



THE MASTERS ATHLETE

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A total fitness guide to optimise training and performance for the older athlete

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Guest Editorial - Garry Gaffney - Aust. Veterans Games, Wagga Wagga

Regional Games - an essential tier of the Masters Games movement

The concept of sports carnivals for Masters Athletes is growing in Australia. As the movement develops there needs to be recognition of the part played by Regional Games which have the potential for unique benefits to athletes and centres willing to host such events. There is a need for closer cooperation among organisers of Masters Games to maximise the growth of the movement and the enjoyment of the participants.

Four Tiers of Masters Games

The highest level of competition is the World Masters. At the next level, the Australian Masters Games are held every two years. The host city is selected on rotation with Melbourne in 1995 and Canberra in 1997 being the last two venues. There is now emerging State Masters Games with NSW and SA planning inaugural games in 1998. Other states have conducted games in recent years, Regional games form the next level. In terms of south eastern Australia, there does not seem to be much coordination between the various games and this may eventually effect the success of the Masters movement.

Advantages of Coordination

The organisation of successful Masters Games requires knowledge which has to be acquired. As new organisations take on the task, they would be assisted by the lessons learned by others in the movement. Yet there is almost no networking developing in the south eastern part of Australia.

An ideal example of cooperation occurred recently between the organisers of the last Australian Masters Games and the organisers of the Australian Veterans games - Wagga Wagga scheduled for March next year. Organisers met in mid 1997 and shared information and support in the belief that mutual benefits would result. It was the first time this has occurred. Canberra organisers knew that there were competitors in the Riverina area and Wagga Wagga organisers knew that many

Canberra athletes would take the Masters Games "bait" for the first time last October and see Wagga Wagga as an easily accessible venue five months later. Competitors in Dressage in Canberra returned to Wagga Wagga determined to introduce the equestrian discipline to our next games. It's a "win - win" situation.

The Regional Games Niche

Regional games are gaining momentum in south eastern Australia with Ballarat holding its inaugural games in 1997 and Wagga Wagga holding its 5th games in 1998. Regional games are also held in Dubbo. Who knows what Canberra might do following the successful Australian Masters Games.

"ISN'T THE 'GRINNING MORE IMPORTANT THAN THE WINNING' FOR THE MAJORITY OF MASTERS COMPETITORS."

Let there be no doubts. Regional games are a combination of Tourism and Participation. Why wouldn't fit and active sports persons want to combine their sport with travel and other leisure pursuits. The regional games hosted by small cities with good facilities have a unique advantage over the large capital cities. The feeling of belonging to a multi discipline sports carnival where the major event in the city involves visitors joining with local enthusiasts can be very enjoyable to all concerned. Business houses welcome the visitors to the city and locals want to ensure that visitors enjoy the sporting and other attractions of the city. Isn't the "grinning more important than the winning" for the majority of Masters competitors. Isn't the total experience of the games just as important as the actual race or game?

In 1996, many Sydney competitors in swimming chose to compete in Wagga Wagga over the AUSSI swim carnival at Homebush (which unfortunately clashed) because of the friendly intimate poolside venue at Wagga Wagga. Herein lies the essence of Regional Masters Games.

Veterans games - Wagga Wagga

In 1991 these games set out to establish a nationally recognised carnival central to the major capital cities. The current name "Australian Veterans Games" was to reflect higher than regional status. The word "Veterans" was to reflect emphasis on participation rather than elitism. The organisation now intends to drop the word "Australian" after 1998 and to reposition as a regional games.

The games have been recognised as a Regional Flagship Event by Tourism NSW. Wagga Wagga, known as "The City of Good Sports", has enviable sporting facilities and an ideal climate in March. About 2000 competitors will compete in 1998 (7-15 March) in 26 sports categories.

Endurance athletes can feast on diversity. The first weekend includes Athletics and Cycling. The second weekend features Swimming, Aquathlon and Triathlon over three days.

Garry Gaffney is the president of the Australian Veterans Games - Wagga Wagga (069) 235428

Editorial

All the best for 98,

We hope you had a restful and happy Christmas. We travelled to Pottsville in northern NSW and had a very relaxing time. Peter has accepted the challenge and is now learning to cycle so he can do triathlons again. The goal is Hawaii when he turns 50. Consequently, as well as the usual family luggage, we had the surfboard, togs, goggles, running shoes and bike.

This issue we have an interesting guest editorial by Garry Gaffney, President of the Australian Veterans Games - Wagga Wagga. Garry looks at how Regional Games fit into the big picture and the role they play in the masters movement.

The World Swimming Championships no doubt caused some late nights. We discuss the Human Growth Hormone a la Chinese swimmers in the 'What's Hot' section. Enjoy the read.

Peter and Claire

THE MASTERS ATHLETE

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Pre-Competition Routines

© by Wendy Swift

A triathlete who had done seven training sessions per week for the past six months arrived on race day and had left himself short of time to get through registration. He then wasted a few more minutes trying to decide whether he should put his gear into transition before finding the toilet which also turned out to have a line up. After finally racking his bike in transition he realised he had not pumped his tyres but was not sure if he had brought his track pump or left it at home in the garage. With his gear finally in place and a spare ten minutes before the race briefing our triathlete debated with himself over whether he should do a swim warm up now or wait until he got in for the start, which is what he eventually did as he ran out of time.

This athlete wasted much of the effort he put in to his physical preparation by failing to prepare for the process of competition. This type of preparation needs to be systematic and should be rehearsed in training. A routine that involves both the physical and mental preparation necessary for competition would certainly have aided this athlete.

Pre-competition routines are set patterns of thoughts and behaviour that an athlete follows before every competition with the objective of maximizing their feeling of control. In advanced level athletes a pre-competition routine can also assist the occurrence of an automatic response in performing the correct set of skills. Following a routine before competition will also help to calm nerves and reduce the occurrence of mistakes. Whether you compete regularly, or only once or twice a year, your performance will be improved by following a pre-competition routine.

A well rehearsed routine includes planning from the night before the race. For a major event, planning may start the week before. In preparing your pre-race routine, break it down in to long and short term plans. Short term should include the day of competition. Long term can be the night before or as far back as the beginning of the taper. To prepare your routine include the following steps:-

- Write a list of all the things you need to do prior to competition
- Break the list in to physical and mental activities
- Put the activities in the order they need to occur and allocate time
- Rehearse this routine in training
- After the competition, evaluate your plan and make any necessary adjustments

Generally your physical routine should include:-

- tapering prior to competition
- meals and accommodation arranged
- ensuring adequate rest
- arriving at competition on time
- correct apparel and equipment packed, checked and ready to go
- suitably stretched and warmed up
- familiarized with the venue and race rules

The mental component of a pre-competition

routine is just as important as checking all your equipment. An athlete who is not focussed on the approaching event is not likely to race to potential. Distractions and the intrusions of negative thoughts need to be avoided. You may like to include -

- Visualisation.
- Reciting a list of positive affirmations.
- Focussing on appropriate cues.
- Relaxation techniques to help rid you of unnecessary muscle tension.
- Rehearsing your race plan - strategies and goals (for example a strategy may be to attack on the hills in the bike leg of a triathlon and a goal to complete the run in 45 minutes).

