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TYDSKRIF VAN DIE S.A. SPORTGENEESKUNDE-VERENIGING

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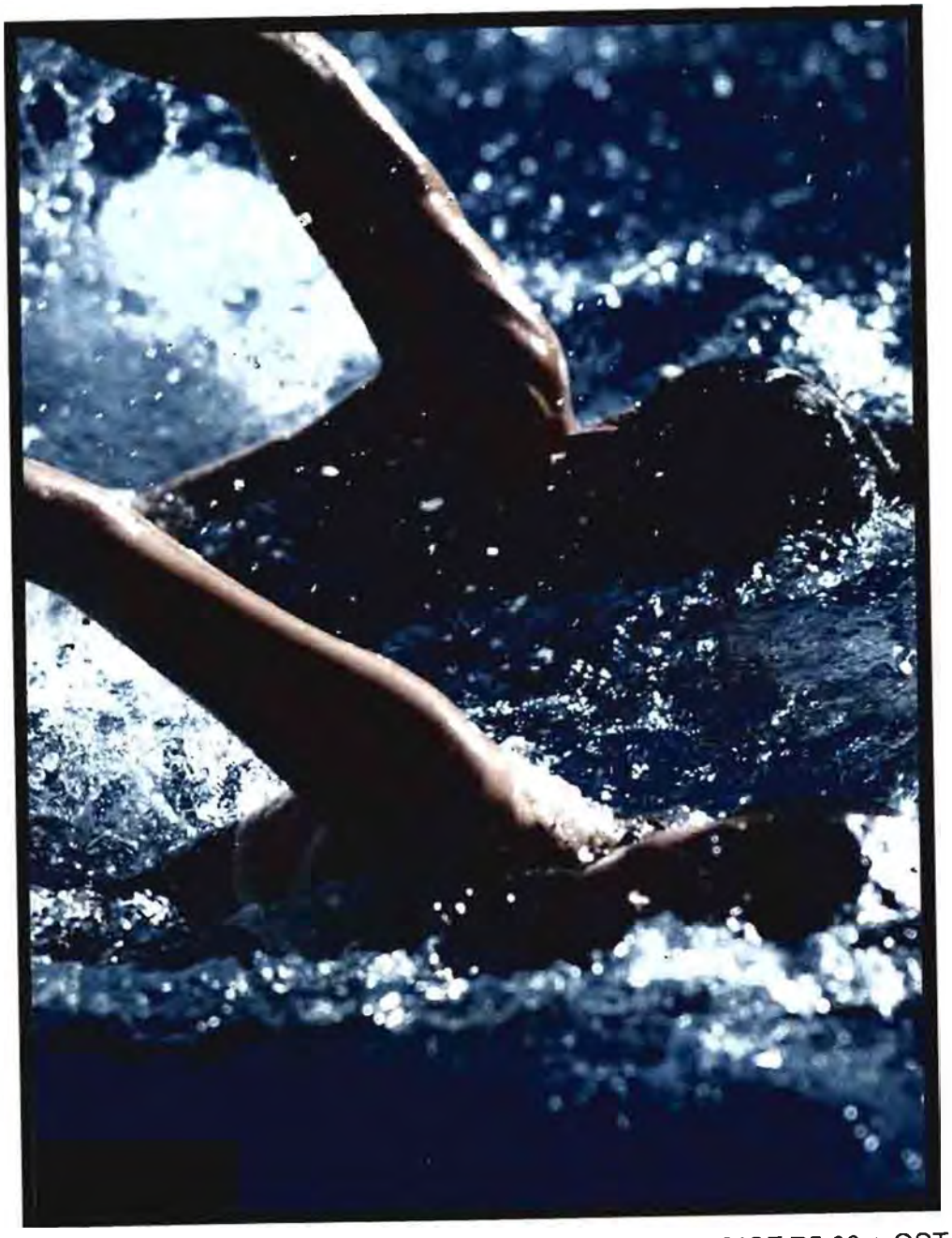

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ETHICAL CONSIDERATIONS IN SPORTS MEDICINE

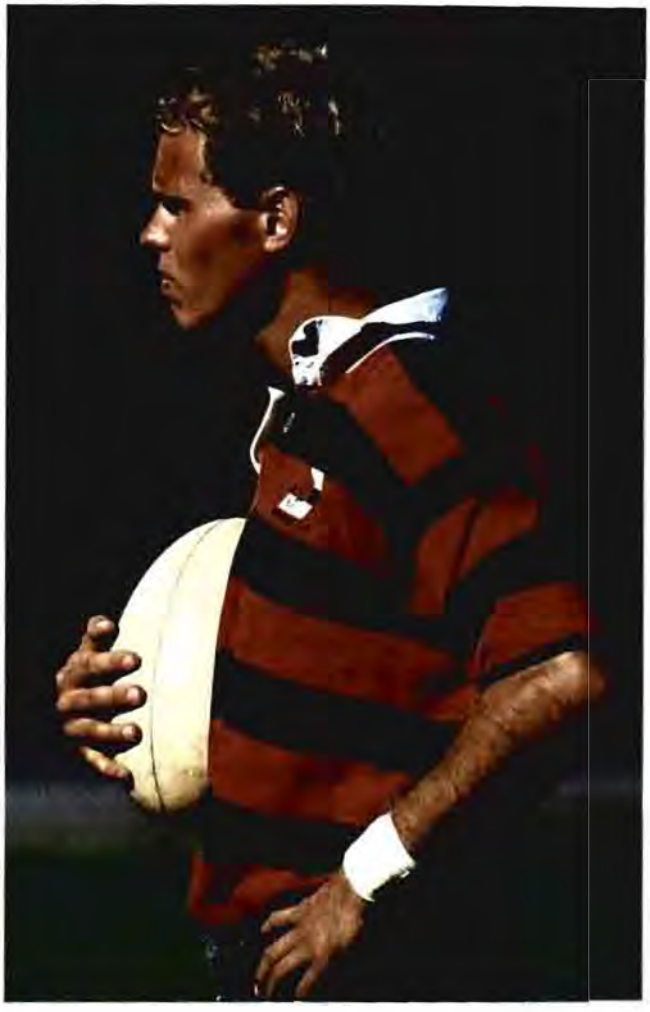
There is a growing multi-disciplinary interest in Sports Medicine in South Africa mainly due to the following reasons:

- It gives an opportunity to certain professional people to practice medicine.
  In this group are those whose main interest is in the treatment and rehabilitation of sports injuries.
- To apply medical knowledge to the benefit of sport.
  For these people the challenge and interest is to use anatomy, physiology, biochemistry, etc. to develop and improve training methods so that ultimately performance can be improved.
- For the contribution sport and exercise can make to medicine.
  The interest of these people is to apply the various aspects of sport and exercise – physical training, participation, discipline – to help in medical problems whether as prevention, treatment or rehabilitation.

This has resulted in a wide range of people becoming interested in the discipline and practice of Sports Medicine. Unfortunately, due to the diversion of interests and growing body of knowledge and expertise, it will never be possible to register a single medical discipline such as a Sports Medicine Specialist.

The emphasis should rather be on teaching applied Sports Medicine to existing professionals in their respective fields to equip them better to manage medical problems relating to sport and exercise. In this respect it will be possible to train a Primary Care Physician for general, primary care of sportsmen, to give a physiotherapist a higher degree in sports physiotherapy, or to increase the knowledge of an orthopedic surgeon in the field of sports traumatology. The universities in South Africa recognised these needs, and are beginning to investigate the possibility to offer various post graduate courses in sports medicine.

