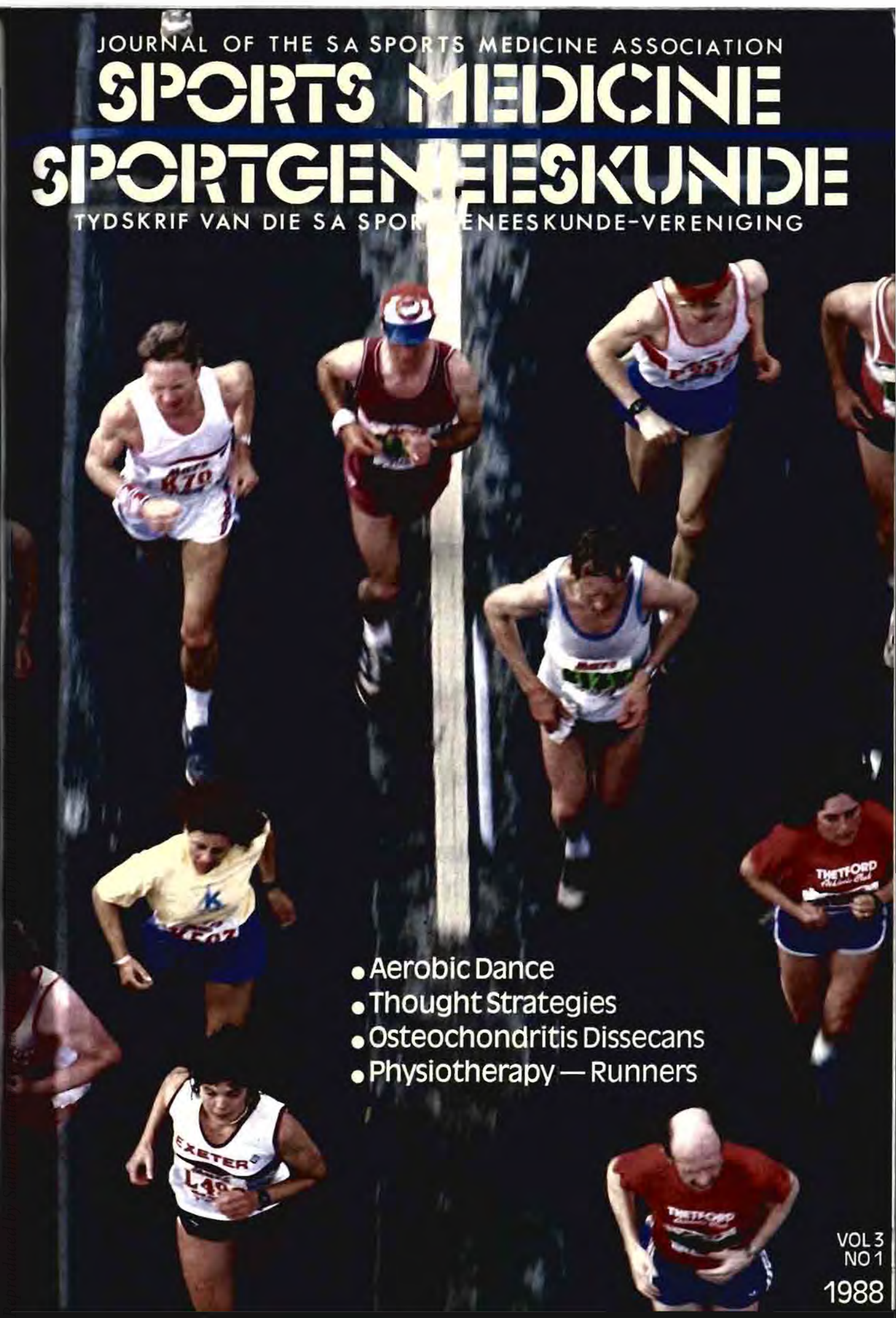


JOURNAL OF THE SA SPORTS MEDICINE ASSOCIATION

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SPORTGENEESKUNDE

TYDSKRIF VAN DIE SA SPORTGENEESKUNDE-VERENIGING



- Aerobic Dance
- Thought Strategies
- Osteochondritis Dissecans
- Physiotherapy — Runners

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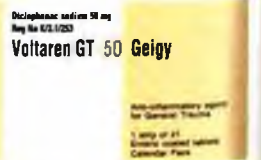
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PLASTER CASTING OR NOT?

CLIVE NOBLE MB CHB, FCS (SA)

Plaster of Paris casting has for many years been synonymous with orthopaedics. There was even a saying used by the junior doctors "when in doubt put it in plaster"

Certainly today plaster casting is still an essential part of fracture treatments. It has also been used in a variety of ligamentous injuries. All degrees of ligamentous instability have been treated by cast immobilisation. The two joints particularly involved have been the knee and ankle. The period of immobilisation varied

from a few days to many weeks. In the light of recent investigations one has to decide whether plaster casting is really necessary in all ligamentous injuries. There is even a strong opinion that it may be detrimental in some cases. As long ago as 1966 it was shown that approximately 80% of ankle ligament injuries got better no matter what form of treatment was given.

Practical experience has shown us that movements of an injured joint that has been immobilised in a cast will take about twice as long to recover as an injured joint that has not been immobilised.

Even today many doctors still immobilise a knee with a haemarthrosis. By doing this significant internal derangement may be missed. This may lead to failure of adequate and correct treatment. As an example an avulsed fragment which could have been accurately replaced now smooths off and this becomes impossible. Similarly badly torn ligaments which required surgery may be left in a weakened state.

Besides stiffness of the joint resultant muscle weakness may prevent the player from rapidly returning to his sport. Re-injury if he returns to sport too soon, may also occur.

There is a growing tendency to only use plaster casting to fractures and after surgery. Rapid rehabilitation using physiotherapy and an intensive exercise programme would appear to be the treatment of choice in most sports injuries.

LEG LENGTH DISCREPENCIES


In the last editorial I mentioned a Kinesthesiologist who told most of his

contributing factor to the development of osteoarthritis on the longer side. Other workers have not been in agreement. Hult⁴ investigating Swedish factory workers found no differences in the incidence of leg length discrepancy in workers complaining of backache. Fisk & Biagent⁵ also found that a moderate degree of leg length discrepancy played little if any part in the incidence of backache.

In runners leg length discrepancy of even minor nature has been blamed for injury of back, hip and leg. None of these investigations had a real scientific basis. Subotnich⁶ has stated that a 1/4 inch leg

length discrepancy in a runner is more liable to cause injury than a 3/4" leg length discrepancy in a non-active person. Cross⁷ investigation of a group of marathon runners found that 49% had leg length discrepancy of 5mm or more. He concluded that his study provided no justification for the routine use of lifts (in the shoe) to equalise smaller amounts of leg length discrepancy in runners. He also concluded that runners with structural discrepancies

of 1cm and more can function quite handsomely without any need for equalisation of leg lengths.

We obviously need more knowledge. Wouldn't this be an excellent project for a student/physiotherapist/doctor? 

