard to the athlete's mind set and own self-concept later in his life, than is generally acknowledged. The situation is even made more complex because the same individual's response to stress of competition will vary according the specific situation. For example, a tennis player's appraisal of a match against an opponent who, on their previous meeting, was beaten in straight sets, is likely to be positive and thus induce less anxiety than had the result gone the other way.

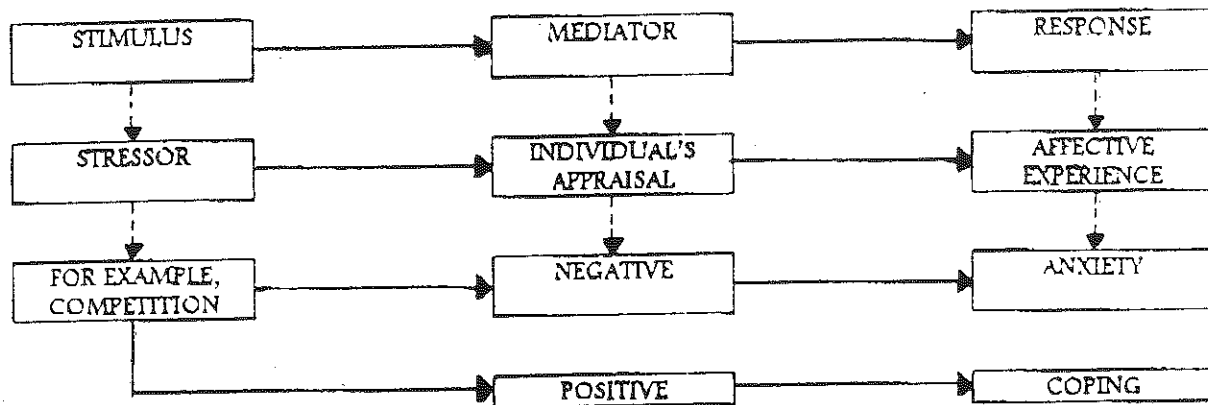
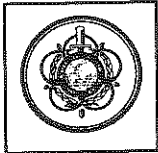


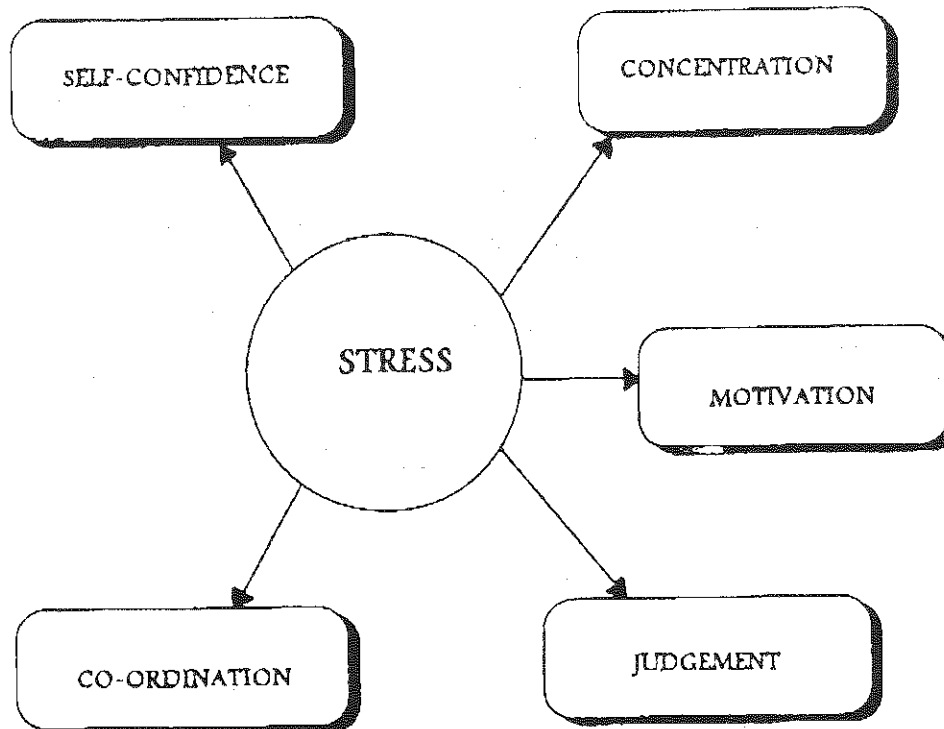
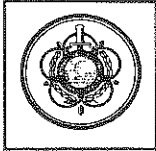
Fig 1 Interactionist approach to stress (Jones 1991)