As with any new branch in medicine, the boundaries of Sports Medicine has not been, and cannot be accurately defined. Medical practitioners and other professionals obtaining a higher degree in sports medicine, should for ethical reasons, confine their practices to their specific registered fields, be it in General Practice, Physiotherapy, Orthopedics, Biokinetics, etc., with a special interest in sports medicine. Practitioners may not advertise themselves as "Sports Medicine Specialists".



Professionals registered by the Medical and Dental Council, may not advertise a particular person, institution, remedy or technique. The main principle underlying all the ethical rules concerned with this subject, is that a doctor or other registered person, may not seek to attract patients in a manner that would give him an advantage over his colleagues with similar qualifications.

By the registration of medical qualifications, the SA Medical and Dental Council also protect the public by laying down minimum standards in a circumscribed curriculum. The lay public can thus be reasonably assured that the professional concerned has a standard of academic training to be able to practice in his specific field.

Dit is van die uiterste belang dat alle persone wat betrokke is by sportgeneeskunde, sal optree in belang van

sport en die sportman. Dit sou dus oneties wees om sportgeneeskundige kennis te gebruik tot nadeel van die sportman, soos byvoorbeeld die toediening van anaboliese steroïede aan gesonde sportlui met die uitsluitlike doel om sportprestasies te verbeter sonder inagneming van die gesondheidsimplikasies wat so 'n prosedure mag inhou vir die betrokke persoon. Dit kom ook neer op die onregmatige bevoordeling van die sportman bo sy opponente wat strydig is met die reëls van regverdigheid in sport.

Geneeshere moet hulleself ook weerhou om in hulle professionele hoedanigheid betrokke te raak by advertensie veldtogte om sekere aspekte van "gesondheid" te bevorder op so 'n wyse dat die betrokke geneesheer homself persoonlik onregmatiglik bevoordeel. Medici moet ook leer om flater wat die Aptekersprofessie gemaak het met die slagspreuk van "Jou Apteker weet die beste" wat die aptekersprofessie tot 'n sekere mate gediskrediteer het.

Daarenteen moet die beperkings wat op geneeshere geplaas word met betrekking tot advertering, nie onredelik wees en teenproduktief inwerk op die praktyk van sportgeneeskunde as sodanig nie en sal daar met nuwe oë gekyk moet word na die mate van blootstelling wat mediese praktisyns mag kry om hulle belangstellings en bekwaamhede op 'n etiese wyse bekend te stel. Dit is allerweë bekend dat daar wêreldwyd 'n verslapping is in die regulasies betreffende advertering deur professionele persone.

Die Sportgeneeskunde Vereniging stel dit hom ten doel om te waak oor die belange van sy lede en mee te help dat sportlui toegang het tot gespesialiseerde sportgeneeskundige dienste tot voordeel van sport en gesondheid in die algemeen. Vir hierdie doel is 'n etiese komitee in die lewe geroep wat sekere etiese aspekte in die belangeveld van sportgeneeskunde ondersoek om so ook sy lede van raad en daad te bedien insake die korrekte optrede onder bepaalde omstandighede.

Professionele persone moet ook versigtig wees om in die openbaar uitsprake te lewer oor die optrede van sekere kollegas indien dit die integriteit van die betrokke kollega onder verdenking kan bring of by implikasie 'n ander professionele liggaam diskrediteer. Verskille van opinie in geneeskunde sal daar altyd wees, maar standpunte moet op 'n professionele wyse besleg word – in die geneeskundige veld is dit altyd gevaarlik om dogmaties te wees: jy mag môre verkeerd bewys word!

Sportgeneeskunde bied interessante en verbeeldingryke uitdagings – dit is 'n terrein waarop daar groot vordering gemaak is oor die afgelope jare. Alleenlik deur wedersydse erkenning van professies en multidissiplinêre samewerking onder belanghebbendes, kan die nuwe horisonne verken word.

Dr. Dawie Van Velden
President: SA Sportgeneeskunde Vereniging

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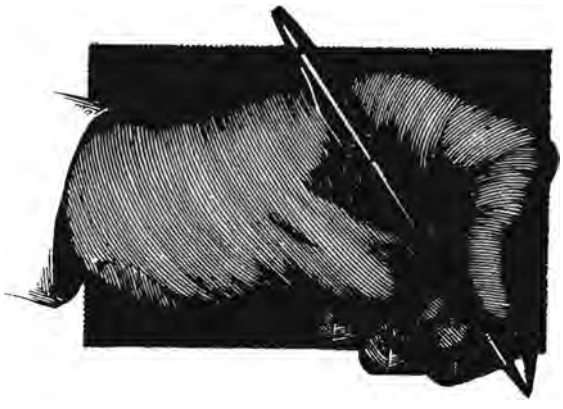
SCIENTIFIC ARTICLES

1. The Journal of the South African Sports Medicine Association publishes original and review articles from all disciplines relevant to Sports Medicine. The Journal aims to cater for the diverse interests of members of the medical and para-medical professions and the sporting public interested in scientific and medical aspects of sport.
2. Material submitted for publication in the JSASMA is accepted on condition that it has not been published elsewhere. All named authors must give signed consent to publication, and the JSASMA does not hold itself responsible for statements made by contributors.
3. All submitted articles should be of appropriate scientific value and should have practical application in sports medicine. Articles may be written in Afrikaans or English. The contributions will be critically reviewed by at least one appropriate referee who is a specialist in the field of the submitted material. This review wil be passed on a double-blind approach (both author and referee will remain anonymous to each other). The referee's comments will be sent to the author together with the evaluation of one of the Editors. Acceptance of the paper for publication is based on originality and quality of the work as well as on the clarity of interpretation. The papers will be published in the order of acceptance and not in the order of submission. The publisher reserves copyright and reproduction rights of all published material, and such material may not be reproduced in any form without the publisher's written permission.



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Manuscripts should be typewritten, double-spaced on sheets of uniform size, no larger than 21 × 29,7cm(DIN A4) with a 3-cm margin on the left. All contributions are to be submitted in duplicate (one original with illustrations suitable for reproduction and two complete copies including copies of figures and tables). Only the original copy will be returned to the authors(s) in case of revision or rejection.

The **cover page** of the manuscript should list the following information:

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(iii) Author(s) initials and name(s)
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The **second page** of the manuscript should include only the title of the article without reference to the author's names or affiliations.

The **third page** of the manuscript should give an abstract of the scientific contents of no more than 200 words and not exceeding one double-spaced type written page.

The **text** of the manuscript should be arranged as follows:

An **Introduction** describing the purpose of the work in relation to other work in the same field.

Material and Methods: Describe the selection of the observational or experimental subjects clearly. Identify the methods, apparatus and procedures in sufficient detail to allow other workers to reproduce the results.

The **Results** should be presented concisely. The statistical method used should be named. Authors must express units, quantities, and formulas according to the recommendations of the Systéme International (SI units). All measurements should be given in metric units.

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Illustrations and tables

Figures consist of all material which cannot be set in type, such as photographs and line drawings. (Tables are not included in this classification and should not be submitted as photographs). In no circumstances should original X-Ray films be forwarded; glossy prints must be submitted. Tables and legends for illustrations should be typed on separate sheets and should be clearly identified. Tables should carry Roman numerals, thus: I, II, III etc, and illustrations Arabic numerals, thus: 1, 2, 3 etc.

Tables should be self-explanatory and bear a short title. Abbreviations used should be explained in the legend or at the bottom of the table. Illustrations should be labelled with the name of the first author and the illustration number on the top left-hand corner of the back side.