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patients they had a leg length discrepancy and proceeded to treat them with a yellow page insert in their shoes. I believe it is more important to assess scientifically if a leg length discrepancy has significance in causing injury especially in marathon runners.

In 1946 Rush & Stainer¹ found a higher incidence of back pain in army recruits with leg length discrepancy. Nichols² in 1960 found that 22% of airmen complaining of lower back pain had a leg length discrepancy of 12.5mm or more, compared to 7% in a control group. Gofton and Trueman³ felt that a leg length discrepancy 1/2 inch to 1 inch (2.54cm) was a

COMRADES ADEQUATE MEDICAL CARE?

Introduction:

Is the medical care at the Comrades Marathon good enough? This has been worrying many runners as well as their doctors for some time. To answer this query we put a number of questions to Dr J. Godlonton.

Dr Noble

How many runners do you anticipate taking part in Comrades this year?

Dr Godlonton

It is unlikely to be in excess of 12 000 runners.

Dr Noble

We believe that an analysis of the collapsed athletes was started in the medical tent last year. What is the objective behind this research?

Dr Godlonton

In fact we have been monitoring many parameters over the past 10 years. Our main objectives are to attempt to:

- *improve the quality of medical care at the end of the Comrades Marathon*
- *provide runners with feedback about problems which occur during the race which would help them to decrease the magnitude of their problems.*

Dr Noble

What were the most common problems encountered in the medical tent last year?

Dr Godlonton

The most common problems encountered are related to dehydration and to heat-stress injury amongst a host of many other minor injuries.

Dr Noble.

What causes these problems?

Dr Godlonton

These problems are caused by runners who are just uninformed as regards long distance running and have as a result poor drinking habits:

eg. drinking too late

drinking too little

drinking the wrong kind of fluids

They don't take cognisance of adverse warning signs of distress.



Secondly the inclement weather may be the cause of many of these problems.

Dr Noble

What should runners be doing to avoid these problems?

Dr Godlonton

Self education is the most important factor in counter-acting problems. A runner should have knowledge of his own capabilities. He should have knowledge of how much to drink and when.

He should take cognisance of adverse warning signs within himself.

He should take cognisance of the prevailing weather conditions.

Dr Noble

How many runners required medical attention in 1987? What percentage was this of the total Comrades runners?

Dr Godlonton

555 runners collapsed in a serious condition in 1987 i.e. were on drips — ±4.8% of the total number of runners who participated.

Dr Noble

Were there adequate medical facilities and medical staff to cope with these runners?

Dr Godlonton

Generally yes, except for a busy stretch when a large concentration of runners collapsed in a short period of time i.e. at a rate of one runner every 11 seconds. These runners were however all attended to eventually

Dr Noble

Will Comrades organisers launch an education programme at any stage?

Dr Godlonton

It is unlikely as this does not fall within the framework of the Comrades organisers. It is the duty of the runners themselves to acquire the necessary knowledge,

"Once again it is up to the runner to determine his own capabilities. Possibly the running clubs could encourage their runners to have E.C.G.s done."

which can be obtained from running magazines and running clubs.

Comrades organisers however will endeavour to communicate information acquired over the years which would benefit the runners in anyway by way of articles in journals and lectures throughout the country.

Dr Noble

Do you think that more stringent qualifying regulations should be introduced?

Dr Godlonton

From a medical point of view, I do think that more stringent standards should be introduced. It is my belief that many of the runners have not learnt to run longer distances. More longer distanced races should be introduced in this country and should be made part of the qualifying regulations for the Comrades.

Dr Noble

It is suggested that runners could be tested if they were unsure of their fitness. Will this ever take place?

Dr Godlonton

Unlikely — not by Comrades. Once again it is up to the runner to determine his own capabilities. Possibly the running clubs could encourage their runners to have E.C.G.s done. Once over the age of 30 and especially over the age of 50.

Dr Noble

Should the organisers have the power to take runners out of the race who are obviously in no fit state to continue?

Dr Godlonton

I would say definitely "Yes", but it is not likely that anyone would ever have the authority to do so.

Dr Noble

If the ambient temperatures and humidity are too high, should the race not be postponed for one day?

Dr Godlonton

A definite no — it would be an impossibility to get everyone back again the following day

Dr Noble

Shouldn't different coloured flags be instituted to warn runners of prevailing heat conditions eg. red flag signifying dangerously hot weather?

Dr Godlonton

Yes: a heat-stress monitoring thermometer has been used in the last three Comrades with colour coding warnings.

Dr Noble

What contingency plans do you have this year should the number of runners requiring medical attention increase, especially over the 'busy period'?

Dr Godlonton

We intend to increase the number of medical staff available proportionate to the number of entrants for Comrades for 1988.



THOUGHT STRATEGIES OF LONG-DISTANCE RUNNERS

DR HEIN HELGO SCHOMER. BA(HONS) MA PhD

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A

ABSTRACT

This study involved the recording of beginner, average and superior marathoner thought verbalizations during training sessions of diverse

intensities, the development of a functional classification system of the runners' thoughts within the broad association/dissociation framework, and the content analysis of the recorded thought texts.

The results indicated that proportional increases in the amount of associative thinking are related linearly to increases in perceived training intensities, this relationship holding for all groups of marathoners. The qualitative differences within the associative thought patterns of the superior marathoners, and the implications for optimal psychological preparation in regard to cognitive strategies during training are discussed.

INTRODUCTION

Sport psychologists have recently begun to focus on the cognitive processes of athletes, speculating on how the quality or quantity of their thoughts might contribute to their excellent performances. Conclusions drawn so far have been clouded over by rather unsystematic accounts of subjective experiences and views.

Research into the mental strategies adopted by long-distance runners to cope with the immense effort involved in completing a marathon has till now relied entirely on pre- or post-event questionnaire data (Morgan & Pollock, 1977; Freischlag, 1981; Summers, Sargent, Levey & Murray, 1982; Okwumabua, Meyers, Schleser & Cooke, 1983; Weinberg, Smith, Jackson & Gould, 1984.)

Nowhere before has the continuous thought flow of runners been documented. The aim of this investigation was to record and analyze instantaneous thought processes of marathon runners during the full length of their training runs and to set up a functional classification system that could be used for future manipulations of runners'



thoughts.

According to Morgan and Pollock's (1977) associative/dissociative mental strategy classification which has formed the basis of most research into the cognitive activities of marathoners during long-distance racing and training, elite marathoners associate, effectively reading their body and modulating pace accordingly, whereas non-elite runners dissociate from any painful, sensory cues. However, as runners have to expose themselves to successive approximations of their relative physiological tolerance in order to procure aerobic conditioning (Ryder, Carr & Herget, 1976), associative cognitive strategies are not perceived by the author to be exclusively practised by elite long-distance runners. It is hypothesized that an increase in associative thinking is directly related to an increase in training intensity regardless of the running status of the athlete. It is further hypothesized that there will be qualitative differences within the associative cognitive strategy displayed by marathon runners of differing running status.