2.3. COMPETITIVE STRESS AND SPORTS PERFORMANCE

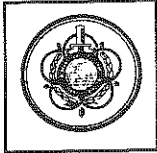
According to Noakes (1992) and Jones (1991) a considerable amount of research has been carried out to examine the relationship between stress and sports performance. This research has generally failed to unravel the precise details of the relationship, but it has demonstrated that it is complex.

Findings have generally supported the intuitive notion that anxiety and stress impairs performance. However, a couple of recent studies have shown that stress does not necessarily impair performance and can actually enhance it. This situation is largely dependent, as I have already argued on the individual and how he/she as an athlete perceives the stress symptoms in terms of a debilitating-facilitative continuum.

The fact remains however, that in many cases stress and anxiety will impair performance; but how and why?, is the questions that need to be asked. Precise answers are difficult to find but the following 5 factors have been identified as being important.



- * Self-confidence has already been identified as being closely linked with competitive stress and anxiety (Verny, 1981). Basically, a high level of cognitive stress is associated with a low level of self-confidence in competition. Anecdotal reports strongly suggest that low-confidence will result in sub-optimal performance. Stress can adversely affect the performer's perception of, or confidence in the ability to perform complex skills so that an athlete may opt to perform simpler, less risky skill.
- * Concentration or attention is a limited resource in that we only have so much of it available. Consequently, if sports performer devotes a large part of that limited attention to worrying or being cognitively anxious about a particular opponent, playing conditions, etc, then the athlete has only a little attention remaining to focus upon actual performance.
- * Motivation can be affected by stress in two different ways, both potentially leading to impaired performance. First stress can increase motivation to the extent that the performer tries too hard. It might be surprising to learn that athletes can exert too much effort but is consistent with many elite performer's report that their best performance have seemed almost effortless. Stress can also reduce motivation so that the performer does not devote sufficient effort to performance.



- * Judgement is a crucial part of sports performance, but it can be impaired by stress. We have all seen athletes/players under pressure do something uncharacteristic, such as make inappropriate decisions and unforced efforts. The increased cognitive stress and anxiety associated with competition may lead to confusion and affects performer's perceptions of situations and, consequently, their decisions. Also when anxious, some performers occasionally forget about carefully pre-arranged plans and strategies and revert to previous, perhaps unsuccessful tactics.
- * Co-ordination can be negatively affected by increased physiological arousal associated with somatic stress and anxiety. This often results in increased muscle tension which is likely to be detrimental to fine touch or fine movement control as required in archery, for example. Research has found that manual dexterity, in particular, is impaired under increased anxiety, which would help to explain why some goalkeepers or rugby players often fumble or drop the ball under pressure (Jones, 1991).

Of the 5 factors that may respond to anxiety and stress in various degrees, self-confidence especially to elite athletes, is the most important.

2.3.1. SELF-CONFIDENCE AND STRESS-CONTROL

There are seven basic emotions: joy, sadness, anger, love, fear, shame and surprise. Other emotions are considered to be combinations of these basic seven (Noakes, 1992)

The emotions you feel in any situation and how you respond to them will depend on four factors: your basic personality; how much control you have over your emotions; your emotional reactivity and flexibility. Control of these emotions is achieved by controlling the thoughts that cause them.

The thoughts that athletes experience are influenced by their concept of attitude towards themselves and their opponents. Attitudes are the collections of thoughts and emotions that we have concerning ourselves and others, and these attitudes help to determine which emotions we will feel at any time.