When you begin to plan your pre-competition routine it is a good idea to look at what you already use and what is successful. To

"PRE-COMPETITION ROUTINES ARE SET PATTERNS OF THOUGHTS AND BEHAVIOUR THAT AN ATHLETE FOLLOWS BEFORE EVERY COMPETITION WITH THE OBJECTIVE OF MAXIMIZING THEIR FEELING OF CONTROL."

clarify the process of organising your routine you may wish to break your list of activities down further. For example, identifying a subgroup of administrative tasks such as registration, collecting race numbers, marshalling, and attending briefing. Some athletes like to get the administrative tasks out of the way first while others will like them as a break between their warm up and race start. Some athletes like to have two plans, one for when things are going well and a refocussing plan for when things don't go to plan. The important thing is to identify what works best for you.

Remember to include the little things such as your favourite motivational tape in the cassette deck of the car, your favourite goggles and lucky charm, and making sure that you have not run out of breakfast cereal that morning. Rituals, such as tying your shoelaces a special way, or checking your goggles three times, also have their place in your routine. They can make you feel that your preparation is complete. The routine you follow is not simply to prevent you from forgetting things - although this is a very useful outcome, - but is intended to get you into a familiar pattern of behaviour that can help you feel more comfortable in a time of stress. If you are racing at an unfamiliar venue, or even in a foreign country, going through a familiar routine can help you relax and begin to focus on what you need to be doing.

The post-competition evaluation can provide valuable insight into ways to improve. Identify critical times both before and during the event and try to remember how you were feeling and what you were thinking. Was it the way you wanted it to be? What triggered the thoughts or feelings? If they were positive, try and recreate the same trigger in the next

competition. If the thoughts or feelings were negative, develop a strategy to avoid the trigger. One of the most common distractions from following a competition routine is interaction with others. You may like to allocate specific time in your routine to chat, or plan your routine with your training partners so you all include time for mental focussing. Other distractors may be outside our control and completely unexpected. For example arriving late because of traffic delays may cause you to be flustered and left with only half the time needed to complete your routine. Be aware of the essential tasks in your routine and those that can be shortened or left out. Include a refocussing strategy such as a deep breath and asking yourself "what do I need to do now?" then systematically work through those tasks.

Rehearsing your pre-competition routine in training is essential. The major advantages in having a routine is the feeling of familiarity and control that comes from practice. The mental components of your routine such as visualisation, developing a list of positive affirmations, and learning a relaxation routine also require practice to be effective. Use your visualisation sessions to go over your pre-competition routine as well as the event itself. Use the time before training sessions for rehearsal, or set a specific practice session on the weekend. The result will be a more confident athlete who can get on with the job of performing well.

The Team

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Intervals are the Key

© by Dr Peter Reaburn

For the last 25 years of my life, I've had a passion. Understanding the body and how it works during exercise. How does the body adapt to training? Why do some people adapt more quickly than others? Why are some athletes naturally faster than others and lately, what type of training gets us faster more quickly without tearing us down? Intervals are the answer.



Peter Reaburn

What is Interval Training

Interval training is simply periods of higher intensity exercise (eg. 400m runs a la the *Workout* section in TMA) interspersed with periods of easier exercise. Obviously, there are numerous

factors we can manipulate to change the training emphasis. They are:

Table 1: Factors that can be manipulated in Interval Training

FACTOR	MEANING
Number of Intervals	The more experienced and younger an athlete, combined with their susceptibility to injury, the more intervals
Interval length	In general, the longer the interval, the more aerobic and the slower the speed
Recovery length	In general, the longer or harder the interval, the longer the recovery. For endurance, recovery should be active.
Interval intensity	In general, the shorter the interval, the higher the intensity
Recovery intensity	The fitter the athlete and the harder the intensity, the easier the recovery
Recovery mode	Always debated. For aerobic development, active recovery (light exercise), even after sprints.

My experience with masters athletes is that the better athletes use intervals, are prepared to do the higher intensity work and ensure the most important principle of all for interval training is adhered to: *the quality of the last interval is as good or even better than the first interval*. I see too many older (and younger) athletes who go out too hard and blow up early in a set. It is the total volume of work done in the set that is the crucial factor. This means ensuring all the work is done consistently, not just at the start and / or finish of the set. Find a pace you can hold but hurt at and stick with it for the intervals I'm suggesting in Table 2.

Why Intervals?

Research has conclusively shown us that interval training at higher intensities achieves the following:

- allows an increased training load in a shorter period of time
- increases the heart's pumping capacity
- provides variety in training
- increases the nervous activation of muscles
- increases speed
- increases lactic acid tolerance

Most importantly, training at higher intensities such as those seen with interval training has conclusively been shown to lead to the greatest gains in aerobic capacity and anaerobic threshold, the two big factors leading to improved endurance performance.

At the risk of being condescending, most masters athletes are lazy. We all like to perform well on race day whether it be to win or place or to gain a PB. However, I see very few older athletes prepared to hurt in training. Training is preparation for racing. Train hard, race hard. Train tough, race tough should be the motto. Interval training such as those workouts suggested below will hurt but will also lead to great gains in performance when balanced with recovery sessions and the easier continuous work.

Examples of Intervals

Table 2: Intervals

	Swim	Bike
Set	10x100m free	15x1min. efforts
Time	90secs	1min.
Rest	30sec	30secs
Intensity	85-90%	85-90%
	Run	Row
Set	8x400m	10x1min.pieces
Time	90secs	1min.
Rest	40secs	30secs
Intensity	85-90%	85-90%

Why not Intervals?

Intervals can be tough. They should be used in moderation because when done as suggested below they can "tear you down" and lead to fatigue or overtraining if done too often, with too little base work or without adequate recovery between sessions. For swimming, 2-3 sessions of quality interval work is suggested depending on your experience and / or age. For the other disciplines, particularly running, 2 sessions per week is an adequate training stimulus.

Those older athletes with coronary heart disease symptoms such as blood pressure or angina, need to be aware that high intensity intervals elevate blood pressure and increase

the oxygen demands on heart muscle.

Interval training with poor technique can turn a 'niggle' into an injury if the niggle is due to poor technique. Ensure you've got the right equipment, the right set up and are using the right technique or intervals will bring out a problem quickly and turn them into an injury.

Conclusion

Intervals work. They provide variety to training and when combined with continuous training provide that extra stimulus that leads to improved race speed. However, when used too often or incorrectly can lead to fatigue and injury. Try them for a couple of weeks and watch the change in performance.

From the Research

Life Expectancy and Sport

Do highly-trained athletes live longer than non-athletes? Which sports appear to lead to the longest life.