METHOD

Subjects

The novice group was made up of 12 highly unfit individuals who had volunteered to participate in a 7-month monitored training programme leading up to their first marathon. The 10 subjects in the average group had a minimum experience of two completed marathons and race times between 3 and 4 hours for males and 3½ and 4½ hours for females. The superior group consisted of 9 highly competitive marathon runners with race times below 3 hours for males and below 3½ hours for females. Six of these runners were rated as elite South African marathoners with race times of 2:17, 2:17 and 2:23 for the males, and 2:42, 2:52 and 2:56 for the females.

Apparatus

A light-weight micro-cassette recorder was carried by the subjects in a specially designed belt around their waist. The Borg scale (Borg, 1978) enabled the

marathoners to rate their training intensity after a cognitive strategy recording.

Procedure

Subjects were instructed to speak whatever came to their minds during training runs and could utter their thoughts in sentences, phrases or words. Strict confidentiality was assured. After a cognitive strategy recording the runners were asked to rate their level of perceived training intensity with the help of the Borg scale. On average, every individual carried the recording apparatus four times, the first two recordings generally being regarded as familiarization trials. The transcribed recordings, which omitted the identity of the runner as well as the declared training intensity, were surveyed for recurrent thoughts on task-related and task-unrelated material.

Ten theme categories were proposed — (1) Feelings and affects: Thoughts on general sensations of the body, like feelings of vitality or fatigue, with no mention of specific body parts, (2) Body monitoring: Thoughts with specific mention of anatomy or body physiology, like breathing rhythm and heart beat, (3) Command and instruction: Emphatic self-regulatory instructions to whole body or specific body parts, (4) Pace monitoring: Verbalized feedback on current running performance with respect to time, distance, and speed of pacing, (5) Environmental feedback: Thoughts about the weather, temperature, and noise levels etc, (6) Reflective activity: Thoughts on past and future issues related to training and racing experiences, (7) Personal problem solving: Issues of an intrapersonal and interpersonal nature including reflective introspection and belief system evaluation, (8) Work: Thoughts spent on job, work and career opportunities, (9) Course information: Descriptions about scenery that are of no consequence to pace, (10) Talk and conversational chatter: Direct speech with other runners, and unintelligible or inconsequential, extraneous chit-chat.

The most concise intelligible cognitive expression (sentence or phrase) that could be understood when isolated was defined as the recording unit and was enumerated by a single cognitive strategy category abbreviation. A frequency count of the category abbreviations in a completely content analyzed text was then transformed into percentages of occurrence and raw data tables were compiled.

RESULTS

A Kruskal-Wallis One-Way Analysis of Variance was executed on the associative thought category data. An insignificant statistical difference was recorded ($H=4.581$; $df = 2$; $p > 0,05$), i.e. the superior marathoners did not manifest a prevalence for the associative cognitive strategy. A multiple regression model was used

in the analysis of the proportions of activity time assigned to categories of activity. The overall pattern emerging across the analysis was that association gave remarkably strong linear correlations in all analyses within and across the groups of subjects. The analysis showed a clear tendency in the ratings of training intensity to be related linearly to the

the correlation coefficients lend strong support to the author's contention that regardless of the marathoner's running status a high training effort can only be achieved and maintained safely and efficiently by adopting a predominantly associative cognitive strategy. These findings do not agree with Morgan and Pollock's (1977) original investigation in



specified activity component proportions.

DISCUSSION

Proportional increases in the amount of associative cognitive strategy go hand in hand with increases in resultant training run effort ratings. This relationship holds within and across all the groups of marathoners. The apparent strengths of

which it was concluded that elite marathoners adopted the associative cognitive strategy due to their phenomenal physical condition, whereas non-world class runners preferred to dissociate from the painful sensory feedback received from their bodies during a race.


The hypothesized qualitative differences within associative thinking in relation to

training intensity are evident as follows: Body monitoring shows a substantial effect on perceived training intensity from an average marathoner status upwards, while the role of the general affective feedback diminishes in its relation to perceived training intensity at a high running status. This statistically significant difference is the most distinctive charac-

accordingly. No "altered states of consciousness" or "runner's high" were reported in the cognitive strategy recordings, which supports the similar finding by Sacks, Milvy, Perry and Sherman (1981). Runners' dissociative thinking appeared goal-directed and intentional. The research project concentrated exclu-

of thinking (Gilhooly, 1982), thinking is seen as the manipulation of symbols both within working memory and between long-term and working memory. The manipulations are understood to conform to rules stored in long-term memory. Rules selected from long-term memory depend on which goals are current and on the contents of the working memory. This implies that the psychological side of a runner is as accessible to training as the physiological side.

As effort ratings advanced, sentence structures and narrations became rudimentary and unadorned. Ericsson and Simon (1980) stated that the most important condition under which verbalization can be expected to be an accurate account of cognitive activity is that the verbal report has to be made concurrently with the task-related mental activity. According to them, only information in focal attention, that is information in the working memory, is "verbalizable".

Cognitive strategy training, guiding the runner to assimilate, or in the case of the superior runner foster, the exacting body monitoring technique is expected to yield a substantial improvement in the athlete's capacity to heighten his/her training intensity without the risk of injury, and in the long-term enhance his/her aerobic conditioning and race times. However, it must be emphasized that psychological training can only be seen to complement the marathoner's present physical capabilities. Association when practised at high training intensities may be seen to "fine-tune" physical aptitude by allowing physical skills to be exhibited and extended optimally. 

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teristic of the superior runners' thought profile — specificity through thorough skill practice.

Morgan (1978) suggested that average runners employ dissociation to negotiate a temporary pain zone. Marathoners in this study preferred to deal with pain or discomfort associatively by talking about the symptoms, instructing themselves to relax and by adjusting pace

sively on the recording of cognitive strategies during training runs as it is in the training phase that an athlete has to approximate and constantly test his/her potential for the real event (Ryder et al., 1976). Experienced runners pointed out that there is very little room for innovation and implementation of untried ideas during a race. It is of interest to note that according to the serial modal model

SOME SPORTING REFLECTIONS

PROFESSOR TIM NOAKES MB ChB MD

For as long as I can remember, sport has been an important component of my life. One of my earliest sporting recollections as an eight or nine year old, was sharing the national humiliation of devastating defeat at the hands of the touring Australian cricketers.

Rugby entered my consciousness at a somewhat later stage, with the visit of the 1960 All Blacks and the Springbok

and that our national superiority was confirmed by the success of those South African teams. Today I frequently run, swim or cycle with the local survivors of those Springbok teams; they remain as heroic to me today as did their exploits heard on that small radio by an impressionable youth nearly three decades ago. My own sporting talents were, at best, little better than average; I represented the higher cricket and rugby teams at my schools but went no further. In reflection, I preferred the cut, the thrust, and the tactics of rugby; cricket I found less appealing because of the prolonged periods of tedium spent fielding or waiting to bat. I never learned to accept those passive hours when one was unable to influence materially the outcome of the game.