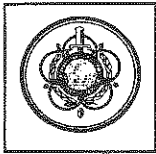
The difference between a strong or weak belief system is determined by a person's self-concept (what you believe about yourself), which is then established by your record of past performances, to your body image (what you honestly believe you can achieve in sport), and the attitude that the significant people in your life, such as your parents, partner, other friends and coaches, have towards you and your participation in sport. The self-concept can be further divided into what you really think about yourself (your real self) and what you would like to be (your ideal self).

Central to the notion of the importance of psychological factors in determining sports performance is the idea that a positive self-concept will be associated with a strong belief system. But self-concept is not static: each day brings new challenges to the self-concept which will either enhance or detract from it. In a sense there is a vicious cycle: success breeds success and failure the opposite. The only way to break this cycle is therefore to strengthen the self-concept. It is in this regard that hypnotherapy can play a vital role, as will be argued later in this paper.

Before we focus on the competitive edge hypnotherapy can add to sports performance it is necessary to understand how brain-waves work and how certain waves can be "used" in hypnosis to enhance sports performance.

5. PEAK PERFORMANCE BRAIN-WAVES

The brain is powered by electricity. Each of its billions of individual cells *fires* or electrically discharges, at a specific frequency. The electrical activity of the brain can be monitored by placing sensors or electrodes against the scalp, which register the minute electrical signals happening inside the brain, much the way a seismograph can detect tremors taking place inside the earth. The device



that registers these signals is called an electroencephalograph, or EEG. The EEG measures not the firings of individual brain cells, but rather the co-operative or collective electrical patterns of network or communities of millions of cells firing together - fluctuations of energy sweeping across the network of the brain. These collective energy pulsations are called brain waves (Hutchison, 1994).

Since the first EEG was devised in the 1920s, scientists have found that the brain has a tendency to produce brain waves of four distinct varieties which they have called beta, alpha, theta and delta.

Beta Waves: The most rapid brain waves, beta waves, range in frequency from about 14 cycles per second (called 14 hertz, abbreviated Hz) to more than 100 Hz. When we are in a normal waking state, eyes open, focusing on the world outside ourselves or dealing with concrete, specific problems, beta waves (particularly these between 14 and 40 Hz) are the most dominant and powerful waves in the brain. Beta waves are associated with alertness, arousal, concentration, cognition and - at excessive level - anxiety (above 24-27 Hz).

Alpha Waves: As we close our eyes and become more relaxed, passive, or unfocused, brain-wave activity slows down and we produce burst of alpha waves, which range in frequency from about 8 to 13 Hz. If we become quite relaxed and mentally unfocused, alpha waves become dominant throughout the brain, producing a calm and pleasant sensation called the alpha state. The alpha state seems to be the brain's *neutral* or idling state and people who are healthy and not under stress tend to produce a lot of alpha activity. Lack of significant alpha activity can be a sign of anxiety, stress, brain damage or illness.

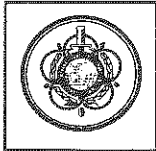
Theta Waves: As calmness and relaxation deepen into drowsiness, the brain shifts to slower, more powerfully rhythmic theta waves with a frequency range of about 4 to 8 Hz. Theta has been called the twilight state, between waking and sleep. It's often accompanied by unexpected, dreamlike mental images. Often these images are accompanied by vivid memories, particularly childhood memories. Theta offers access to unconscious material, reveries, free association, sudden insight, creative ideas. It's a mysterious, elusive state and for long time experimenters had difficulty studying it because it is hard to maintain for any period of time. Most people tend to fall asleep as soon as they begin generating large amounts of theta.

Delta Waves: As we fall asleep the dominant brain waves become delta, which are even slower than theta in the frequency range below 4 Hz.

When most of us are in the delta state we're either asleep or otherwise unconscious. However, there is growing evidence that individuals may maintain consciousness while in a dominant delta state. This seems to be associated with certain deep trancelike or *non-physical* states. It is while wherein the delta state that our brains are triggered to release large quantities of healing growth hormone (Hutchison, 1994).