Finnish scientists studied 2,613 former male athletes who had represented Finland in a variety of sports and compared these results with those from 1,712 former army personnel. Using a statistical technique which factored in current health status, current lifestyle behaviours and numerous other factors, life expectancies were estimated.

Former endurance athletes had a life expectancy (LE) of 75.6 yr, team athletes (soccer, hockey, basketball) and sprint athletes (sprinters and jumpers) a LE of 73.9 yr, power athletes (boxers, wrestling, lifting, throwers) a LE of 71.5 yr while the sedentary army group had a LE of 69.9 yr.

Sarna et al. (1993) Increased life expectancy of world class male athletes. *Medicine and Science in Sports and Exercise* 25(2): 237-244.

Sporting Quote

"Athletes live a life quite contrary to the precepts of hygiene, and I regard their mode of living as a regime far more favourable to illness than to health.

While athletes are exercising their profession, their body remains in a dangerous condition, but, when they give up their profession, they fall into a condition more parlous still; as a fact, some die shortly afterwards; others live for some little time but do not arrive at old age."

Galen (c 200) Greek Philosopher
Taken from 'The Guinness Dictionary of Sports Quotations'

Exercise, Free Radicals & Antioxidant Supplementation

© by Gary Slater

Free radicals and antioxidants, the little guys in our bodies that fight it out on a daily basis. Free radicals are very unstable molecules that strive to become stable by attacking other stable molecules, especially those of cell membranes. We come in contact with free radicals every day of our lives. They can come from a variety of sources including environmental pollutants, UV light, radiation, carcinogens and exercise. Antioxidants fight these bad guys.

The study of free radicals and their potential role in the development of various diseases, including cancer and heart disease, has risen dramatically over the last 25 years. More recently the study of exercise and free radical generation has arisen, especially in relation to the ergogenic potential of antioxidant supplementation for athletes. Antioxidants are substances which are able to stabilise free radicals, thus preventing continued attacks on cell membranes. There are three types of antioxidants:

- Intracellular enzymes
- Nutritional antioxidants which act as antioxidants but also have other roles in the body. The most important are Vitamins A, C and E
- Non-nutritional antioxidants which work solely as antioxidants and are normally part of your diet. This includes phenolic compounds in red wine, catechins in tea and lycopenes in tomato products, even tomato sauce

Exercise has consistently been shown to increase oxidative stress induced by free radical generation. Muscle hypoxia (shortage of oxygen), increased adrenaline output, elevated lactic acid production and glycogen depletion may further add to free radical generation induced by a possible 10-20 fold increase in oxygen consumption observed during intense exercise. Increase oxygen uptake and you will increase oxygen generated free radical production, it's an unavoidable part of regular training! The implications of increased free radical generation on performance are yet to be ascertained. Increased free radical damage has been reported to increase membrane permeability, decrease sarcoplasmic reticulum calcium transport (calcium release from the sarcoplasmic reticulum is an essential part of the muscle contraction process) and alter mitochondrial function (involved in the aerobic generation of energy) all responses which could negatively influence exercise capacity.

The good news is that regular training enhances production of the body's primary intracellular antioxidant enzymes. The effect of chronic exercise training on nutritional antioxidant status is less clear and may be more likely to be influenced by dietary intake, although endurance training in rats has been shown to decrease vitamin E levels in skeletal muscle and liver. At least one research paper has reported similar findings in humans. It appears our diets play an essential role in the battle between free radical generation and antioxidant defences.

Our diets can provide in excess of 600 different antioxidants of which Vit. E is considered to be the most important because of its association with cell membranes - the major site of lipid peroxidation. Dietary intake of vitamin E is not readily reported and the influence of regular training on nutritional antioxidant requirements like Vit. E is yet to be addressed. Research from the Australian Institute of Sport on male athletes and sedentary controls estimated vitamin E intake of both groups to be 8.5mg/ day, less than the

"RESEARCH FROM THE AUSTRALIAN INSTITUTE OF SPORT ON MALE ATHLETES AND SEDENTARY CONTROLS ESTIMATED VITAMIN E INTAKE OF BOTH GROUPS TO BE 8.5MG/ DAY, LESS THAN THE CURRENT AUSTRALIAN RECOMMENDED DIETARY INTAKE FOR MALES OF 10MG/ DAY."

current Australian recommended dietary intake for males of 10mg/ day. This low intake of Vit. E may be a result of an over ambitious attempt to restrict dietary fat intake. As one of four fat soluble vitamins, Vit. E is primarily found in higher fat foods including nuts and seeds, oily fish, margarine, avocado and oils especially extra virgin olive, cottonseed

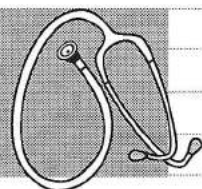
and safflower oils. These are all highly nutritious foods and should be included in your diet in small quantities on a regular basis. Remember the emphasis is on a low fat diet, not a no fat diet! Current sports nutrition recommendations encourage a diet with less 30% energy from fat. For a hard training masters athlete who ingests 10 000 - 15000kj per day, this equates to a fat intake of up to 80 - 120g per day, more than the magic 40g many athletes believe they must conform to.

In an attempt to counteract the increased oxidative damage incurred during intense physical exertion, some athletes have trialled antioxidant supplements. Such supplementation has been reported to lower markers indicative of oxidative stress. However this has only been associated with performance enhancement in acute altitude exposure. Physical performance (cycle ergometer) of twelve male high-altitude mountain climbers was improved by four weeks of vitamin E supplementation at a dosage of 400mg/ day. No other research has reported performance enhancement despite using similar supplementation regimens. However athletes have been reported to show an increased responsiveness to antioxidant supplementation when compared to sedentary controls. Most studies typically supplement with 400 - 800mg of Vit. E daily and/ or 500 - 2000mg of Vit. C. Limited adverse effects have been reported with such high dose supplementation in healthy individuals.

Sports Nutrition continued on Page 10

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ATHLETE PROFILE

Name: Jane Hennessy

Age: 47

Sports/Events: Rowing

Occupation: Past: Trained Nurse - Mother and wife

Present: " " " "

What do you enjoy about masters sport? To have found a sport I enjoy in my 40's and can keep fit and enjoy the company of and with my team mates and other crews.

What motivates you to participate? The sheer enjoyment of getting out on the water and working together and the hope that one day we can deep the boat level!!!

How do you keep yourself motivated? Need no motivation - enjoy every minute I'm rowing - exercise and early mornings on the water are like magic.

Favourite training session: None to speak of - just all and especially when we are lucky enough to have a coach to accompany us.

What do you think about when training? Don't have time to think about what I'm thinking as I try to concentrate on doing the right timing at all times!! At my age very trying!

How often do you train? Four times weekly - recently twice early am in double scull/one in eight/one in quad scull.