References

References should be inserted in the text as superior numbers, and should be listed at the end of the article in numerical order. **Do not list them alphabetically.** It is the author's responsibility to verify references from the original sources. References should be set out in the Vancouver style, and only approved abbreviations of journal titles should be used; consult the January issue of *Index Medicus* (No. 1, Part 1) for these details. Names and initials of authors should be given unless there are more than six, in which case the first three names should be given followed by *"et al"*. First and last page numbers should be given e.g.

1. Noakes TD. Heart disease in marathon runners: a review. Med Sci Sports Exerc 1987; 19: 194-198.

Book references should be set out as follows:

1. Peterson L, Renstrom P. Sports Injures. Their prevention and treatment, 1st ed. South Africa: Justa and Co Ltd, 1986.
2. Oldridge NB: Compliance with exercise programs. In: Pollock ML, Schmidt DH, eds. Heart Disease and Rehabilitation (ed 2). New York, John Wiley & Sons, 1986: 629-646.

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PRACTICAL ARTICLES

The more practical articles, review articles, papers presented at congress etc, do not need to comply with such strict guidelines –

Length

Length of these contributions should not however exceed 5-6 pages typed in double spacing. All contributions are to be submitted in duplicate.

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AN EPIDEMIOLOGICAL STUDY OF FAILURE TO COMPLETE A LONG-DISTANCE SEA SWIM

D Yach

SUMMARY

A postal questionnaire survey was used to compare the characteristics of swimmers who failed to complete a 3 kilometer sea swim to those who completed the swim. Swimmers who failed to complete the swim reported significantly higher rates of headache and severe shivering compared to successful swimmers. Only previous participation in a cycling marathon was related to failure. Age, sex and body mass index being non-significant.

INTRODUCTION

In March 1988 ninety-three swimmers took part in a 3.2 km swim from Clovelly to Simonstown. The usually warm Indian ocean on that day was measured at 16°C. The participants included experienced swimmers, tri-athletes and casual swimmers. A high proportion of participants (24,7%) failed to complete the race and had to be removed from the water by the patrolling crews. Following the race, a great deal of concern was expressed about the need for wetsuits in further swims. The aim of this study was to assess whether those swimmers who successfully completed the event differed from those who did not complete the event and to evaluate the need for wetsuits in future events.

METHODS

A complete list of all participants, their addresses, times (if they completed the swim), age and sex was obtained from the Cape Long Distance Swimming Association, the organisers of the event. All participants were mailed a questionnaire. The questionnaire contained questions about the demographic characteristics of swimmers, their height and weight, their prior participation in a number of sports events, whether they had a number of symptoms, and their attitudes to wetsuits. The questionnaires were mailed between ten days and two weeks after completion of the swim.

RESULTS

For the 70 who completed the swim, times varied between 42.5 minutes and 153.5 minutes (median=61; interquantile range 50-68). A relatively high response rate to the questionnaire (75%) was obtained. The distribution of respondents and non-respondents was similar with respect to their completing time as well as the proportion who did not complete the swim. It was felt likely therefore, that the respondents were representative of all participants (Table 1).

For analysis, swimmers were initially divided into those who completed the swim and those who did not complete the swim. Further analyses split the group of those who completed the swim into those whose time was below the median time and those above the median time for completion (i.e. 61 minutes).

The age, sex and height distributions

Table 1: Characteristics of respondents versus non-respondents

Time taken	Respondents	Non-respondents (%)	All
<50 minutes	12	2 (14)	14
50-59 minutes	14	5 (28)	18
60-74 minutes	20	7 (27)	27
75+ minutes	5	5 (56)	9
Not complete swim	19	4 (17)	23
TOTAL	**70**	**23 (25)**	**93**

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Centre for Epidemiological Research in Southern Africa (CERSA)
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for those who completed and did not complete the swim were similar (Table 2). The weights of those who completed the swim were 4 kg higher and their body mass index as well was higher than those who did not complete the swim. These differences, however, were not statistically significant. The percentage participation in the 1988 Peninsula Marathon and the 1987 Robben Island Relay Challenge showed no differences between those who completed and those who failed to complete the swim. There was a statistically significant difference in the proportion of those who completed the Argus Cycle Tour with 88.2% of those who failed to complete the swim having participated in the Tour compared to 49% of those who did not. The hours spent training showed that there was a significant difference in the amount of hours spent training particularly with respect to cycling. A similar trend with respect to time taken to complete the swim was found (Table 3). A multiple logistic regression yielded similar results to the univariate approach in that only cycling was significantly related to failure when age, sex and body mass index were controlled for.

Table 2: Comparison of demographic and sports participation characteristics of swimmers

	Completed 3.2 km swim (n = 53)	Failed to compete (n = 17)
Sex (percent male)	90.2	89.0
Age *	29.9 (11.4)	25.8 (11.2)
Height *	1.80 (0.1)	1.8 (0.1)
Weight *	76 (13)	72 (23)
Body Mass Index *	24 (2.6)	24.0 (5)
Participation in +		
'88 Argus Cycle Tour **	26 (49)	15 (88.2)
'88 Peninsula Marathon	19 (35.9)	7 (41.2)
'87 Robben Island Relay Challenge	5 (9.4)	1 (5.9)
'87 3.2 km Glencairn-Simonstown swim	14 (26.4)	6 (35.3)

\+ number (percent)
* Median (interquartile range)
** p = 0.004, Wilcoxon test
*** p = 0.007, Wilcoxon test

Table 3: Comparison of demographic and sports participation characteristics of swimmers who completed the 1988 3.2 km swim

Variable *	Time <61 minutes	Time ≥61 minutes
Age (years)	25 (9.7)	33 (17)
Height (metres)	1.8 (0.1)	1.8 (0.1)
Weight (kilograms)	78 (13.5)	75 (13.3)
Body Mass Index	24 (2.8)	24 (3.0)
*Median (IQR)		
Participation in +		
'88 Argus Cycle Tour *	6 (24)	18 (69.2)
'88 Peninsula Marathon **	5 (20)	12 (46.2)
'87 Robben Island Relay Challenge	4 (16)	1 (3.9)
'87 3.2 km Glencairn-Simonstown swim	9 (36)	5 (19.2)

\+ number (percent)
* $p = 0.001$, χ^2 test
** $p = 0.05$, χ^2 test

The symptoms of swimmers who completed and did not complete the swim are shown in Table 4. It can be seen that there was a statistically significant difference between the groups with respect to headache. The highest proportion being reported among those who were unsuccessful. It should be noted that for all other symptoms the proportion was higher among those who were unsuccessful. When the successful competitors were divided into two groups according to the time that took them to complete, there were also statistically significant differences with respect to headache, difficulty talking and severe shivering with the highest proportions being reported among the slowest competitors (Table 5).

32.9% of all participants felt that wetsuits should not be allowed in swims. There was no difference in response to this question between those who completed and those who did not complete the swim nor was their attitude influenced by their time taken to complete the swim.

There was a relationship between the longest sea swim completed and the success rate. All of those who had completed swims greater or equal to 5 km successfully finished the race, compared to 90% of those who completed a prior 3 km sea swim and 8% of those who had swum shorter distances in the sea.