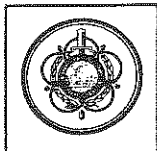
3.1. ALPHA WAVES

A look at EEG tracings made it clear that meditators produces a lot of alpha waves. Researchers developed a type of EEG that was *tuned* to respond to alpha waves by producing a beeping sound. They called this process biofeedback - that is, feeding back to the subject information from his or her own body. When people uses EEG biofeedback, they could quickly learn to produce alpha waves simply by doing things that produces a beeping sound, such as sitting with their eyes closed, in a relaxed state (Hutchison, 1994).



STRESS - anger, fear, anxiety, depression, irritation, lethargy

	30Hz	Symptoms: Neck & lower back pain; headaches; insomnia; heart palpitations; sweating; compulsive behaviour, excessive eating, drinking or smoking Can result in: High blood pressure; stomach ulcers; spastic colon; heart disorders; rheumatoid arthritis; gout; asthma & other illnesses
Beta	High	
	24Hz	
Normal	Physical alertness; normal waking state	
Alpha	18Hz	Mental effort and intense concentration
	Low	Logical analysis and deductive reasoning
	14Hz	Early meditative state; fairly relaxed
Theta		Calm, quiet thought-control; lucid, relaxed mental alertness; global perspective; focussed concentration; inductive reasoning; whole-brain functioning; creative problem solving; lateral thinking
	8Hz	Deep "Twilight" relaxation; creative functioning; hypersuggestible; Superlearning; vivid mental imagery; access to supermemory; "Eureka" phenomena; psychic ability; intuition
Delta	4Hz	Deep, dreamless sleep; mental restoration
	0.5Hz	Unconscious



The researchers noticed that people who went through this alpha biofeedback training process experienced interesting changes - they became more calm and relaxed in their daily lives, they tended to give up such habits as smoking and heavy drinking quite easily and soon learned how to produce alpha waves at will, even when not hooked up to the biofeedback system (Hutchison, 1994)

This was exciting. Some researchers even suggested that the alpha state was synonymous with meditation. This was Big News and the mass media soon latched onto it. Sensational stories about *instant nirvana* and *mechanical meditation* claimed that the alpha state was not only the same thing as meditation but it could also be a quick cure for stress, one without all the mystic voodoo and spiritual trappings that most people associated with meditation.

3.2. THETA WAVES: THE TWILIGHT STATE

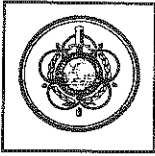
During the same period almost unnoticed amid the hoopla surrounding the alpha state, was a series of EEG studies by Japanese scientists of Zen monks going into deep meditative states. They found that as monks went into meditation, they did indeed go into alpha, but the most skilled meditators sank right through alpha and began producing the slower theta waves. And intriguingly, even in the depths of theta - for most people the gateway to sleep - the monks were not asleep but extremely alert mentally (Hutchison, 1994). Interestingly, the more meditative experience monks had, the more theta they generated. And the only ones who were able to get into this deep theta state quickly and at all were those monks who had...*more than twenty years of meditative experience* (Hutchison, 1994).

Working independently, biofeedback researcher and psychologist Dr Thomas Budzynski, then employed at the University of Colorado Medical Centre, also sensed something magic about theta state. He conducted extensive research into the properties of theta, which he dubbed the *twilight*. People in theta, he found, were hypersuggestible as if in a hypnotic trance. They were also able to learn enormous amount very quickly. Theta, Budzynski suggested, is the state in which superlearning takes place - when in theta, people are able to learn new languages, accept suggestions for changes in behaviours and attitudes and memorise vast amounts of information. Said Budzynski:...*the hypnagogic state, the twilight state, between waking and sleep, has the properties of uncritical acceptance of verbal material, or almost any material it can process.* (In Hutchison, 1994).