Do you train under a coach, with a group of friends, or by yourself? Why? Most of the year I train with the rest of our crew - Mosrowbells in an '8' unfortunately without coaching, this also applies in the double and quad scull. Recently we purchased the coaching of Michael Morgan at a M.R.C. fundraiser and look forward to his expert coaching of 12 sessions leading up to the masters regatta in Adelaide.

Person most admired and why?: Firstly my husband for tolerating my involvement and time to masters rowing. Secondly to Michael Morgan - my daughter's first coach in school girl rowing, for introducing me to the sport.

Other interests/hobbies: Tennis, embroidery, gardening, daughter's involvements and sports.

Your most memorable moment in sport: Many memorable moments with 3 daughters involved and successful in many school sports. My own - our first Gold at Masters rowing in Melbourne.

Your most memorable moment in life so far: Living/having a family plus participating in their every moves and development.

Favourite movie: "Anne of Green Gables"

Favourite book: Don't read very much - don't give myself time!! , with rowing always too tired at night.

Favourite 'bad' foods: Champagne and wine!!

Favourite 'good' foods: BBQ eye fillet with a good salad, in good company.

Philosophy on life: Live life to the fullest. Have plenty of interests. Enjoy my time with family and friends. Keep fit.

Advice to masters athletes wanting to improve: With a team sport eg. rowing - total involvement is essential. Keep your fitness level up and have fun competing in your 'masters' years. (How old do we need to be to compete in 'y' grade)

Other Comments: Meeting new people, involving yourself in a new sport and having a commitment and goal in competing with other master's athletes is something I never envisaged myself engaging in. Now I'm there I'm enthused and encourage all other masters athletes to go for it - good luck.

"WHAT OTHER PROBLEMS DO YOU HAVE BESIDES BEING UNEMPLOYED, A MORON AND A DORK?"

JOHN MCENROE TO A TENNIS SPECTATOR



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ASPAC '98 - THE GAMES

What's Hot

Growth Hormone

The recent World Swimming Championships saw a number of Chinese swimmers banned from competing (at last!!). The first of the "busts" done by Ozzie Customs officials was for a coach and swimmer possessing large quantities of *growth hormone* (GH) or *somatotropin*, a naturally-produced hormone that can be artificially produced and that is fast overtaking anabolic steroids as the next athletic performance enhancer.

GH is produced by the anterior pituitary gland in the brain and increases in the blood during emotional stress, exercise, fasting, sleep, hypoglycemia, and after taking amino acids such as arginine and lysine. Because it's naturally produced, it's also hard to detect its use as a performance enhancer.

Long duration, high intensity exercise such as weight training significantly raises GH concentration in the blood. Raising GH concentration has two potential ergogenic or performance-enhancing effects. Firstly, it increases protein synthesis and amino acid uptake for muscle building and; secondly, it mobilises fatty acids for use in energy production.

When artificially-produced GH is administered via an injection, it significantly elevates GH levels above those naturally-produced by athletes during exercise. Thus, the increased protein synthesis will enhance muscle and connective tissue growth and strength beyond what training alone can do. Theoretically, it may therefore enhance performance. However, there is no scientific evidence to suggest that GH does enhance performance, only anecdotal evidence.

Apart from being a banned IOC drug, GH abuse can lead to negative side effects such as bone thickening, heart enlargement, reduced insulin sensitivity and possibly diabetes.

Incidentally, some of the decrease in muscle mass and increased fat mass that occurs during aging is due to decreased GH production with age. Some scientists therefore tout GH use as a "fountain of youth".

Outrigger - Planning and Training

© by Dr Enid Ginn

Masters canoeing competition is embraced by the major sub-disciplines of canoeing, and offers challenging opportunities for paddlers of all ages. In terms of numbers, outrigger canoeing is the most popular, and from its beginnings in Australia in the late 1970's, it has grown quickly with clubs in most major centres, but particularly on the eastern seaboard.

The outrigger canoeing season is a long one, stretching from February, when Zone regattas begin, to the National Titles in August-September, and for those adventurous souls, it extends to the Molokai Regattas in Hawaii in September (women) and October (men). In fact, the current Molokai Champion in the Masters' event is a crew from the Sunshine Coast in Queensland. Competitive events are conducted over distances ranging from 500m to 66 km (Molokai). Because regattas are generally conducted in open (ocean) waters, the challenges presented by outrigger racing are unique, as competitors need to come to terms with the vagaries of the ocean: its might and dangers, as well as its beauty. It is a sport where success is very largely dependent upon teamwork, and this is a vital ingredient both in competition, and very importantly, in attitudes towards training. When it requires six people to paddle a canoe, each individual is responsible to the others to give of his/her best during competition and training, and to develop individual fitness levels optimally.

This raises several issues regarding the training program that is implemented for an outrigger team, and given that the season is about to kick off, it is timely to present these issues here, as teams prepare for the coming season.

(a) Will the team attempt all competitive distances? Or will it be selective in those distances for which training will be directed?

(b) How can the coach optimise the training of each individual member of the crew, while all members are working as a unit?

These two issues should be borne in mind when planning the forthcoming season, and the training program that will be implemented.

In broad terms, the canoeing year can be divided into three principal phases:

Phase	Approximate Dates
Pre-Competitive	November - February
Competitive	February - August
Transition	September - October

Before expanding on these phases and to make suggestions regarding training program content, it is appropriate to look briefly at the sport in an attempt to describe it in physiological terms, for this understanding will have an important bearing on the approach adopted in program development, and in part address the issues raised above. Questions posed in this context are:

* What are the fitness requirements of the sport, particularly as they apply to the different competitive distances?

* Given that each paddler comes to a squad with very different physical characteristics, is it possible to plan a program where

each paddlers' needs may be met and as a consequence, produce optimal improvement for each individual and the team as a whole?

The answers to these questions will provide a background upon which the coach can plan the program. However, to go into these questions in detail is beyond the scope of this article, and the opinions of the author will be summarised:

1. The shortest competitive distance (500m) is regarded by paddlers as a sprint, and indeed, all events up to 3000m are generally included under this banner. However, because even 500m has a competitive duration of 3-5 minutes, from a physiological standpoint, it should be regarded as a short endurance event, rather than as a sprint. The key issue here is that the limitation to maintenance of a high work rate during competition is the accumulation of lactic acid, the substance produced by the muscles in quantities roughly correlated with the intensity of the work. Thus, to turn it around, in order to maintain a high work rate, i.e. to keep up a high race pace, it is necessary to develop those aspects which improve the efficiency with which the muscles deal with (and most importantly, remove) lactic acid.

2. Irrespective of one's level of fitness, lactic acid accumulation WILL occur. The successful athlete is one whose training program has improved the efficiency of its removal.

3. Improved efficiency in dealing with lactic acid is a characteristic that is developed by a training program that is essentially aerobic in nature. Speed training has very little influence on improvement in this characteristic, particularly in a sport such as outrigger paddling.