CONCLUSIONS

No published epidemiological studies

Table 4: Symptoms of swimmers *

	Completed the 1988 swim (n=53)	Failed to complete the 1988 swim (n=17)	p-value
Muscle cramps	15.7	33.3	0.109
Vomitting	1.9	0.0	.550
Disorientation	25.5	33.3	.522
Headache	7.8	33.3	0.008
Nausea	7.8	16.7	.286
Difficultly walking	45.1	66.7	.116
Difficulty talking	31.4	50.0	.158
Severe shivering	60.8	83.3	.081

* Percentage within group

Table 5: Symptoms of swimmers who completed the swim

	Time <61 minutes (n=26)	Time minutes (n=27)
Muscle cramps	12	19.2
Vomitting	0	3.9
Disorientation	24	13.8
Headache**	16	0
Nausea*	0	15.4
Difficulty walking	40	50
Difficulty talking**	16	46
Severe shivering**	40	80.8

* $0.1 < p < 0.05$
** $p < 0.05$

Logistic to control Age, Sex, BMI Marathon RI Relay Cycle

		OR	
		14.0	
		OR = 9 from	95% CI
β = 2.64		University	(2.3 83.9)

		Completed (51)	Not (18)	P
Sex	% male	90.2	89.0	.875
Age	% ≥ 27 yrs	54.9	44.4	.445
BMI	% ≥ 25	44.0	50.0	.943
Cycle tour		47.1	89.0	.002
Marathon		33.3	44.4	.339
RI relay		9.8	5.6	.503

have examined reasons for failure to complete swims. Cape reports under experimental conditions have shown that respiratory reflexes and hypothermia at 4.7°C result in early failure.[1,2] The increased interest especially by tri-athletes in sea swims at temperatures below 20°C, demands greater attention by researchers to determinants of failure if deaths due to hypothermia are to be prevented. This study shows that age, sex and body mass index were not related to the likelihood of completing a swim at 16°C, nor the time taken to complete it. The major determinant or factors related to a likelihood of completing are related to prior long distance sea experience and heavy prior participation in cycling (as a negative factor).

The symptoms most able to distinguish between failure and success both in absolute and relative terms were headache and shivering. Further work is required to determine the predictive value of a headache while swimming for severe hypothermia. This will certainly be of use to athletes training for future events as well as participation during such events. It should be noted that all swimmers had to wear compulsory headgear.

The implications of the study for future swims are that stricter attention may need to be played to ensuring that participants, particularly cyclists, increase their swimming training. The need for wetsuits was not evaluated in this study. Since this event is part of the tri-athlete circuit, it may be advisable to suggest that wetsuits be worn at future events. Further research is required using measures of fat content to determine predictors of hypothermia.

ACKNOWLEDGEMENTS

The Cape Long Distance Swimming Association for their assistance in conducting the study, Prof Tim Noakes for useful comments on an earlier draft of the manuscript and the swimmers for responding.

REFERENCES

1. Editorial. Survival in Cold Water. *Br Med J* 1969; 1: 459.
2. Keatinge WR, Prys-Roberts C, Cooper KE, Honour AJ, Haight J. Sudden Failure of Swimming in Cold Water. *Br Med J* 1969; 1: 480-483.

LOWER LIMB COMPARTMENT SYNDROMES

Clive Nobel

Anterior Tibial compartment

ANTERIOR TIBIAL COMPARTMENT SYNDROME

*** This condition may be a *surgical emergency* as muscle death will rapidly occur, giving rise to Volkmann's Ischaemic contracture.

Symptoms

In the severe traumatic variety, often associated with fractures of the tibia and fibula, the symptoms and signs include:

- Pain
- Pallor
- Parasthesia
- Pulselessness
- Paralysis

In the exercise variety, the symptoms are usually of a chronic nature.

- **Acute**

  Rarely, this condition may be acute with extremely severe pain followed by loss of function within 4-6 hours.

  Paralysis and anaesthesia of the area supplied by the involved peripheral nerve rapidly ensues.

- **Chronic**

  This is found commonly in runners. Progressive pain and tension in the compartment ensues on running, and the foot loses dorsiflexion strength causing it to "slap".

  Parasthesia (usually pins and needles) may develop.

  Chronic symptoms usually follow severe unaccustomed exercise.

Signs

- Tense, tender anterior compartment which is marked in acute cases.
- Most cases have dorsalis pedis pulse intact.
- Most cases have hyperesthesia on the dorsal aspect of the first web.
- Symptoms may be elicited by rapid ankle movements with the patient lying supine.

The lower leg is divided into three fascial compartments: The interosseous membrane divides the leg into anterior and posterior compartments. Two septa attached to the fibula on its lateral aspect, form a **lateral** compartment. Except for blood vessels, nerves and tendons leaving the compartments these areas are essentially closed spaces.

The **anterior** compartment is enclosed by the tibia and the fibula on the sides, by the interosseous membrane posteriorly and by a fascial layer anteriorly.

The **posterior** region is divided into posterior deep and posterior superficial compartments by a fascial layer.

The **lateral** compartment is based on the fibula and is separated from the other compartments by anterior and posterior fascial bands.

Each compartment is supplied by one major vessel and nerve.

The pressure in the arterioles is about 40 mm Hg (mercury). Capillary pressure is between 20 and 30 mg Hg and venous pressure is 10-15 mm Hg.

Mechanism of injury

Any condition which raises the pressure in the compartment above 40 mm Hg will block the blood flow to the muscles without including the major arteries.

In sport two conditions may raise the intracompartmental pressure, namely trauma and exercise.

Sports

Compartment syndromes may occur in any sport, the traumatic variety being common in collision sports. They are more likely to occur in association with fractures.

The exercise variety of compartment syndromes is common in endurance sports eg. long distance running.

Compartment syndromes may occur in either sex but are found more commonly in males due to their participation in collision sports.

Sites of these syndromes include:

- the anterior tibial compartment;
- the posterior tibial compartment; and
- the lateral compartment (peroneal).

Differential diagnosis

Anterior shin splints (tibial stress syndrome).

Investigations

This is usually an easy clinical diagnosis but compartment pressure studies are valuable in confirming the diagnosis.

Treatment

ACUTE

*** This is a *surgical emergency* and fasciotomy should be carried out as soon as possible.

The skin incision may also have to be left open as the muscle swells excessively. The skin incision must be the length of the compartment.

CHRONIC

Treat Cause

Reduction of activity

- The runner should immediately reduce his programme and should thereafter build up progressively;
- Avoid hill running.

Treat Result

The marked swelling should be treated by:

- elevation;
- icing;
- non-steroidal anti-inflammatory drugs.

If the condition fails to respond to conservative treatment, then fasciotomy may be necessary.

The Anterior Tibial compartment syndrome is found more commonly in runners. Progressive pain and tension in the compartment ensues on running, and the foot loses dorsiflexion strength causing it to "slap".

POSTERIOR TIBIAL COMPARTMENT SYNDROME

This is not as common an injury as that of the Anterior Tibial compartment.

Symptoms
Pain in the posterior compartment during and after running and injury.

Signs
Tense, tender posterior compartment following exercise or trauma.

Differential diagnosis
Posterior tibial stress syndrome.

Investigations

- Pressure testing will clarify the diagnosis;
- Bone scan is often positive in tibial stress syndrome.

Treatment
As for Anterior Tibial compartment syndrome.

LATERAL TIBIAL COMPARTMENT SYNDROME

Symptoms
The features are the same as those found in the other compartment syndromes except that the pain is localised over the lateral compartment. This is an uncommon condition.

Peroneal nerve compression may cause weakness of eversion.

Treatment
As for Anterior Tibial compartment syndrome.

This article is reprinted from "The Manual of Sports Injuries" by Clive Nobel.

Posterior Tibial compartment

PROTEIN IN THE DIET

M Faber

Protein is an essential structure of all living matter. The cells in the body are in a dynamic state of continuous destruction and resynthesis of protein which facilitates the regeneration of cells. The proteins in the body are inevitably dependent for their formation and maintenance on the proteins in the diet. Although proteins are an essential life-forming and life-sustaining ingredient of the diet, it would not be appropriate to state that proteins are more important than other nutrients. Different nutrients have different functions, all of which are important to maintain a healthy body. The functions of protein can be divided into two main categories viz. proteins necessary for growth and maintenance, and proteins that regulate biological processes.