Excited by this work, biofeedback researchers Elmer and Alyce Green of the Menninger Foundation decided to explore the effects of theta. They designed a biofeedback device that enable them to train subjects to enter theta. The Greens described their observations of many people experiencing theta in their seminal book *Beyond Biofeedback as...associated with a deeply internalised state and with a quieting of the body, emotions and thoughts, thus allowing usually unheard or unseen things to come to the consciousness in the form of hypnagogic memory.* (Hutchison, 1994).

3.3. THETA WAVES AND SPORTS PERFORMANCE: BECOMING THE ULTIMATE ATHLETE

Today there is a vast array of mind technology available to help athletes enhance their performance by utilizing alpha and theta - waves quite easily (They do not need twenty years' experience like zen monks who was referred earlier). Michael Hutchison (1994) writes as follow in this regard: *In sports, it's clear when you're performing at your peak. You're out there, in the zone, grooved, magic, flowing, moving effortlessly through a slow-motion world. Most of us would like to be there all the time, but for the most it's rare and memorable. That's why athletes are always experimenting with new tools or techniques. Like scouts far in advance of the rest of society, they're on the lookout for new approaches that will give them edge: help them jump higher, run faster, lift more, help them get into those peak performance realms more frequently, more reliably. Athletes were among the first scouting out practical uses of self-hypnosis, autogenic training, visualisation, progressive relaxation and positive suggestion. Long before the technologies were accepted by the medical establishment,*



athletes were using whirlpool baths, electrostimulation, ultrasound, soft lasers, infrared, biofeedback, computerised training devices, videotape analysis and much more. Now increasing number of athletes are using mind technology to help them reach and maintain peak fitness, to help them master the inner game, to boost them into peak performance states, and to help trigger the release of the essential peak fitness biochemical, growth hormone.

According to sports psychologist, John Hoberman (1987):... for the past century high-performance sport has been a vast, loosely co-ordinated experiments upon the human organism. The first unstated aim of this great project has been to investigate how human mind and body react to stress. Its second aim has been to adapt the athlete's mind and body to greater and greater degrees of stress. Athletic training, after all, is the pursuit of stress in order to prepare the athlete for the even greater ordeals of competition.

What Hoberman asserts is that sports training in recent years has become not so much an escape from stress as confrontation with it. So it's important to remember that brain technology is most widely known, and has greater clinical use, as a stress reduction device. Increasing numbers of athletes are finding that by producing unmatched states of deep relaxation, mind tools can help them overcome the stress of training, thrive under the stress of competition and learn to operate at peak performance levels under greater and greater degrees of stress.

Athletes I am working with, have noticed dramatic improvement in their fitness and performance as well as a radical reduction of stress-levels as a result of the use of mind technology in combination with hypnotherapy. The improvement takes place on a number of levels. A few of the areas where the use of mind technology has produced striking and in many cases unprecedented benefits is the following: muscular relaxation, a decrease on injuries, mind-body relaxation and an increased tolerance for stress.

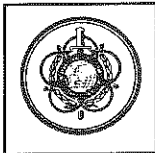
3.4. INCREASED TOLERANCE FOR STRESS

All well and good, you may say, it's nice to be able to use mind technology when you get a chance to relax, but how can one find a quiet spot, take a passive attitude and divert one's attention from externally oriented thoughts when I'm in the heat of competition and training?

Fortunately, the beneficial effects of the relaxation response are cumulative - that is, as you use mind technology regularly, you will not only become relaxed more quickly, but you will tend to stay at that more relaxed level throughout your daily activities. The effects are not just cumulative; they can be extremely long-lasting. In some tests certain salutary effects of mind machine induced deep relaxation lingered for weeks (Hutchison, 1992).

What this means for athletes is that they will not only be more relaxed, which means looser muscles and fewer tension-related injuries - but will also carry this deeper state of day-to-day relaxation with them into training and competition. In other words, brain technology not only keeps them relaxed, it actually *increases their tolerance for stress*, or make them more resistant to the effects of stress, by readjusting the level at which their body's begins to pour out fight-of-flight biochemicals. According to researchers Thomas Fine and John Turner of the Medical College of Ohio, a deeply relaxation session *...could alter the set points in the endocrine homeostatic mechanism so that the individual would be experiencing a lower adrenalin activation rate*. So a pressure situation that might ordinarily have put your chock meter up to level ten may, after a mind-machine session, be perceived as only a mildly arousing level three or four. For athletes, this means competitive pressure that might once have causes choking will be easier to tolerate (Hutchison, 1994).