So, to go back to our training program

development, it is the function of the pre-competitive phase to concentrate on building up a good, solid aerobic base. That is, sessions consisting of long paddles of varying intensities, but remaining in a band of intensities which utilise aerobic energy supply mechanisms.

The Performance Edge Athlete Training System (PEATS) utilises 6 different levels of training intensity. The particular 'recipe' adopted by a particular crew during any one of the phases of training will be dependent upon a number of factors, including the issues raised above, i.e. targetted competitive distances and individual differences of the crew.

A brief summary of this is presented in Table 1 on page 10 (Phase, Levels to Include, Focus).

In order that Training Intensity Levels (TILs) be applied correctly, each athlete should be prescribed these as they pertain to his/her own physical make-up and training status. For outrigger paddlers, this is best performed on an ergometer, a machine that simulates outrigger paddling (see below for supplier). This apparatus would be an excellent addition to a club, as it provides the facility for testing and obtaining individual TILs, but in addition, can indicate to a coach the differences (by ranking) between paddlers in work output, an important ingredient in understanding the total team performance and the relative contribution of each paddler. The basic K1 ergo set-up (\$1450) is for kayak paddling, but for an extra \$75, it can also be configured for outrigger paddling, bringing the total to \$1525.

A further advantage of the ergometer is that, if used as a training device, it allows

Outrigging continued on page 10

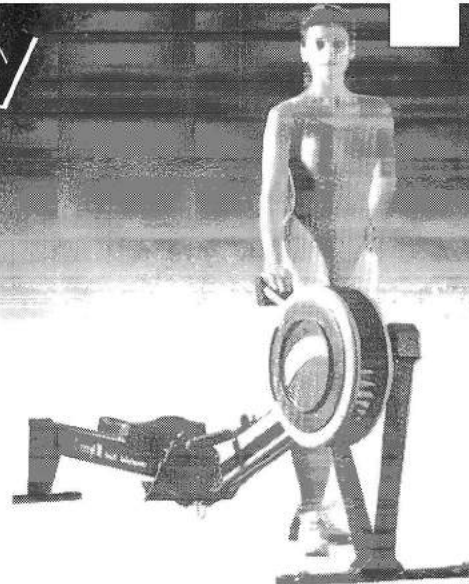
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SWIMMING

Swimming is a Drag

© by Dr Peter Reaburn (AUSI Masters National Coaching Panel)

o swim fast, swimmers need to adopt three principles: minimise resistance, maximise propulsion, and be as economical as possible. This article is the first in a three part series that focuses on principle one - minimising resistance through the water.

Introduction

Water resists swimmers. The more we disturb it, the bigger we are, the larger the surface area we expose to the water, and the faster we go, the more the water resists us getting through it and the slower we go. Conversely, if we can minimise the space we take up in the water while presenting a tapered and streamlined shape to the water, the faster we can go.

Body shape, size and speed

1. Shape

A tapered shape (see Figure 1) will produce the least amount of drag on the water. The rectangular shape has a large, flat area hitting the water and creates a lot of whirlpools behind it - both effectively slowing us down.

Effective swimmers are streamlined through shoulder and body roll, not carrying excess fat, minimising side-to-side movements of the hips and legs, and carry their pointed feet high in the water.

2. Size

Drag or resistance is increased the more space we take up in the water. This space can be both up-and-down (Figure 2) as well as side-to-side (Figure 3). Staying level from head to toe through proper head position (dropping the head, raises the feet), hip position (high and rolling) and feet position (kicking and toes pointed) is crucial.

Some swimmers increase up and down resistance by bouncing in freestyle. They spear their entry hand down rather than out or swing their arms high on recovery.

Preventing lateral movements (Figure 3) in freestyle is done by:

- * using a high elbow recovery rather than swinging the arms wide on recovery;
- * entering the hand at shoulder width rather than across the midline or too wide; and,
- * Preventing the pulling arm crossing the midline under the body.

3. Speed

Resistance is increased by going faster. In fact, doubling speed, quadruples drag. Bit of a worry that!! So do we swim slow to reduce drag. No! As long as we minimise drag through the size and shape principles outlined above, speed only impacts on pacing in a race. Going out too fast in a race expends a lot of energy. Coming home against a more fatigued opponent who pushed a lot of water with a fast speed early in a race is the way to go.

Other Drag-Reducing Strategies:

Sports scientists have identified three types of drag that affect swimmers:

1. **Form drag** combines the space and shape factors discussed above and presented in the Figures 1-3. Presenting a streamlined body in both the horizontal (minimal swaying of hips and legs) and vertical planes (head down, feet

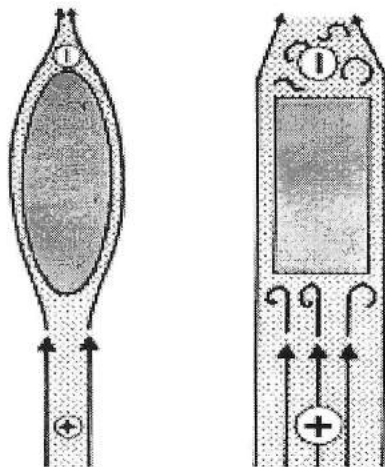


Figure 1

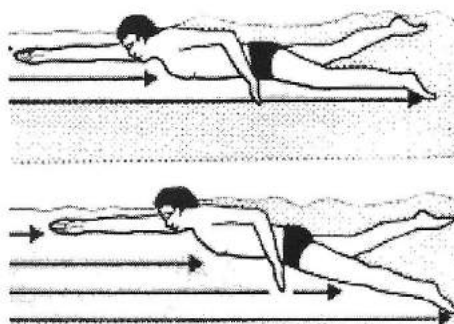


Figure 2

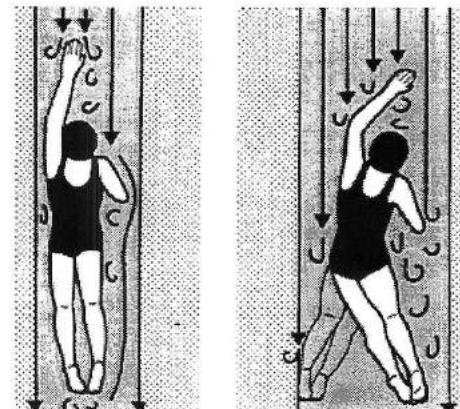


Figure 3

up) to the oncoming water reduces form drag. Apart from the technical aspects of freestyle discussed above, losing fat weight can go a long way to reducing form drag and increasing speed. The *increased fat equals increased buoyancy* argument just doesn't cut it. However, flattening breasts and tucking "tiny" (sorry guys!) away can help to reduce form drag.

2. **Wave drag** is caused by a swimmer making waves or creating turbulence on the top of the water. Moving forward, up-and-down and from side-to-side creates waves. Moving forward we need, the latter two we need to minimise. A smooth and speared hand entry slightly thumb first reduces wave drag.