Proteins are necessary for growth and maintenance

- proteins constitute the chief solid matter of muscles, organs and endocrine glands;
- proteins are major constituents of skin, nails, hair and the matrix of bones and teeth;
- proteins are major constituents of blood cells and serum.

Proteins are involved in and regulate biological processes

- plasma proteins play a role in the regulation of osmotic pressure and water balance;
- the body's resistance to disease is maintained in part by antibodies which are protein in nature;
- metabolic processes are regulated by enzymes which are protein in nature;
- most hormones are protein in nature.

Under normal conditions, these functions are maintained, provided that the energy content of the diet is adequate. Should carbohydrates and fat fail to supply enough calories, then protein is utilised for energy. Under these circumstances symptoms of protein deficiency may appear, even when the amount of protein is adequate.

Proteins are distinguished from carbohydrates and fat by the presence of nitrogen in the muscle. It is merely of this difference that the place of protein in the diet cannot be replaced by carbohydrates or fat. Proteins consist of units called amino acids, which are linked together to form the protein molecule. Proteins differ in the amounts of the various amino acids and their arrangements. The quality of the protein (also known as the biologic value) is determined by the sequence of the amino acids. The amino acid composition of the protein in eggs is sometimes used as a standard against which the quality of other proteins are compared. Egg proteins, most of which are albumins in the white of

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the egg, have the highest biologic value of all proteins. There are certain amino acids (that are indispensable to life and growth) which the human body cannot make for itself. These are called the essential amino acids and they must be obtained from the diet. The adult human body can maintain nitrogenous equilibrium on a mixture of these eight essential amino acids, as the sole source of nitrogen. Depending upon their ability to maintain life and promote growth, proteins have been classified as either complete or incomplete.

Complete proteins contain all the essential amino acids in quantities sufficient for maintenance of the tissues and for normal rate of growth. Such proteins are said to have a high biologic value. These proteins are of animal origin and include eggs, cheese, milk, meat, poultry and fish.

Incomplete proteins can be divided into two classes:

- **partially incomplete proteins** can maintain life, but they lack sufficient amounts of some of the amino acids necessary for growth. These proteins are of plant origin and include protein in cereals, legumes and nuts.
- **totally incomplete proteins** are incapable of replacing or building new tissues, and hence cannot support life, let alone provide growth. These proteins include the proteins in gelatine.

From the above classification, it can be seen that proteins are either of animal or plant origin. With the exception of gelatin, all animal proteins are complete and of high biological value. Most plant proteins (with the exception of wheatgerm) lack one or more essential amino acid in sufficient amounts. The lacking amino acid is known as the **limiting amino acid**. The proteins in wheatgerm are, although of plant origin, of high biologic value. Not only is animal protein of higher quality than plant protein, but proportionally animal foods contain more protein than plant foods. Fruit and vegetables have very low (if any) protein concentrations. As a rule, less animal than plant protein is necessary to provide enough of all the essential amino acids.

Although plant proteins lack certain amino acids, their role in the diet should not be underestimated. The shortage of the lacking amino acid can be overcome by adding another protein which contains the missing amino acid. The capacity of proteins to make good one anothers deficiencies is known as their **supplementary value**. When an appreciable amount of plant protein is fed with only a small amount of animal protein, the quality of the mixture is of

high value. For example, cereal foods are usually low in an amino acid called lysine, but milk supplies ample amounts of the missing lysine. Thus, macaroni and cheese, cereal and milk or bread and cheese are supplementary. Likewise, a relatively small amount of meat, egg or cheese in a rice, noodle or macaroni casserole is an effective combination. For the best use of protein foods, some complete protein should be included in each of the meals of the day, rather than alloting all of it to one meal.

Because of the supplementary effect, diets consisting entirely of a wide variety of plant sources can adequately meet the protein needs of healthy adults, provided that the diet contains sufficient energy. This can be achieved by choosing a variety of plant foods (eg. legumes, cereals and nuts) and furthermore, a variety of each kind (eg. maize, wheat, oats and rice – all cereals; and soya and other dry beans, peas and lentils – all legumes). Plant foods supplement one another exceptionally well. Most nuts have a high protein content. Of all the nuts, peanuts have the highest protein content, but the protein is incomplete. The shortage can be overcome by adding wheat protein. Therefore, the protein quality of a peanutbutter sandwich is of high value. The protein in peanuts can also be supplemented with the protein in maize, rice, coconut and oats. Pulses have a higher protein content than cereals. Pulses lack the essential amino acid methionine, but are rich in lysine. On the other hand, wheat proteins lack lysine but supply adequate amounts of methionine. Because of this, a combination of pulses and cereals such as soyabeans and wheat, rice and lentils as well as samp and dry beans may have a nutritive value as good as animal protein. Pulses can also be supplemented by sesame. It must be kept in mind that, in order to maintain the supplementary effect, the supplementary foods must be included in the same meal. Consuming lentils for supper will definitely not supplement the rice value that was included for lunch.

It is recommended that, under normal circumstances, the protein intake of healthy adults should be 0,8 g protein per kg ideal body weight. An adult man weighing 70 kg and a woman weighing 58 kg therefore require about 56 and 46 g protein per day respectively. Under normal circumstances by typical Westernised diet supply more than enough protein and no supplementation of the diet with special protein-rich commercial products is necessary.

Included is a list of the protein content of certain foods. All values are given for 100 g edible part of the food item. The given values therefore give a good indication of the protein concentrations of different food items.

AVERAGE PROTEIN CONTENT PER 100 g EDIBLE PART OF THE FOOD

Food item	prot (g)
skimmed milk powder	36,2
venison, roasted	35,0
biltong, beef	34,3
lean meat: beef, mutton, pork	29,5
chicken, light meat only	28,9
tuna, canned in water	28,0
peanuts	26,0
peanutbutter	25,2
cheese: cheddar, gouda, edam	24,9
fatty meat: beef, mutton, pork	24,9
chicken, with skin	24,7
kidney, fried, lamb	24,6
sunflower seeds	24,0
trout, steamed	23,5
haddock, boiled	23,3
ProNutro	22,0
ham, smoked	20,9
fish, steamed	20,5
cheese: camembert, brie	19,8
abalone, crayfish	18,7
almond nuts	18,6
Special K	18,0
cottage cheese, fat free	17,3
cashew nuts	17,2
mussels, boiled	17,2
cheese spread	16,4
All bran flakes	15,1
tripe, cooked	14,8
walnuts	14,8
brazil nuts	14,3
puffed wheat	14,2
feta cheese	14,2
vienna	14,0
cottage cheese, low fat	13,7
rye crisp bread eg Ryvita	13,0
muesli	12,9
popcorn	12,8
hazel nuts	12,6

Food item	prot (g)
cottage cheese, creamed	12,5
eggs, boiled	12,1
weetbix	11,4
wholewheat crispbread eg Provita	11,2
soyabeans, cooked	11,0
matzos	10,5
bread, wholewheat	9,9
flour, cake	9,8
polony	9,4
toppers, cooked	8,7
corn flakes	8,6
bread, white	8,4
oysters, raw	8,4
lentils, cooked	7,8
cream cheese	7,6
butter beans, cooked	7,1
evaporated milk	6,8
haricot beans, cooked	6,6
rice crispies	5,9
peas, cooked	5,4
baked beans	5,1
dried apricots	5,0
brussel sprouts, cooked	4,2
pasta eg macaroni, spaghetti, noodles	3,4
skimmed milk, whole milk, buttermilk, yoghurt	3,3
mealie	3,3
dried peach, pear	3,1
broccoli, cooked	3,1
spinach, cooked	3,0
tastee wheat	2,9
raisins	2,5
brown rice, cooked	2,5
white rice, cooked	2,0
vegetables	0-3
fruit	0-2
fats	0
sugar	0

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PHYSIOTHERAPY AND THE SPRAINED ANKLE OF THE SPORTSMAN

Physiotherapists like to treat soft tissue injuries of the ankle as soon as possible. Fewer than 10% of ankle injuries should be treated in P.O.P. Ligaments need to move but be correctly supported, hence the use of strappings or a brace.