This brings us to hypnotherapy as a tool to enhance sports performance.



4. HYPNOSIS AND SPORT PERFORMANCE

4.1. DEFINING HYPNOSIS

Hypnosis has been a fascinating and controversial topic for centuries, with many attempts to define it and numerous theories to explain it. Most could agree with the common assertion that hypnosis is an altered state of consciousness, but beyond that, agreement is hard to find.

The following definition of Milton Kline (1983) is to my mind suffice: Kline defines hypnosis as...an altered state of consciousness for which there is sound, reliable and consistent clinical verification. He also states that the concepts of hypnosis includes within it not only infantile passive-dependent characteristics, but also fundamentality of regression to a more simple and basic form of perceptual organisation and response (Verny,1981).

It is quite clear that hypnosis has proved effective as a primary or adjunct technique for a wide range of medical and psychological disorders and conditions (Morgan, Darby, and Heath, 1992; Levitan, 1991; Sarbin, 1991; Yapko,1990; Wester, 1987). The current popularity of clinical hypnosis results from a variety of factors, including professional and cultural interest in altered state of consciousness, beginning in the 1960s; the specific work of Milton Erickson, Ernest and Josephine Hilgard, T.X. Barber, Marin Orne, Harold Crasilneck, Carl Gaarnder and many others; the ascendance of eclecticism in psychotherapy; the increasing interest in effective and economical ways to treat in specific areas and for the effectiveness of psychotherapy in general (Meyer, 1992).

From an overall perspective, clinical hypnosis can potentially help in any one case in a number of ways: by mobilising resources and strengthening motivation, developing and amplifying a relaxation response, providing access to material not usually accessible, confronting and dissolving suppressed mental contents that are blocking progress, putting the client in touch with newer, more effective ego states, enhancing imaginary for hypnotic or other techniques, and proving for vicarious rehearsal of more effective behaviours and cognition (Meyer, 1992).

4.2. HYPNOTIC STATES

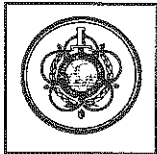
Herselman (1985) defined the following criteria for adequacy of hypnotic states:

Light Trance:

1. Relaxation
2. Eyelid catalepsy
3. Eye closure
4. Beginning limb catalepsy
5. Slowing and deepening of respiration
6. Immobilisation of facial muscles
7. Beginning catalepsy of limbs
8. Sensation of *heaviness* in various parts of the body
9. Glove anaesthesia
10. Ability to perform simple post-hypnotic suggestions.

Medium Trance

11. Partial amnesia
12. Definite lag in muscular activity
13. Ability to accomplish illusions and simple hallucinations
14. Increased *detached* feelings



15. Marked catalepsy of limbs
16. Ability to perform more difficult post-hypnotic suggestions.

Deep Trance

17. Ability to maintain trance with eyes open
18. Total amnesia (in most subjects)
19. Ability to control some organic functions (pulse, blood pressure) etc.
20. Surgical anaesthesia
21. Aggression and vivification
22. Positive and negative visual auditory hallucinations
23. Ability to *dream* meaningful material
24. Ability to perform all or most of the above in the post-hypnotic state.

Plenary of stuporous Trance

25. Manifested by marked slowing of all organic responses and almost complete inhibition of spontaneous activity.

Note: It should be apparent that despite the categorical delineation of the trance states, extensive variation is to be expected in any individual. Any of the above phenomena may be present in other than the described order, depending upon the experiential life of the subject, the nuances of the operator and individual learning capabilities.