3. **Frictional drag** is due to the contact between a swimmer's togs and skin and the

Swimming continued on page 8

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Improving Leg Speed

© by Dr Peter Reaburn

Ageing is a wonderful experience. While we tend to think faster on our feet as we get older, the old legs don't seem to turn over as fast as we'd like when racing. I recently read an article from an athletics journal and would like to share some of the ideas put forward on developing leg speed in the distance runner.

DRILLS

The basis of the drills proposed below is **BOUNDING**. While many readers might be aware of plyometrics for developing leg power in sprinters and jumpers, bounding, when done safely and with correct technique, goes a long way to improving leg speed, particularly in older runners who **MUST** do something different to get faster. The drills below are bounding drills that are progressive in difficulty:

1. **Carioca** As well as developing leg speed, this drill can develop mobility in the hips and ankles. You run sideways, alternating the back foot behind the body and then crossing over to the front. The front foot alternates with the back foot. The arms are held high and both the hips and arms are swung vigorously. Two repetitions of 30-50m are suggested, one leading with the right side, the other with the left side leading. Those with lower back problems be aware.

2. **High Knee Skips** This drill emphasises pushing off of one foot and driving the opposite knee high. You skip high on the toes of one foot and drive the opposite thigh to parallel with the ground. Again, two repetitions of 30-50m are recommended.

3. **Long Skips** Similar to the drill above but emphasising a long skip for distance.

4. **Hot Coals** A small sprint of 10-20m is done with quick, short steps staying high on the toes. Legs and arms are pumped quickly as if sprinting across a bed of hot coals.

5. **Butt Kicks** This is a classic drill often seen being done by sprinters when warming up before a big race. The runner simply kicks the heels back to the buttocks while running at half speed. Two repetitions of 25-50m are suggested.

6. **Double Butt Kicks** As the name suggests, this is a "bunny hop" where the runner jumps up and kicks both heels to the buttocks at the same time. The aim is to jump for height, not distance. Start with 2x10m and gradually build the distance. As with all these drills, holding good form (stay upright and strong around the stomach and lower back) is critical.

OTHER METHODS

1. **Sprint training** Sprints of 20-200m done with long recoveries so you are fresh for each sprint.

2. **Hill training** Running up slight grades fast or steeper hills hard develops power. Sprinting short distances on slight downhill is great for leg speed.

3. **Cycling** Putting your bike into a small gear that forces you to spin at 90 plus revs a

minute on the road or on a windtrainer is great for developing leg speed.

PRECAUTIONS

We older runners aren't as young as we used to be and need to gradually adapt to anything new like the work suggested above. Find below a list of guidelines below that you **MUST** adhere to.

a) Do you drills on a soft surface such as a park or grass oval. Check the course for holes.

b) Wear soft soled shoes with plenty of forefoot absorption.

c) A good warm-up is crucial. Jogging for 5-10 mins followed stretching and some efforts of say 6x50 acceleration runs and more stretching is the go.

d) Progress gradually. Begin by doing the drills 1-2 for a couple of weeks and gradually increase the distances on these two. Then slowly introduce more drills over time. Listen to the body, if the niggles are starting to appear, ease off by doing less distance per drill, less drills, less repetitions, or fewer sessions per week or cycle.

e) Stay strong through the core (trunk) and relaxed in the arms, neck and shoulders.

f) Do all drills in a straight line and keep the feet aligned in a straight line.

g) Warm-down well with light jogging and plenty of stretching.

As mentioned in the previous issue of TMA, we older athletes **MUST** do something different to get faster. Doing the same training year in, year out will **NOT** get us faster. Drills and training for leg speed may be the edge you need to keep those youngsters honest, do a PB or beat that long-time rival. Spring into action and just do it!!

Swimming continued from page 7

water. The new "fish-scaled" togs, wet-suit skin and mask goggles are aimed at reducing frictional drag. However, wearing a cap and shaving down are choices we have to reduce friction on the water.

Conclusion

Reducing drag is a major factor in swimming. Too many swimmers just think maximising propulsion is what swimming is about. Have a look at a good distance freestyler and watch their ability to reduce side-to-side and up-and-down movements through correct techniques such as high elbow recovery, correct hand entry, head positioning and kick and sweeping to the midline combined with body rolling at the hips and shoulders - all aimed at reducing drag and maximising propulsion - the topic of the next issue of TMA.

Super Swim

(As seen on page 7)

Super Swim has been available in the United States for about 10 years and is used regularly by families for fun and fitness, rehabilitation centres and hydrotherapy pools and many top coaches for training elite swimmers and triathletes. It is now avail-

able in Australia. The distributor, Irene Keel, used Super Swim in her training to win her age group in the recent annual United States Masters Swimming 5km postal swim.

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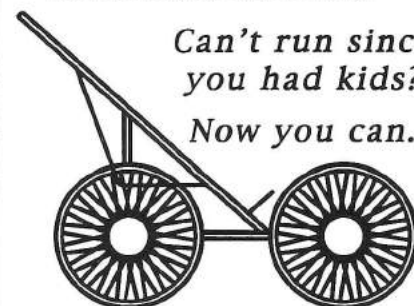
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Fail To Plan? Then Plan To Fail.

© by Liz Hepple

(If you don't have a 'periodised' annual training plan, you will never get the best out of your training). We live in an era of planning. Most workers are familiar with the terms 'Corporate Plans' or 'Operational Plans'. We all prepare mission statements, set our goals and objectives, and evaluate the outcomes of our action plans. Why then do so many masters cyclists and triathletes just go out and do the same training week after week, without a logical plan of how they are going to reach their goals.



Liz Hepple

A. Setting your Goals

The first step in achieving a sense of direction with your training is to set yourself a target race or races. You should prioritise your races so that you select one or two that are

more important than the others. Then ask yourself the questions - How long is the race? Is it hilly or flat? What are the fitness components I need to develop to go as fast as possible in this race?

B. Preparing a 'Periodised' Plan

The idea of 'Periodisation' is to develop the necessary physiological components for your target event, in a logical and progressive manner. Generally endurance is the first component to be developed, then strength, progressing to speed and lactate tolerance training, moving into the important competition period, then finishing with recovery time. Each sport has its own variations of this formula, however, most of them follow the same basic guidelines.

I have detailed a periodised program for someone preparing for an endurance event (eg: 40 km individual time trial) in October. (Road riders would need to include sprints, particularly in Stages 2 & 3) An annual training plan for road time trial cyclists is divided into several stages (sometimes called macro-cycles):

1. Base Preparation 1 (Increase in basic aerobic fitness and muscular endurance)
2. Base Preparation 2 (Strength endurance development)
3. VO2 Maximisation (Increase Maximum Oxygen Uptake)
4. Anaerobic Threshold (Increase Lactate Tolerance)
5. Competition Stage (While maintaining all of above)
6. Recovery Stage

1. Base Preparation 1 (March to April)

This phase takes 4 - 6 weeks and involves the development of an aerobic base. In other words - clocking up some miles. These 'long miles' stimulate the increase in muscular endurance and the capillarisation of the muscles - and more capillaries means more valuable oxygen going to your muscles. They also improve your fat-burning ability which spares your limited glycogen stores, and enables you to work hard for longer. Do two long rides/week (80+) kms, and the other days can be between 30 and 50 kms each.