The aims of the physiotherapist in the acute stage of 48 hours are:

- to reduce pain;
- to reduce swelling;
- to minimize the size of the haematoma.

In the sub acute stage after 48 hours until resolution, the aims are:

- to achieve pain-free and full joint range with as small and as malleable a scar as possible;
- to re-educate proprioception;
- to re-educate muscle power.

Resolution is when the patho-physiological mechanism has taken place. It must be remembered that ligaments take six weeks to heal but top sportsmen usually resume their sport long before this time. It must be remembered that other structures such as capsule or peronei tendons may have been injured as well.

1 A pain-free range is achieved with the use of transverse frictions, passive and active movements.

2 Proprioception is the person's ability to apprehend changes of parts of the body without the aid of sight. It is a balance or righting reflex and it is lost when the ankle is injured. Re-education begins in the sub-acute stage whilst the ankle is still strapped. The progression is from the simple exercise of standing on the injured leg and balancing with the eyes closed, to exercising on the wobble board. From this board the patient progresses to a new invention, recently patented called the Ex-oped. The standing exercise on the board enables the ankle to reach the extremes of movement but stops excess movement therefore does not put the ankle at risk of re-injury.

3 Physiotherapists throughout the country are using isokinetic apparatus.
Firstly it is used to test the power of the opposing muscles of a joint eg. dorsiflexion (Tibialis Anterior) and plantarflexion (Gastrocnemius and Soleus) or eversion (Peroneus Longus and Brevis) and inversion (Tibialis Anterior or Tibialis Posterior). Secondly, it is used to re-educated the muscles to their strength. Stability of a joint is not only dependent on ligaments but also on strength of muscle. If the opposing muscles over the joint have the correct power balance, that joint is stable.

Although isokinetic machines are not new, there has been a surge of interest in them because of the growing field of sports medicine.
During the final stage of rehabilitation, in order to re-educate the ankle to functional fitness, a player must practice movements of his sport eg. a rugby back must run in zig-zag and figure of eight patterns, hop on alternative feet, and practice quick stops. Only if the ankle has gained its range, strength and proprioception can the player return to his sport. The ankle should be assisted through the rest of the season by the use of a strapping or brace such as the pneumatic brace filled with air cells. Research has proved this to be a superior brace.

SOCCER – WARMING UP AND STRETCHING

G Jacobson and E Speechley

Soccer has been played for many years. There are indications that it was played as long ago as 12 B.C. during the reign of the Han Dynasty in China, predominately by the military in order to encourage discipline and comradeship.[1] A striking feature of the game was that the players used the severed head of an enemy warrior as the ball! Now some 2000 years later the popularity of the game has spread to such an extent that both men and women on six continents are playing the game regularly and competitively. In 1984, soccer surpassed rugby as the most popular sport in South Africa.[2] The popularity of soccer has brought with it an increase in the number of injuries, many of which can however be prevented by the adoption of correct training principles. A recent study[3] recommended that adequate warm up and stretching programmes should be included into training programmes, as this may lead to a decrease in the number of footballing injuries. Warming up and stretching are vital components of any successful training programme.

WARM UP

Warming up increases the temperature of the body. This increased temperature results in the increased supply of blood and nutrients to the muscle, and also causes the muscle to contract more efficiently. The increased tissue temperature that results from the warm up reduces the incidence of muscular injuries. Athletes who warm up before a match tend to be more mentally prepared for the game.[4]. Three major types of warm up can be used.

Passive

This type of warm up involves the warming up of the body by external means. In the South African climate this is seldom necessary. However the player may benefit if he wears a full track suit before playing as this may act as a warming up medium.

General

This is the most common type of warm up used. In this case, the body temperature is raised by the active, co-ordinated movement of various muscle groups. Examples of this type of warm up include jogging and arm circling.

Specific

This is possibly the most beneficial form of a warm up. The body temperature is raised by the performance of the same movements that are used during matchplay only this time the movement is performed at a slower, more leisurely pace. The advantage of such a warm up is that not only does it increase the temperature of the body parts directly involved in the activity, but it also acts as a dress rehearsal for the match. Examples of this type of warm up include dribbling and headering the ball.

HOW MUCH AND HOW LONG?

The warm up must be individualised according to the players physical capabilities. Conditioned athletes regulate the amount of heat produced during exercise very effectively, and therefore probably require a longer and more intense warm up.[4] Bearing in mind the restrictions placed on the players, a 15-20 minute pre-game warm up period, should be adequate. There should not be a rest interval between the warm up and the match. The length of time of the warm up must not be too long as this may tire the players and result in poor performance during the match. An easy guideline can be used to assess when a player is sufficiently warmed up. A slight, but noticeable sweat (usually on the forehead) should be detectable.

STRETCHING

An adequate warm up period should precede all stretching. It is incorrectly believed that cold muscles, being more plastic, are more likely to undergo permanent change, when stretched.[5] The objective behind stretching is to increase the length of the connective tissue (supporting tissue around the muscle) permanently, and to increase the length of the muscle transiently. Stretching results in the muscle being more flexible, and as tight muscles predispose to injury,[6] stretching may decrease the incidence of muscular and tendinous injury. Flexibility is a component of fitness that is health, not skill related, and is defined as "the range of movement around a specific joint".[7]

Four types of stretching can be performed;[8] *ballistic* (bouncing and jerky) *passive* (the stretch is performed with the assistance of another person) *contract-relax* (an isometric muscle contraction precedes the stretch) and *static*.

Ballistic

This stretch is performed with jerky, bouncing type movements. However

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due to this bouncing, a great deal of tension is produced in the muscle, and stretching the muscle against this amount of tension, increases the risk of injury to the muscle. For this reason ballistic stretching is not recommended.

Contract – relax

This technique combines an isometric contraction with a stretch i.e. the muscle to be stretched is contracted isometrically for 5 to 10 seconds before being stretched. The problem with this technique is that, not only does it require a partner, but also a great deal of skill, and therefore is easy to perform incorrectly.

Passive

In this type of stretching, a partner applies additional pressure to the area being stretched, thereby increasing the amount of stretch on the muscle. However as the player himself is not controlling the degree of stretch, it is easy to overstretch the muscle.

Static

This method of stretching allows the player to obtain the stretched position slowly, and once in this position, the stretch is maintained for a period of time. This technique produces the least amount of tension in the muscle, and is therefore the safest method of stretching.

Stretching can also result in injury if performed incorrectly. A few guidelines are detailed below, the purpose of which is to highlight the most important factors that should be considered when stretching.

- Always warm up before.
- Develop a safe and effective routine, based on the needs of the game.
- Stretch throughout the season, before and after a training session.
- Stretch before and after every match.
- Assume the stretched position slowly.
- Maintain the position for 30 – 60 seconds. Change sides. Repeat two to three times.
- Alternate muscle groups i.e. stretch the arm muscles, then the leg muscles followed by the trunk musculature.
- Feel a stretch, not a pain.
- Never bounce during stretch as this causes the muscle to contract whilst being stretched and thereby predisposes the muscle to tearing.
- Avoid high risk exercise e.g. neck circling, double straight leg raising, full sit ups (only sit up to about 45 degrees) and straight leg sit ups (always bend your knees).