The greatest change in my sporting life came at the end of 1964. Beginning in the early 'sixties, two renegade Californians, 'Grubby' Clark and Hobie Alter, began experiments aimed at producing a lightweight material to replace the balsa wood then used in the manufacture of surfboards. To prevent detection by others working on the same project, Clark and Alter were forced to work at night in their and other garages spread across Southern California. Finally, by the end of the fifties, they perfected the first polyurethane foam blanks from which lightweight surfboards could be made.

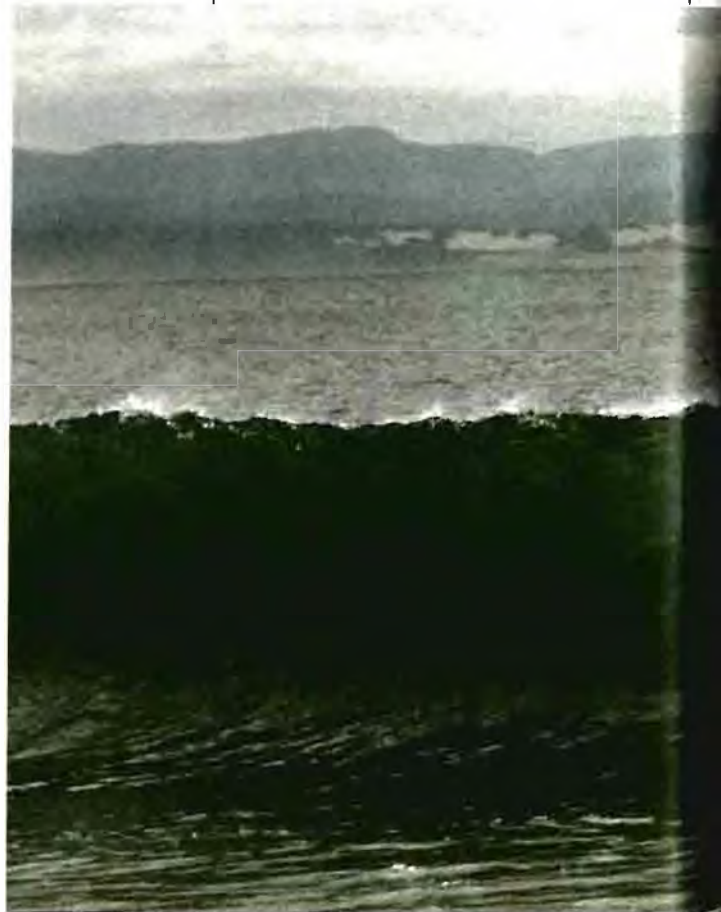
The first consignment of Clark blanks arrived in Cape Town probably in late 1962

for shaping by Alter's local alter ego, John Whitmore. By 1964, Whitmore surfboards made of Clark foam were prized as much by the local surfing gremmies as are Porsches by today's Yuppies. Surfing had become the major recreational activity for the non-aligned renegades at many Cape Town high schools.

Amongst the small group of mavericks with whom I surfed, three subsequently became international rugby players; another, the classical high school 'failure', has since received the State President's



tour to Britain the following year. In order to follow the latter tour and not without some risk, I smuggled a small radio into boarding school. Like most youngsters with an insecure ego, I recognized that international rugby was war,



award on two occasions — the first for bravery; the second received last year for being South Africa's top exporter; two others have achieved financial success in top management positions; the seventh married my Professor of Surgery's

daughter, and the eighth overcame a heroin addiction, probably the second greatest danger faced by a surfer, second only to an encounter with a Great White. I have always wondered whether surfing attracts the more creative, less subversive minds and whether that is why it is often considered a subversive activity, as it was by some of my teachers in the enlightened 'sixties.

The important lesson I learned in surfing and from daily contact with that group of free-thinkers, was that I preferred an individual sport to team sports. I discovered that the individual sport allowed me to study myself in a way not possible in any other activity that I had experienced either then or have experienced subsequently.

After school and two years spent in the army and overseas, I started rowing and running. As described in *Lore of Running*, these sports taught me that my personality profile is that of the secretive, ambivalent, inquisitive ectomorph. I learned too that my body needed regular attention and that with proper preparation it could be asked to do things that my logical mind would consider impossible. Thus I learned the dangers of setting goals that were too low, and of the need to ac-

"The Important lesson I learned in surfing and from daily contact with that group of free-thinkers, was that I preferred an individual sport to team sports. I discovered that the individual sport allowed me to study myself in a way not possible in any other activity that I had experienced either then or have experienced subsequently."

deck hands". I have often wondered why so many of my colleagues are convinced that individually they each represent one-half of the total Universal complement of geniuses.

I learned too the importance of honesty; in individual sports there is no one to blame but yourself.


Finally running gave me the time necessary for the mental solitude to be creative, to write a book on running, to plan and develop a research programme, and to ponder the spiritual component of life. More recently but especially after the publication of *The Lore*, my sporting goals have altered dramatically. No longer do I consider it necessary to run in competition to discover the optimum training methods, or the fluids that should be drunk before and during competition, or the effects of different diets on performance. These questions must now be answered more definitively by others in the laboratory. My competitive energies that I previously lavished on sport must now be directed to academic goals, to produce good students and good research. I have learned that the measure of one's academic contribution, at least at my non-genius level, is not one's writings or one's research, but one's students.

So I now believe that I have run hard enough for long enough. It is time to accept the limitations of age and to choose the easier sporting path; the path of sport for health, not peak sporting performance. So I have learned to cycle and to swim, activities which are less demanding than is running on the aging musculo-skeletal system but which are equally taxing on the heart, the lungs and the metabolism.

Sport then has given me a hobby and a profession. It has been my most diligent and demanding teacher. You may understand why I consider sport to be such an important

cept nothing less than my absolute best. Next I discovered my physical limitations as an athlete and learned that we all have both intellectual and physical limitations that must be faced and accepted with humility and without malice to those

whose gifts are greater. In the immortal words of one University Chancellor — "There are at any one time, only one or two supremely intelligent human beings alive on the earth. The rest of us, Yale and Stanford graduates included, are only

human activity and why I believe that as doctors we must ensure our own contribution to the promotion of sport by striving to provide, as an absolute minimum, optimum medical care to the sporting community. 

AEROBIC DANCE INJURIES

Based on talk given by DR. GORDON IRVING at the TRAUMA '87 SYMPOSIUM organised by the Red Cross Society in Port Elizabeth on 27.11.87.

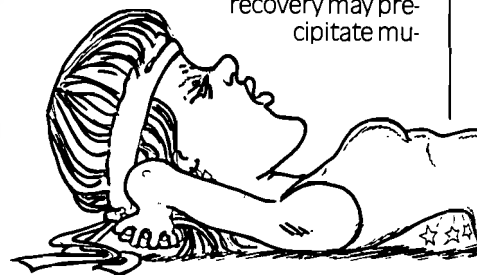
Too many the term aerobics conjures up an image of a Jane Fonda-like figure dressed in leopard leotard with matching leg warmers and lipstick. Although such individuals certainly are found in aerobic dance classes around the country, the average exerciser is far removed physically from this lithe, fit stereotype. However, no matter what physique the exerciser has, the mental self-image the aerobic dancer conjures up of him or herself may be one of a Tarzan-like or a Victoria Principal-like figure. In the attempt to become like their idols, the dancer may go to great lengths, exercising six or more hours a week, whilst starving on the latest fad diet. This combination of frequent high intensity, sometimes incorrectly performed exercise, together with diets low in essential minerals and

"In the attempt to become like their idols, the dancer may go to great lengths, exercising six or more hours a week, whilst starving on the latest fad diet."

calories creates a variety of injuries.