As most masters cyclists have limited time, they would probably start this phase riding around 150 kms/week and gradually build up to around 250 - 300 kms/week, slightly less for triathletes. If time was not a problem, a goal of 5 - 600 kms/week would be ideal.

2. Base Preparation 2 (April to May)

During this time the weekly mileage would stay the same, and 'Strength Endurance' efforts would be introduced. These should be done twice a week, once on the hills and another on the flat, and at a heart rate of around 70 - 80% of maximum.

Strength Endurance hills. (SE Hills)

Hill efforts are done in the saddle at an rpm of 55 - 65, which increases leg strength and endurance. Aim to do 10 - 20 kms of SE hills during this weekly session. Ideally the training 'hill climb' would be shallow and about 10 kms long - but these sort of hills are rarely close enough to train on, so anything over 1 km would be suitable. Failing this, you can just do a hilly ride, with every hill being ridden in the saddle. The important thing is to really work the muscles during the full pedal revolution, and stay seated in the saddle.

"THEN ASK YOURSELF THE QUESTIONS - HOW LONG IS THE RACE? IS IT HILLY OR FLAT? WHAT ARE THE FITNESS COMPONENTS I NEED TO DEVELOP TO GO AS FAST AS POSSIBLE IN THIS RACE?"

Strength Endurance on the flat. (SE Flat)

These efforts are done by riding in a bigger gear than usual on the flat, but only for short efforts. A good way to do this training is to pyramid the use of the gears (eg: In a 5 minute effort you could ride for one minute in a 52/14, then 1 min. in the 52/13, then 1 min. in the 52/12, then 1 min. in the 52/13, then the last minute in the 52/14 again). Another way to develop more power in the bigger gears is to do a number of 1 km intervals in a big gear (52/14 - 12), with about 2 kms recovery between.

3. VO2 Maximisation - (June to July)

Now that you have got a bit of muscular endurance and strength, it's time to really work on improving your heart-lung fitness. You should maintain your Strength Endurance

efforts once a week (alternating SE hills and SE flats), and can drop your weekly mileage down slightly, but try to do a long ride (100+ kms) once a week.

The best way to improve your VO2 Max is to stress your cardiovascular system with maximum efforts of 2 - 5 kms duration (It is recommended that masters cyclists get a clearance from their doctor before commencing this sort of training). Intensity is high, and your heart rate should be 90 - 100% of maximum towards the end of the effort. At this stage of the season, efforts should be done at a high cadence (around 115 - 125 rpm), which also develops neuro-muscular coordination for smooth pedalling. (Later in the season, keep the cadence at 90 - 100 rpm.) These efforts should be included in the program once a week, and a sample interval session would be:

4 x 2 km Max. efforts (2 kms recovery ride between each)

2 x 4 kms Max. efforts (4 kms recovery).

4. Anaerobic Threshold (July to August)

During this phase you weekly program will include maintenance of Strength Endurance (do these during your weekly long ride), 'Max' efforts, and one 'Anaerobic Threshold' workout. You should also be starting to do some 'training' races - preferably individual time trials (or duathlons/triathlons) at least once a fortnight. Don't taper for races during this phase, otherwise you won't have time to do the necessary hard training.

Your 'Individual Anaerobic Threshold' or IAT is the maximum point of effort at which your body can reprocess the amount of lactic acid that it is producing - in other words, an uncomfortable, but bearable level of pain your legs which you can tolerate for an extended (ie: longer than 20 minutes) period of time. Go above this 'point' then the lactic acid inhibits your muscles from firing, and you are unable to sustain the same power output. A sample Anaerobic Threshold session would include 2 x 15 km efforts at IAT, with 5 kms recovery between.

5. Competition Stage (September to Oct)

During this phase you should maintain all the above components of fitness, but reduce the number of efforts that you are doing for each component. You should be doing races at least once a fortnight, but tapering slightly for each race, so that you feel fresh and can push harder in races.

6. Recovery Stage (Nov. to February)

Don't underestimate the importance of a Recovery stage in your Annual Plan. This is a

Continued on page 12



Sports Nutrition continued from page 4

Further research is required to ascertain the ergogenic potential of antioxidant supplementation in an athletic population. Information on athletes dietary intake of the most common nutritional antioxidants - Vit. A, C and E - also needs to be obtained if dietary intervention is to be viewed as a possible means of addressing the issue of increased free radical generation during exercise. The study of various 'phytonutrients' or non-nutritional antioxidants like genistein in soy and lycopene in tomatoes is another area of burgeoning research. Future research is likely to identify the compounds with the most potential benefit in an athletic population and the best place to find these antioxidants - a bottle or the crisper in your fridge! Until then, keep up your intake of fruit and vegies - great sources of both nutritional and non-nutritional antioxidants, include small serves of foods rich in Vit. E and even enjoy the occasional drop of a "good red" or cup of tea. The battle is yours to be won and it looks pretty tasty.

Outrigging continued from page 6

paddlers to work at their own levels, and hence optimise fitness gains. When a team works as a unit, it is possible that some paddlers are working suboptimally, while others may be really struggling to maintain the work rate - these differences may be lost in the overall appearance of the team. Extra ergo sessions for individuals who are perhaps below par can be very helpful.

Outrigger Paddling ergometers are available from: Roger Cargill
59 Gilmore Cres
GARRAN ACT 2605
Tel. (06) 281 5660

Adaptors for Concept 11 ergometers for outrigging and canoeing are available from Sykes Racing Australia, Riversdale Rd, Newtown, Geelong, Victoria 3220, (03) 52 213655 (See advertisement page 6)

WORKOUT-RUNNING

by Dr Peter Reaburn

This is the second part in a new section of TMA devoted to outlining sample training sets aimed at achieving maximal benefit from minimal time input.

Anaerobic Threshold Run Sessions

The following run sessions are aimed at improving 10k run performance. The outlined workouts are designed for the pre-competition phase of training commencing 6-8 weeks out from a major meet and after a build up of longer and easier aerobic work.

	Novice	Intermediate	"Guns"
Warm-up	400m jog / stretch 400m easy run 400m of surges 200m easy 4x50m efforts with jog recovery	400m jog / stretch 600m easy run 600m of surges 200m easy 4x50m efforts with jog recovery	400m jog / stretch 800m easy run 800m of surges 200m easy 6x50m efforts with jog recovery
Workout	4-6 x 400m at 85-90% max heart rate with 45-60s jog recovery	6-8 x 400m at 85-90% max heart rate with 30-45s jog recovery	8-10 x 400m at 85-90% max heart rate with 30-45s jog recovery
Cool-down	400m jog Stretch	800m jog Stretch	800m jog Stretch

Why Coach?