Injuries disrupt the team, hence the teams performance can be affected. If these few simple guidelines are followed, a great number of injuries can be prevented. Remember, it is not only necessary to warm up and stretch before practice, but also before a match.

Note: *A stretching programme is available from most leading physiotherapists or medical practitioners. Figure 1 serves only as a guideline of stretches, and a vast number of alternate stretches can also be performed.*

REFERENCES

1. Conrad D, Sidaway R and Wilson B. *World Cup '78 – The game of the century*. Fontana Publishers U.K. 1978, 12-15.
2. Surve I, Ranchod J and Kettles AN. Soccer Injuries. *SA Journal of Sports Medicine* **2**: 12-14, 1987.
3. Surve I, Ranchod J and Kettles AN. Soccer Injuries. *SA Journal of Sports Medicine* **2**: 4-6, 1987.
4. Sheelock FG. Physiological benefits of warm up. *Phys Sportsmed*.
5. Murphy P. Warm up before stretching. Letter in *Phys Sportsmed*.
6. Casperson P. Groin and Hamstring injuries. *Athletic Training* **17**: 43-45, 1982. **14**: 45, 1986. **11**: 134-138, 1983.
7. Shellock FG, Prentice WE. Warm up and stretching for improved performance and prevention of sports related injuries. *Sports Medicine* **2**: 267-278, 1985.
8. Beaulieu JE. Developing a stretching programme. *Phys Sportsmed* **9**: 59-66, 1981.
9. Anderson B. *Stretching*. Shelter Publications USA. 1980, 118-139.

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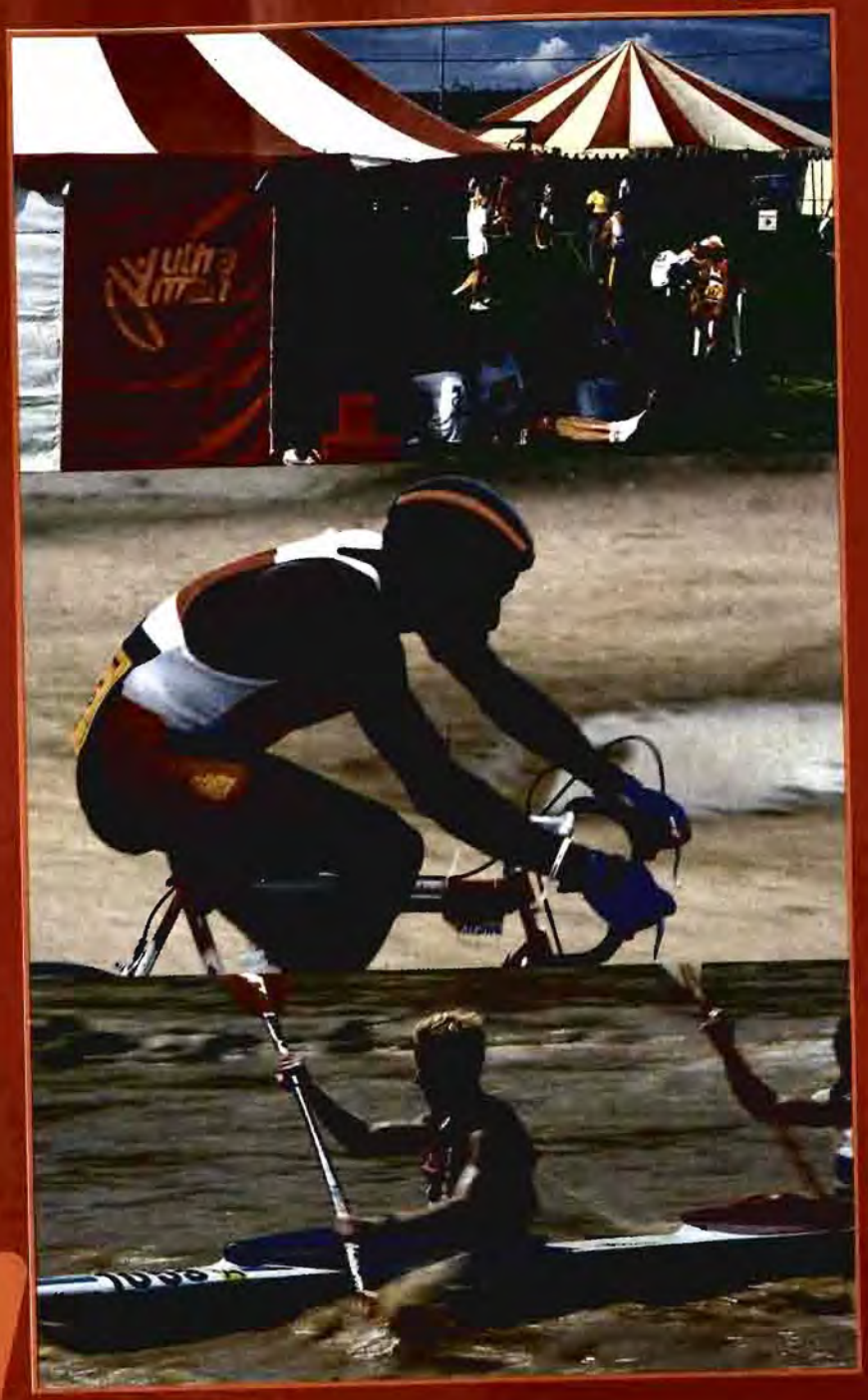

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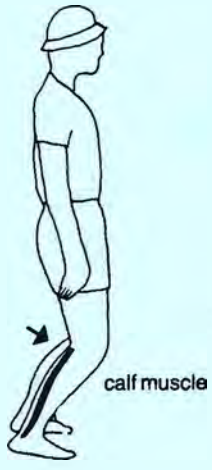
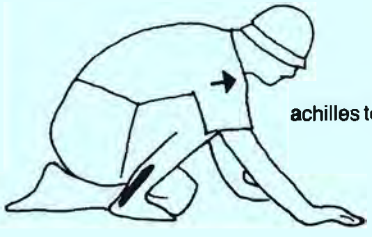
20 seconds each leg

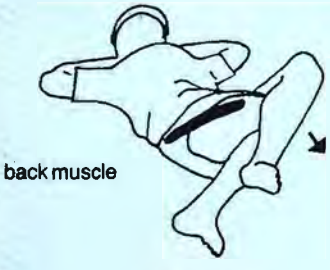


30 seconds

60 seconds

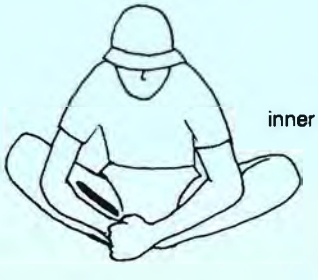


10 seconds each leg



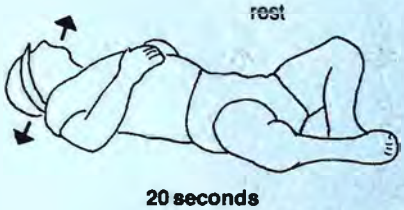
25 seconds each side

20 seconds each leg



30 seconds

10 times each direction



20 seconds
touch ear onto the ground

back muscles

8-10 times

Quadriceps
(front of thigh)