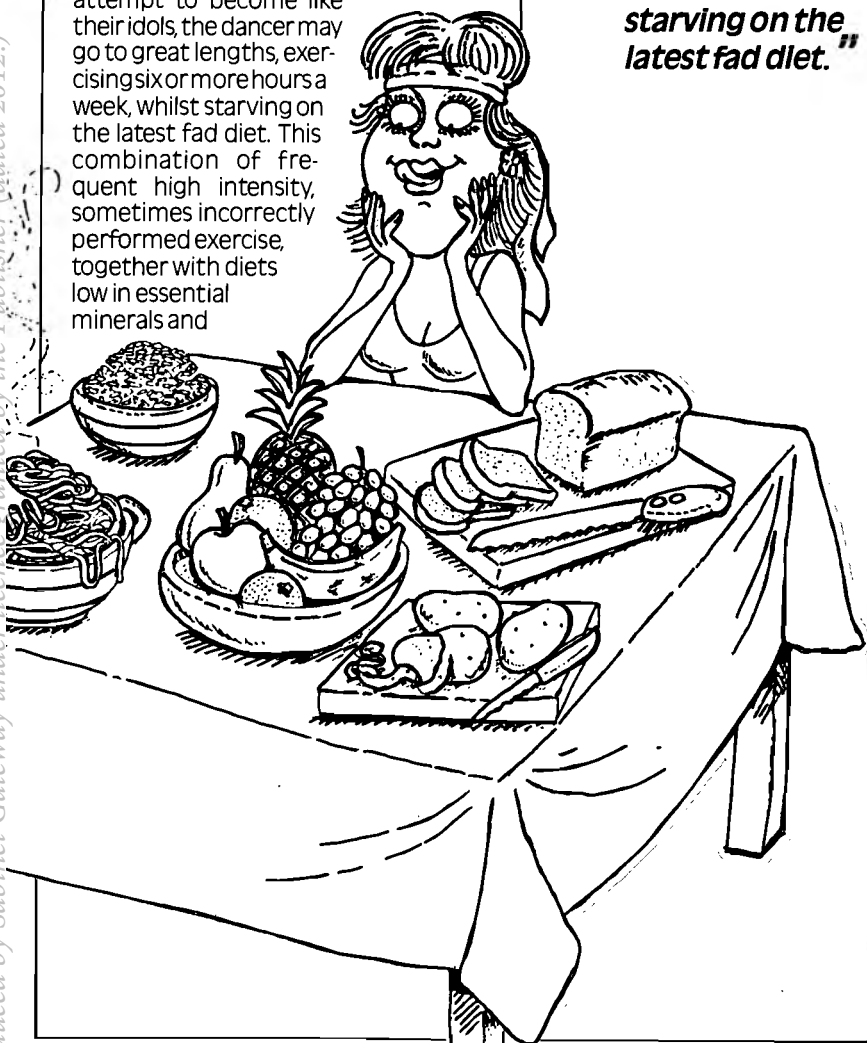
THE PRINCIPLE CAUSES OF AEROBIC INJURIES ARE:

1. Overuse — repetitive stress of soft tissues and bone creates microtrauma which, if insufficient time is given for recovery may precipitate mu-



scle tears, tendonitis, or stress fractures. Repeated movements which stress anatomically malaligned joints may cause severe irritation necessitating a long lay off. One way of self monitoring and avoiding some of the overuse problems is to use what I call, 'the educated thumb technique'. Pressure of the thumb or fingers down the medial and posterial medial aspect of the tibia may reveal a tenderness, due to either periostitis or stress of the cancellous bone. This is commonly referred to as shin splints and is caused by excessive rotational and compressive forces acting around the tibia. If this medial tibial stress syndrome is getting worse, indicated by an increased tenderness on tibial pressure, the individual should reduce the high impact jumping and running part of the aerobic class. Non-weight bearing exercises such as cycling or swimming should be substituted until the shin is feeling less 'delicate'. When the tibia is no longer feeling excessively 'delicate' full aerobic classes can be resumed. Such self monitoring together with relative rest could save the participant much future suffering and perhaps extensive and usually totally unnecessary tests and treatments.

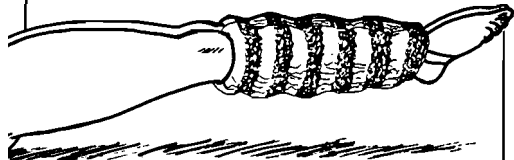
2. **Muscle Imbalances and Inflexibility** — Women as a group are far more flexible than men. This creates problems in programme design and injuries. The hyper-flexible female tends to have an



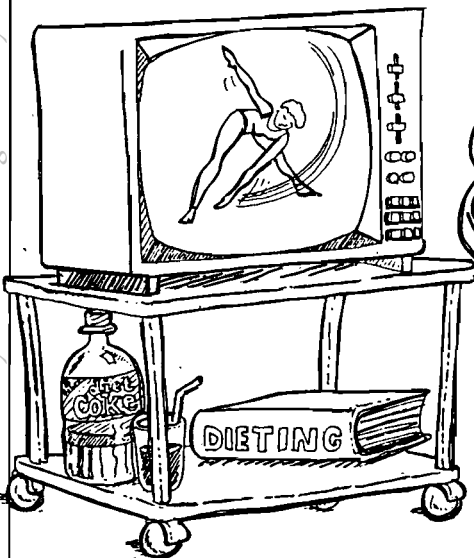
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increased incidence of joint discomfort when joints are taken beyond their normal range of movement during stretching. The more inflexible males tend to have a higher incidence of acute and chronic muscle strains. The regular jogger with his inflexible calves and hamstrings has an increased predisposition to tears when stressing them in the unfamiliar action of aerobic dance routines.

3. Improper Training—Whilst various organisations are attempting to address the problem of inadequate instructor training, there is still a woeful lack of knowledge, or poor utilisation of knowledge, by many instructors. The policy of some gyms to designate a promising club member as an instructor and, with the minimum or no training, place him on the podium can cause numerous problems. Many exercises appear to be designed because it gives the feeling of fatigue or stress in certain portions of the instructor's or instructress's anatomy. These 'designer exercises' are given with scant regard for the impossible contortions and abnormal joint positions that other less flexible or fit members of the class have to get into.



4. Poor Technique—Exercises which are safe when done with control may become damaging when incorrectly or rapidly performed. The lower back is often the first to complain as facet joints and soft tissue structures are placed under stress. Exercises which cause the back to arch while attempting to strengthen the abdominal muscles are 'killers' as far as the lumbar spine is concerned.