4.3. EXTERNAL SIGNS OF A HYPNOTIC TRANCE

1. Catalepsy - this is a peculiar state of muscle tonus which parallels cerea flexibilitas of the stuporous catatonic patient. The subject maintains any awkward position and shows a failure of normal fatigue reactions.
2. Dilation of the pupils and rapid eye movement.
3. Amnesia and other memory alterations.
4. A spontaneous reduction in body surface temperature.

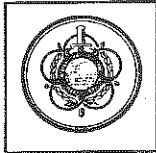
4.4. OTHER SIGNS THAT A PERSON HAS BEEN HYPNOTISED

When asked about the amount of time that has elapsed since the person has sat down to relax in a hypnotist's chair, the person will be unable to make an accurate assumption of the elapsed time - thus we find that there is a distortion of the sense of time elapsed. For example, a person will assume that only 5 minutes have gone by, where in fact an hour may have passed. The opposite can also be experienced, where in actual fact the hypnotic trance only lasted for 5 minutes and the person has the idea that an hour has elapsed.

The person may sometimes experience a tingling feeling in his limbs which may be due to the fact that he has been sitting very quiet without any body movement for a long time (Olivier, 1985, Rossi, 1980).

4.5. COMMON MISCONCEPTIONS ABOUT HYPNOSIS

1. No loss of consciousness.
2. Not under control of hypnotist.
3. No special powers - no surrender of will.
4. No mind weakening.



5. No betrayal of secrets.
6. Fear of never waking; not true.
7. Not a miracle - nor a panacea.
8. If hypnotist leaves, subject will awake (Olivier, 1985).

4.6. COMMONEST USES OF HYPNOSIS

1. Any psychosomatic illness with psychosomatic component can be treated.
2. Alleviation of pain.
3. Stress reduction.
4. Resistance of infection.
5. Decrease inflammatory response e.g. burns.
6. Muscle spasm.
7. Sex therapy.
8. Dermatology.
9. Habits.
10. Haemophilia.
11. Obstetrics.
12. Gynaecology (Olivier, 1985).

4.7. MIND TOOLS AND HYPNOSIS: THE ULTIMATE COMBINATION FOR PEAK SPORT PERFORMANCE

We know that mind tools are highly effective at producing states of profound relaxation. As for focus attention, I've suggested that mind tools, in part by effectively blocking out external stimuli, provide an unparalleled environment for calming, clarifying and focusing the mind and elevating stress and anxiety. Some research with brain technology and hypnosis has been done and has shown that people using mind tools go into deeper state of hypnosis than they do when hypnotised without them. In addition, there's evidence that mind tools significantly increase hypnotizability - that is, people who ordinarily can't be hypnotised can go into deep hypnosis when using mind tools (Hutchison, 1994).

Brent Rushall (1979) Professor of Physical Education at Lakehead University, Ontario, Canada, studied the mental practises of a large number of Canadian elite sportsmen active in a variety of sports. He found the majority of these athletes used quite similar psychological strategies for pre-race mental preparation and during competition. This suggests that regardless of their sport, successful competitors employ similar mental approaches to competition which are different, presumably, from those used by unsuccessful athletes. The following table provides a synthesis of Rushall's findings:

MENTAL ATTRIBUTES AND APPROACHES TO COMPETITION OF ELITE CANADIAN ATHLETES

1. The successful athlete has the ability to concentrate totally on the coming competitions throughout the training period.
2. The successful athlete has the ability to put more into competition than into training.
3. The successful athlete has absolute confidence in his/her ability to perform up to expectation.
4. The successful athlete has the ability to judge very accurately how he/she perform in competition.