30 seconds
each leg

upper thigh
and back

30 seconds

hamstrings

30 seconds
each leg

20 seconds

ankle

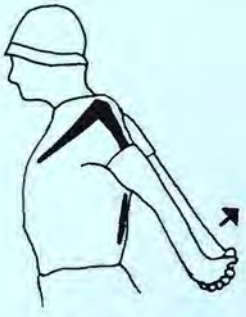
shoulder muscles

10 seconds
each side

16,17 and 18 all
stretch the arm
and shoulder
musculature

15 seconds

10 seconds
each arm



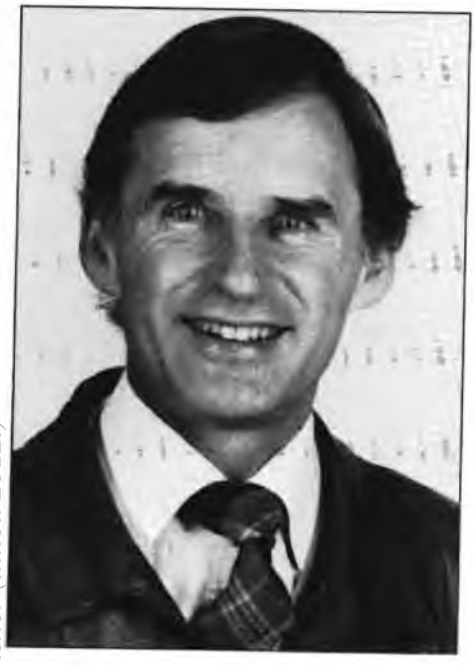
15 seconds

back muscles

3 times
5 seconds

SASMA UPDATE

Dawie van Velden



FIMS WORLD CONGRESS OF SPORTS MEDICINE

27 MAY – 1 JUNE 1990

The 24th FIMS World Congress of Sports Medicine held in Amsterdam, the Netherlands, was a very successful scientific meeting with the theme of Sports, Medicine and Health. FIMS is the abbreviation for "Federation International de Médicine Sportive" the International Sports Medicine Federation. The organization was founded in 1928, and today FIMS is a world wide organization with 83 member nations.

This congress was attended by four members of the South African Sports Medicine Association. The three areas of scientific endeavour intertwined in sports medicine, namely Sports, Medicine and Health, were discussed from the standpoint of cardiology and related internal diseases, orthopaedics, physiology and biomechanics and the behavioural sciences. The relations between sport and medicine as well as sport and health were addressed in a well balanced programme by speakers from all over the world. Sports medicine, as a fast growing branch of medicine needs a solid scientific basis and well developed international communication. It was our opinion that the congress will be remembered as a definite step forward in reaching these goals.

The secretary general of FIMS, Prof D Eduardo Henrique de Rose from Brazil, invited the South African Sports Medicine Association, to apply for affiliate membership. After all these years of isolation, it is encouraging to see the worldwide change in attitude not only towards the "New South Africa", but to all the countries of the world, including the so-called East Block countries. A hand of friendship is extended to a world that has grown sick and tired of warfare. This congress proved to be a World Forum for the presentation and discussion of advances and future trends in sports medicine.

We sincerely hope that FIMS will be able to accept our invitation to attend our forth-coming international Sports Medicine Congress scheduled for 24-27 April 1991 in Sun City, Boputhatswana.

Three South Africans participated in the scientific programme, namely Dr Martin Schwellnus, Dr Stinus Barnard and Mrs A Wenham. We are sure that South Africa will be able to send a bigger contingent to the next FIMS congress scheduled for 1994 in Athens, Greece.

REPORT ON THE COMBINED SAASSPER/SASMA CONGRESS

27-29 JUNE 1990

The South African Association for Sports, Science, Physical Education and Recreation (SAASSPER) held their National Symposium on well-being beyond 2000 in collaboration with the

South African Sports Medicine Association (SASMA) in Port Elizabeth on 27-29 June 1990.

Hierdie gesamentlike aanbieding kan as 'n baie geslaagde onderneming beskou word, aangesien daar soveel areas van oorvleueling is tussen sportgeneeskunde en sportwetenskap. Tydens hierdie kongres was daar 'n groot bydrae van fisioterapie gewees, wat uitstekend aangevul was met die onderhoudende en leersame insette van Graham Smith, bekende fisioterapeut van Glasgow, Engeland.

Die sportgeneeskundesessies was baie goed bygewoon deur alle kongresgangers. Temas wat groot belangstelling uitgelok het was chroniese siektes, chroniese laerugpyn, rugbybeserings en oorgebruikbeserings. Ons is daarvan oortuig dat hierdie kongres 'n gesonde forum geskep het vir alle belanghebbendes in sport om kennis in te win vir die voorkoming, behandeling en rehabilitasie van sport- en oefenverwante probleme.

One of the highlights of this congress was the presence of Prof Niel Oldridge of the USA, the President of the American College of Sports Medicine (ACSM). Not only did he contribute greatly to the scientific presentations, but he also discussed his views on the future of Sports Medicine in America. Being a former South African and graduate from Rhodes University, he has thorough understanding of our country. The recent positive changes in our country have made it possible to arrange bigger international congresses. We are currently looking at the possibility of holding the forthcoming congress scheduled for 24-27 April 1990 at Sun City, Boputhatswana in collaboration with the ACSM (American College of Sports Medicine). This will surpass our previous congress in Cape Town in international participation, because it will create the opportunity for many scientists to come to Southern Africa. With the current favourable exchange rate for foreigners, South Africa has become a major tourist attraction as a congress venue!

This congress was the biggest and most successful SAASSPER congress ever, and was made possible by a very generous sponsorship from TRANSNET. The delegates were also entertained on a very relaxing and interesting social programme, which included an unforgettable trip on the Apple Train. Who will never forget the icy rain and wind we had to face during this ride to Loerie station!

It is also of historical interest that a previous SAASSPER congress held in Port Elizabeth ten years ago, was organised by the current President of the South African Sports Medicine Association. This was the first congress where a forum was created for delegates from the medical and non medical professions to discuss matters of mutual interest. The theme was the use of exercise as therapy for various diseases and health related problems. It is thus very appropriate that this excellent congress should be the culmination of our efforts to acknowledge the multi disciplinary approach to sport exercise and health. The organisers must be congratulated on this very informative congress.

ANNOUNCEMENT OF THE FOURTH NATIONAL SPORTS MEDICINE CONGRESS

The 4th National Sports Medicine Congress is scheduled for 24-27 April 1990 in Sun City, Boputhatswana. Our theme for this congress will be REHABILITATION, and is held in close collaboration with the Physiotherapy Congress, scheduled for 22-25 April 1991 in Pretoria.

The first announcement of this congress will soon be released. It is envisaged that we will attract great international participation. Rehabilitation through sport and exercise has become increasingly important in the medical world, and has wide applications in the field of the health related sciences. It will be worthwhile to diarize these dates on next years calender. This congress will be one of the most interesting scientific meetings on the academic calender for Southern Africa.

South African Sports Medicine Association

Suid-Afrikaanse Sportgeneeskunde-Vereniging

A Specialist group of the MASA (incorporated association not for gain)
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Dear Doctor,

The characteristic that distinguishes a professional from an educated person is the professional person's desire and responsibility to stay abreast of the developments of his or her field of expertise. The halflife of our professional knowledge is about 3 years, and for this reason it is vitally important to continuously refresh and supplement our knowledge.

Sports Medicine, the official mouthpiece of the SA Sports Medicine Association, has over the years become a treasured source of knowledge for the health care professional in the sports medicine arena. The journal features not only original research papers and articles by leading specialists in sports medicine, but also current news and relevant abstracts.

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