Repetitive flexion and rotation exercises done at high speed for long periods of time, load and unload the spinal struc-

"Exercises which cause the back to arch while attempting to strengthen the abdominal muscles are 'killers' as far as the lumbar spine is concerned."



tures and also cause pain and damage.

5. Hard Surfaces and Improper Footwear—Whereas few would argue that bare concrete floors probably create more orthopaedic stresses, there is no good evidence that wooden or sprung-wooden floors or a mat on a concrete floor are any different regarding the number or type of injuries (Garrick et al 1986). There is also controversy about the correct type of footwear, a recent survey showing running shoes to be perhaps more effective than aerobic shoes in preventing injuries.

THE INSTRUCTOR'S PROBLEMS

The instructor whilst usually a caring type individual has certain constraints when structuring classes. These constraints include:

1. Set Time—In 30-45 minutes the instructor has to give a 'good class'. A 'good class' often means a combination of pools of sweat accompanied by groans from lactate induced, local muscle exhaustion. Run over time and there are moans as the next class is delayed. Finish before time and there are moans that

people are not getting their money's worth, irrespective of the workload completed within that time.

2. Different Ages, Abilities and Sexes of Participants

—Catering for classes of both sexes, whose ages may vary from teens to elderly, with fitness levels from totally unfit to fit, creates almost insurmountable difficulties. Go too slow or too fast and moans are sure to follow and a dissatisfied client is not good publicity for the gym.

3. Lack of Knowledge

—Both practical and theoretical knowledge may be unattainable or costly for the individual instructor. As yet in South Africa there are no mandatory re-

quirements for any type of aerobic dance qualification. Until the general public become aware of the existence or meaning of such training certificates the onus on education will rest squarely on the conscience or ability of the instructor or gym owner.

SOME PROPOSED SOLUTIONS

1. Instructor Training

— Vital to the safe running of a class should be a well informed, caring individual. The instructor's knowledge should not only include how to exercise correctly but also basic dietary principles to inform and educate the anorexic personalities found at any gym. (Fig 8).

2. An Additional Instructor —

An extra instructor should be present at all classes to correct alignment faults in the participants or change exercises whilst they are exercising. In particular, abdominal exercises should be performed with the low back flat on the ground. Performing full sit-ups allows the ilio-psoas muscle to act as a lever at its origin on the lower lumbar vertebra. This places excessive strains on both the facet joints and soft tissue of the spine and may cause back pain. At the same time a full sit-up does not have any more training effect for the abdominal muscles than a simple shoulder raise to 30 degrees (Fig 9) or a twist curl (Fig 10).

3. Grading of Classes — Classes should be graded into beginners, intermediate and advanced. This grading should allow participants to go up or down depending on ability or injury.

4. Participant Monitoring — Self monitoring techniques such as the 'educated thumb' (see earlier) and teaching people how to take their pulses are important techniques which should be taught.

Monitoring the pulse rate ensures that an adequate level of activity is maintained during the aerobic phase of a class and also enables the participant to pick up irregularities of the heart rate. If the number of ectopics (extra beats) occurs more frequently than six per minute, medical advice should be sought.

5. Programme Design —

A class should be well thought out and preferably choreographed prior to performance. Movements should be sequenced so muscles don't suffer imbalances and joints attain a wide range of motion. If using hand or wrist weights 0.5-1kg should be the maximum used. Ankle weights are potentially dangerous and should not be used. Low impact aerobics (where one foot is always kept on the ground to try to decrease stresses caused by repetitive jumps) should be used for low fitness or injury susceptible groups. Repetition of exercises enables the participant to develop a sense of what the exercise correctly performed feels like. The programme design will obviously be influenced by all the factors previously

mentioned. If there are three points I would encourage an instructor to commit to memory, these would be:

1. The Body is a Slow Accommodator to Stress — One should not cater for the fittest individual in the class but bring everybody gradually up to a standard of acceptable fitness.

2. Rest may be a Four Letter Word, but Relative Rest is Important —

Most injuries improve by avoiding the stressful exercise which precipitated it and substituting another exercise for the time being.

3. Pain is Your Friend — Pain should always be regarded as a reminder that the body is being damaged and it should be treated with respect, not ignored.

The above suggested solutions have several drawbacks which can be summarised in three words, EXPENSE, EXPENSE AND MORE EXPENSE. At present South Africans enjoy exceptionally cheap aerobic dance classes and there are few regulations limiting the giving of such classes. So the cost of education, extra instructors and individualising programmes becomes prohibitive for the gym owner. It is therefore unlikely that the type of injury seen in our clinics will alter significantly in the near future.

Aerobic dance classes have enriched the quality of life of thousands of South Africans and there is no reason to doubt they will continue to do so. However it is the responsibility of all those who take such classes to ensure the exercises are done correctly and safely. Education of both instructor and pupil would do much to decrease the problems and increase the pleasure of this important form of exercise.

I would like to thank The Back School (Pty) Ltd for use of their illustrations in this article.

ULTRAMAN PEAKS

The Ultraman series reached a point of high drama during the Iron Man Triathlon in February when Pretoria's Nic Bester excelled to gain an overall lead in the competition. But fortune failed to smile on his Pretoria club-mate Piet Mare, who fell out of the multi-event competition when he retired in great pain from Iron Man with 18km to go in the marathon. Mare, who was in Ultraman contention among the top 10, spent the night in hospital because of problems with his kidneys. He has been advised to stay away from any form of physical exercise for at least two months. This has come as a bitter blow for the talented triathlete, who has a string of Iron Man gold medals to his name. It means that he will not receive his R2 000 prize money for winning the Vasbyt 160km cycle tour, which was one of four compulsory events in the series. The other three are the Hansa

Duzi canoe marathon, the Iron Man and the Comrades Marathon at the end of May. The four voluntary events are the JSE 50km, the Midmar Mile swim, the Argus Cycle tour (this Saturday) and the Two Oceans marathon over Easter. Mare's demise means that Natal's Keith Ellerker, who finished on his rear wheel at the Vasbyt, will be awarded the R2 000 for first Ultraman home in the ride. Bester, meanwhile, continues to astound with his uncanny all-round ability. He claimed fourth position in the Iron Man, which took in a 20km canoe at Hartebeespoort Dam, a 96km cycle and a standard marathon to Sandton (42,2km). Bester came out of the water among the top 20 canoeists, then powered his way through the field to Voortrekkerhoogte in the cycling, which he followed up with a superb 2hr 56min marathon to claim fourth behind Rocky Montgomery, Henk Watermeyer and Gerhard Uys. The Midmar Mile earlier saw George

Janos move up to third position and Duzi king Graeme Pope-Elis slip down to 6th in the top 10 ratings. But a mighty effort by "The Pope" in Iron Man, saw him shoot straight back up to 3rd in the Ultraman after a 6th at Iron Man. Janos hung in grimly to claim 8th at Iron Man and now lies fourth overall in Ultra Man. The Victoria Lake Club triathlete is determined to creep up in the ratings in March when he tackles the Argus cycle tour in Cape Town. Janos' cycling has improved dramatically this year and he should get away from The Pope in the Cape mountains, along with Bester. Then the dice will be on for second and third spots in the final run-in to the Ultraman competition when the field takes on the Two Oceans 56km road race with the grand finale, the Comrades Marathon. FOR FURTHER INFORMATION, PLEASE CONTACT TRACEY MAWER OF SPORTS INTERNATIONAL AT (011) 883-3333.



blisher (dated 2012.)