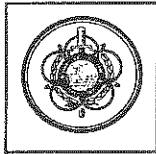
5. The successful athlete has a detailed competitive strategy, the more detailed the strategy, the greater the athlete's confidence.
6. The successful athlete competitive strategy includes what to do if things go wrong.
7. Before competition, the successful athlete performs as many mental rehearsal of the competition as possible.
8. The successful athlete is not upset by any small distraction or problems that may arise before competition.
9. If troubled before competition, the successful athlete knows what to do to regain composure.
10. If the successful athlete becomes too excited before the competition, he/she knows what to do to calm down.
11. If the successful athlete loses confidence before the competition, he/she knows what to do to calm down.
12. The successful athlete is not affected by unfamiliar competitive arenas.
13. The successful athlete is able to handle any unusual circumstances or distraction that may occur at the site of competition.
14. The successful athlete does not worry about other competitors before the competition.
15. The successful athlete prefers to be alone immediately before competition and prefers to warm up alone.
16. The successful athlete does not need a coach to be present at the warm-up.
17. The warm-up of the successful athlete contains practises of things to be done during the competition.
18. The successful athlete exhibits controlled levels of nervousness and tension at the start of the competition.

In my work with the elite South Africa athletes I have found that by a strategic combination of mind tool technology and hypnotherapy I am able to address all of the above requirements, 18 attributes and approaches to various degrees of success. In the world of Paavo Nurmi: *Mind is everything; muscle - pieces of rubber: All that I am, I am because of my mind* (Lovesey, 1968).

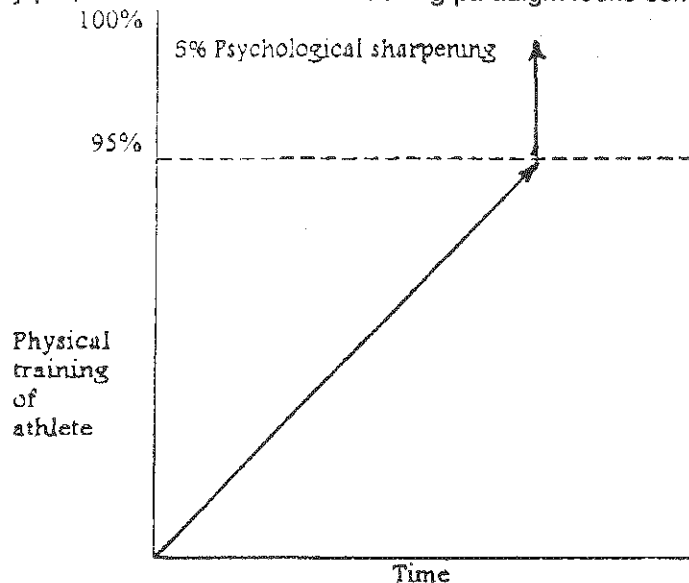
5. STRATEGY FOR PEAK PERFORMANCE IN SPORT

I have argued that it is clear from research that one of the most important which distinguishes elite sports performers from the rest, is their ability to control their anxiety and stress before and during competition. This can be achieved if the correct strategy with the regard to coaching is followed.

I am convinced that a paradigm-shift has to be made in many coaches' mind with regard to training of athletes at all level sport.



Simply put, I believe the current coaching paradigm looks something like the following:



Athletes were trained (and were necessarily motivated) by their coaches until they reached their peak performance-fitness level. And then, as a sort of last finishing touch - as more afterthought, a small percentage of time (between 1% and 5%) is spent on psychological preparation before the competition and the possible elimination of unnecessarily anxiety and stress.

Unfortunately the world we live in today is highly competitive and asks more and more of the sportspeople. Name any sport and I am sure that the top 10 to 20 elite athletes in each sport marginally differs from each other in so far as physical potential is concerned. To illustrate my point the following excerpt from *The Times* which appeared on the morning of the ladies's singles final at Wimbledon in 1988 is suffice:

Stefi Graf and Martina Navratilova are so evenly matched, in terms of racket skill and athleticism that the Wimbledon women's single final will probably be decided by their emotional response to the occasion. On the basis that Navratilova has more at stake and is occasionally prone to nervous inhibitions, I take Graf to win.

If that was the situation in competitive international sport 8 years ago, it is even more true today. I would like to suggest a new coaching paradigm: Physical preparation makes for only 50% of a complete training schedule. The other 50% must be made up by Psychological training. The same amount of efforts and tome an athlete puts into physical training must be put into psychological training; qualitatively and quantitatively.