SASMA NEWS

SASGV NUUS

DR. D.P. VAN VELDEN

The South African Sports Medicine Association recognized the need for scientific information and training methods for the very popular long distance running events, notably the world known Comrades Marathon, and devoted the forthcoming Sports Medicine Congress to the various medical and physiological aspects of running. The growing popularity of this sport alarmed the medical community because the facilities to treat the vast numbers of casualties are not always optimal. It is also impossible to rule out all cases of possible myocardial infarctions, and it is expected that some cardiac emergencies might occur. Dehydration, heat disorders, and overhydration are the other problems that have to be taken care of.

Most of the medical and physiological problems of running can be prevented. The various topics presented by experts in their specific fields will inform the athletes, their coaches and the organizers of the possible hazards that might occur. Details of the congress are to be found in the Journal, or may be obtained from: Margaret Simpson
Continuing Medical Education
University of Natal
PO. Box 17039 CONGELLA 4013
Tel: (031) 254211
or Dr. R. Rathgeber, Tel: (031) 5611777
In die tydskrif verskyn daar ook instruksies vir skrywers vir artikels wat aangebied word vir publikasie in die Suid-Afrikaanse Sportgeneeskunde Tydskrif. Dit dien ook vermeld te word dat artikels wat gepubliseer word in die Suid-Afrikaanse Sportgeneeskunde Tydskrif,

kwalifiseer vir subsidiedoeleindes van navorsingsuitsette vir universiteite soos omskryf in die NASOP02-014 (87/07) verslag. Ons hoop dat dit akademiese geneeshere sal motiveer om te publiseer in ons tydskrif insake onderwerpe rakende sportgeneeskunde. Op hierdie wyse sal dit die standaard van die inhoudelike van ons tydskrif kan verhoog, sodat die publikasie van groter nut kan wees vir diegene wat belangstel in hierdie terrein. Ons poog ook om die artikels so kort as moontlik te hou, want 'n besige Algemene Praktisyn het net nie tyd om lang uitgerekte artikels te assimileer nie. Dit is een van die hoofdoelwitte van die Sportgeneeskunde vereniging om sy lesers op hoogte te hou van belangrike mediese en fisiologiese aspekte van sportbeoefening. Kommentaar en bydraes sal verwelkom word.



DRUGS AND PERFORMANCE IN SPORTS

By RICHARD H. STRAUSS, M.D, WB Saunders Company, 1987 pp 221.

Of the numerous books on Sports Medicine that appear daily on the market, this book can be considered as one of the most

useful guides on the effect of drugs and performance aids on athletic achievement for the practising physician. In the era where so many patients on drugs take part in some form of exercise or even competitive sport, doctors should be aware of the influence of the various prescribed medications on exercise performance. Even healthy people consult their doctors on various aspects of ergogenic aids in sport, as well as nutrition, dietary supplements and fluid and electrolyte replacement in sport. Doctors treating competitive athletes should also be aware of chemical substances that are banned during athletic competition, and prescribe a safe alternative, or advise his patients on the adverse effects of doping in sport.

This book evaluates the use of pharmacological, biological and psychological methods that are used in attempts to improve sports performance, including discussions of harmful side effects and how common therapeutic drugs can affect athletic prowess. The topics covered include objective information on nutrition, oxygen transport enhancement, anabolic steroids, stimulants and depressants, drug testing, psychological aids and therapeutic drugs in sport and exercise. The contributors are all well known experts in the field of clinical and sports medicine, and the text is clearly directed to the medical profession and sport scientists, although coaches, sportsmen and sports administrators would also find this book very informative



"It will answer all the questions on which drugs — if any — enhance or impair performance"

In South Africa, drug use by athletes is frequently in the news, and it is important for physicians and other health professionals to have ready access to the medical and scientific information about such use. The first section of the book deals with drugs and their perceived or real enhancement of athletic performance, and the second section discusses the effects of therapeutic drugs on active individuals — especially on their musculoskeletal and cardiovascular systems.

I found this book very applicable to the South African situation, and would recommend it to any doctor who cares for athletes and patients with a keen interest in exercise. It will answer all the questions on which drugs — if any — enhance or impair performance, whether there are any harmful side effects and what the ethical implications are.

Reviewer: Dr D. van Velden

Clinical Sports Medicine

by Robert C. Cantu
1984 230 pp Collier MacMillan
Clinical Sports Medicine published by the Collier Macmillan Press, Toronto, Canada is edited by Robert C. Cantu M.D. It is a book containing selected papers presented at the Annual Meeting of the New England Chapter of the American College of Sport-medicine in 1982.

Each chapter is written by a different author which gives much individuality. Unfortunately the extreme variation in subject material means that the book lacks cohesion. The section on Handicapped Sports is unusual and most interesting.

This is not a book for the casual sports medicine doctor but is meant for the enthusiast or the doctor with a specialised interest.

Reviewer: Dr C. Noble MBCh FCS (SA)

AQUA AEROBICS IS SAFER

A

erobics is an excellent form of exercise and is very popular.

However, it is not suitable for everyone and recently an alarming number of injuries has come to the fore.

With this in mind, and having discussed with medical and paramedical professionals, the attributes of water therapy, physical sports instructor, Tommy Rashed has developed aqua aerobic exercises.

Tommy told Medical Observer that the concept involves a carefully co-ordinated exercise routine carried out in a swimming pool.

"The water adds exertion to the exercises, but at the same time supports the body and relieves the joints of unnecessary pressure and possible injury."

As a physical sports instructor, which included scuba diving, Tommy Rashed who trained and qualified in Israel and now lives near Pretoria has observed with interest the overwhelming popularity of these aqua aerobic exercises which he has introduced at the Hoogland Health Hydro.

"A wide variety of people are now happily participating in exercise.

"This includes all age groups, both young and old, as well as people of all fitness levels.

"Some people," said Tommy, "were so overweight that they could not previously exercise, but much to their astonishment are now fully participating in aqua aerobic exercises."

People who are now enjoying this include those who had not previously partaken of exercise because of certain injuries sustained either from other forms of exercise or sport or because of medical problems.

Explained Tommy: "With aqua aerobic exercise all the objectives of regular exercising are not only achieved, but are enhanced by the fact that the water is working directly onto the skin, muscles and cellulite giving obvious beneficial results. "We believe this to be an up and coming trend in popular exercising, not only for people already participating in exercise,

but also in a large number of people who have previously been excluded from exercising due to injuries and medical problems."

Due to the overwhelming demand, Tommy Rashed has completed an audio tape cassette of these exercises, which is made pleasurable, too, because of the tranquil background music.

These tapes can be obtained by writing to Tommy Rashed at the following address: P.O. Box 34203, Erasmia 0023. The price of the tape "Aqua Aerobic Exercises" is R18,00 plus postage and packing.

Acknowledgement:

The Medical Observer — Oct 1987



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MANAGEMENT OF LONG-DISTANCE RUNNERS BY PHYSIOTHERAPY

BY GARY M. SOBEL BSc. (Physiotherapy) Rand.

Because of the popularity of long-distance running in this country, the doctor is increasingly being faced with injured runners. Often the runner is advised by a doctor to lay-off

for an extended period to allow an injury to recover.

While this advice will benefit the patient, 'rest' is a dreaded 4-letter word to most runners.

The demands that are placed on the runner to consistently cover mile-ages as high as 50-120kms per week in preparation for the Comrades Marathon, make the runner re-luctant to stop running even for a very short period.

Sports Physiotherapy, which today offers a dynamic and aggressive approach, enables runners to continue their training without too long an interruption.

No longer is physiother-apy a palliative applica-tion of heat and mas-sage, but rather a holistic approach to effective injury management.

*CAUSE OF INJURY

Each running injury has an identifiable and treatable cause, and unless that cause is isolated and treated, a complete cure will not result.

This cause may take the form of Biomechanical Abnormality, incor-rect training methods, incor-rect shoes, over-use or over-loading. Explanation of the mecha-nism of the injury to the runner will educate him regarding the root of the problem and equip him to avoid re-currences.

*SEVERITY & TYPE OF INJURY

The physiotherapist assesses the extent of the injury, and modifies

the runner's training programme accordingly.

The runner can usually continue running but only to the point where he actually starts to feel discomfort.

A more severe case may ne-cessitate only a few days rest if treatment is administe-red promptly

An accurate assessment of how long a runner needs to be 'off the road' is impor-tant as the runner will be more agreeable to curtail all running if he knows that this is a temporary measure for a pre-determined num-ber of days

Absolute rest is prescribed only in the case of a stress frac-ture, tendonitis with crepitus, or a severe muscle rupture.

*ASSESSMENT OF THE RUNNER

The assessment of the runner as to



to the number of years of running experi-ence, the finishing times he wishes to achieve, and his previous history of injuries, has a bearing on the approach to both in-

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jury and patient.

The beginner, still undergoing musculo-skeletal adaptation in his first 9-18 months, typically picks up injuries such as Iliotibial Band Friction Syndrome, 'Runner's Knee', and Shinsplints.

The more seasoned runner incorporating speed, hills, and higher mileages into his training programme, would tend to pick up injuries such as chronic hamstring and calf muscle tears.

The injured beginner may only be able to run for 15 minutes before the pain becomes severe enough to stop running; whereas the seasoned runner may be able to run an 'easy' 42km marathon with a 'niggling' hamstring injury.

*ACTIVITY DURING RECOVERY

The runner, if made to rest completely while injured, will become cardiovascularly unfit as well as losing musculo-skeletal conditioning. An alternative sport which will not aggravate the injury should be prescribed for the injured runner during recovery.

Depending on the type of injury, the runner may be able to partake in cycling, swimming, or canoeing. Stretching and strengthening exercises not affecting the injured site, must not be neglected during recovery.

*CORRECT SHOE PRESCRIPTION

The assessment of the patient's feet while standing barefoot, running gait with and without shoes, and the wear pattern of existing shoes, plays an important part in the overall treatment of the runner. This assessment will establish the type of foot of the runner (high-arched, normal, or flat-foot); whether he has the correct shoe to suit his foot, and the condition of the shoe.

Based on these examinations, a correct shoe prescription may be made. Inserts for the runner's shoe may help the condition in the early stages.

For example, heel raises may be recommended for calf strain and achilles tendinitis, lateral wedges for Iliotibial Band Friction Syndrome, and medial wedges for 'Runner's Knee'.

Used as a temporary measure to alleviate symptoms, the runner can be 'weaned' off these supports as healing takes place. In the event of recurrence of the injury, these supports could become a permanent solution.

*CORRECT TRAINING PROGRAMME

Most injuries in distance runners are chronic overuse injuries caused by doing 'too much, too fast, too soon'.

The runner's training programme should be carefully examined and broken down into the 5 different variables which must be modified in the event of injury.

These are the frequency of runs per

week, total weekly distance, pace of running, running surface and gradient. A gradual progression of the different variables and the continual monitoring of how the runner is coping forms the basis of a good training programme.

*DEEP TRANSVERSE FRICTIONS

This technique as described by Cyriax has become the treatment of choice for both acute and chronic injuries.

Adapted to the site and stage of the injury, Deep Transverse Friction is used for muscle, ligament and tendon injuries.

**"CAUSE OF INJURY
Each running injury
has an identifiable
and treatable cause,
and unless that cause
is isolated and
treated, a complete
cure will not result."**

Cross Friction Massage, according to Cyriax, must be given sufficiently deeply and vigorously across the affected fibres to the correct spot with sufficient sweep. With Deep Transverse Friction, rapid results are seen after only a few treatment sessions.

*CORRECTIVE STRETCHING EXERCISES

Stretching is a very useful means of injury prevention and of promoting healing of an injury.

Training causes muscles to become in-

flexible and short, and the very act of running produces relative muscle imbalances which can result in injury. Gentle stretching during the repair phase of an injury will tend to remodel the fibres of a muscle or ligament tear in the direction of loading.

Stretching should be done slowly with no bouncing, taken to the point of slight discomfort and held for 15-30 seconds.

*STRENGTHENING EXERCISES

Strengthening exercises play an important role in preventing muscle imbalances. Exercises can also be used to correct patella 'maltracking' — for example, in 'Runner's Knee'.

Corrective strengthening exercises to an injured structure will promote adequate and complete healing.

*ANTI-INFLAMMATORY MODALITIES

The Sports Physiotherapist is equipped with modern machines which are excellent modalities for the reduction of inflammation, pain relief, and the promotion of healing.

Modern equipment includes interferential therapy, didynamic current, curapulse and the conventional Ultra-sonic.

*"SELF" - TREATMENT

Active participation by the patient applying self-treatment at home, not only accelerates the healing process but also has a psychological benefit as the patient feels that he is doing something positive towards his own recovery.

The physiotherapist should explain how to make and apply an effective ice-pack, which can be applied for 20-30 minutes 2-3 times daily. Stretching & strengthening exercises at home should be actively encouraged.

*RETURN TO RUNNING

As it is impossible to know how the injury will respond in the initial stages, a trial period is essential when attempting to return to running.

A flat grass field is optimal as this allows for minimal stress and ample cushioning. The runner should run completely 'pain-free' on alternate days building up at 5 minute increments from 15 minutes to 50 minutes. If, however, pain develops, running should be stopped immediately.

With this holistic approach to both injury and patient, the Physiotherapist plays an invaluable part in getting the patient onto 'the road' to recovery.



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