Warm-up: Stretching improves flexibility in joints. An easy run warms the muscles, ligaments and tendons, protects against injury, increases blood and oxygen delivery to the muscles from the heart and prepares the body and mind for the work ahead. The efforts in the warm-up specifically prepare the muscles and nerves for the quality work in the main set.

Main Set: Every workout must have a purpose and the main set is that purpose. The sets above are to develop the anaerobic threshold so important to 10k run performance. It is crucial that the quality of the last repeat in the set is as good or even slightly better than the first interval. The pace is "hurt but hold". Go out too fast, you'll blow up and have to slow down or take a longer rest; go out too easy and you are not gaining the benefits of the workout. A consistent and strong pace is the key.

Cool-down: Easy recovery runs lower heart rate, redistribute blood around the body, lower blood acid levels and remove other metabolic by-products from the muscles and blood. Stretching returns muscles, ligaments and tendons to resting lengths.

Phase	Training Intensity Levels	Focus
Precompetitive	1-3, with emphasis 1-2	Development of aerobic base
Early Competitive	1-4, with emphasis 2-3	Improve quality of aerobic base
Later Competitive	1-5, with emphasis	Improve racing fitness
Transition	Levels 1-3	Swimming, running etc to maintain fitness

Table 1: The Performance Edge Athlete Training System

Dr Enid Ginn is Director of 'The Performance Edge' - Fitness & Health Services. Enid is the former National Sports Science Co-ordinator for Australian Canoeing and can be contacted on (07) 544 75421 or E-mail eginn@ozemail.com.au The Performance Edge offers clubs/coaches a consultancy service covering all aspects of training program development: * program development advice * various testing procedures * technique enhancement

Thoughts on Marriage

"Don't over-analyse your marriage. That's like yanking up a fragile indoor plant every 20 minutes to see how its roots are growing." - Unknown
"As far as I am concerned, marriage is one of the most wonderful, satisfying ex-

periences a person can have. But I have only been married for 17 years and I haven't seen that side of it yet." - G. Gobel

"The secret of a happy marriage is simple - just keep on being as polite to one another as you are to your friends." - Robert Quillen

From the Research**Cycling Performance in the Heat**

Just how much is performance affected by the surrounding temperature. Researchers from Scotland recently examined this question in healthy young males (25±2 yrs) by getting the subjects to cycle for as long as they could (TTE) at 70% of their VO₂max (80% of max heart rate) at four different temperatures - 4, 11, 21 and 31 degrees with 70% humidity and a slight headwind. The results were:

Temp (°C)	TTE (min)
4	81±10
11	94±6
21	81±10
31	52±4

The results strongly suggest that the effect of heat on cycling performance is an inverted U relationship with performance negatively affected by extremes of cold and heat.

Galloway, S.D.R. and Maughan, R.J. Effects of ambient temperature on the capacity to perform prolonged cycle exercise in man. *Medicine and Science in Sports and Exercise* 29(9), 1240-1249, 1997.



TRIATHLON

Ever Wanted To Go To Hawaii?

© by Dr Grant Schofield

(Central Qld. University - Triathlon Research Initiative)

The Ironman Triathlon is arguably one of the tougher one-day endurance events. A 3.8 km swim, a 180 km bike ride, and a 42.2 km marathon run. These are difficult enough distances on their own, let alone all in one day in up to 45 C heat and 80 kmph wind which frequent the Hawaiian Ironman. The most important step in going the distance in this race is qualifying in the first place. For most Australians this will mean competing to a high level in at least two long distance triathlons in the season leading to Hawaii.

First will probably be a qualifier for the Australian Ironman in April. The second will be Ironman Australia itself where 90 Hawaii spots are offered amongst five year age categories on the basis of the number of finishers in each category. The standard to qualify is relatively high. However, a master's athlete with some background in endurance sport can potentially meet this standard given suitable commitment. This commitment is usually in the form of time, effort, family support, and a financial outlay for travel and equipment. Here are some tips for making it through the Ironman and of course they are appropriate for the long distance triathlons which you will need to complete before Hawaii.

Below are what I consider to be the most important issues in putting in a good performance in a long course triathlon. Given you have made it to the start line in physically good shape, your equipment is working well, your pre-race diet has been sensible, and you have kept the stress levels down, then careful consideration of the points below could help you go that one step extra to the biggest triathlon of all - the Hawaii Ironman.

Hydration

Depending on the individual sweat loss can outweigh the body's ability to absorb fluid. dehydration therefore be a limiting factor in endurance performance in hot and humid conditions. The average person can absorb about 1.0-1.4 l of fluid per hour. But most athletes will sweat more than this. Absorption rate depends on: Fluid temperature - colder fluid absorbed faster than warmer; The concentration and type of carbohydrate (CHO) in the fluid - 7-8% concentration of complex CHO is the best; How

full your stomach is - a full stomach means faster absorption. So maximum hydration means having a full stomach of cold 7-8% complex CHO solution.

**"BE PREPARED TO TAKE
A RISK. DARE TO GO
WHERE YOU HAVEN'T
BEEN BEFORE."**

Nutrition

The best rule of thumb that I follow is that the maximum that my body can absorb is about one gram of carbohydrate per kilogram body weight per hour during the bike and beginning of the run sections of the Ironman. Obviously, you are using a lot more than this, however (as for fluid intake as well) your body can only take in a certain amount. I weigh 80 kg. Therefore I need 80 g CHO per hour. One gram of CHO has 4 calories. So I need about 320 calories per hour. Fuel is probably best taken in liquid form as this is less stressful on the body in competition.

As the run progresses the stomach's emptying rate decreases. You are usually starting you get fairly low on glycogen as well at this point. My advice is to take 1/2 coke, 1/2 water from then on. This seems to help a lot. The simple sugars give an instant boost and the caffeine aids fat metabolism. Once you start on coke don't stop.

Pacing

Don't set off in a mad rush. But at the same time you don't want to go too slow because you have certain goals to achieve right? My advice is to wear a heart rate monitor at least in the early parts of the race to prevent

you from using all your glycogen stores in the first few hours. Eventually you will start to run out of glycogen and then the heart rate monitor will be of little use to you because your heart rate will drop as you rely on fat burning to provide the bulk of your energy demands.

Push yourself

Be prepared to take a risk. Dare to go where you haven't been before. Open the door to the place deep inside you where you still have inadequacies and fears about yourself. Face those fears and come back stronger and better than before. To me long distance triathlon racing is all about facing and racing yourself. You set your own limits. The Ironman is a good place to discover this "rule of life" in a well catered and (relatively!) safe environment.

Thinking

You can think whatever you like before the race, during the swim, and even in the bike ride - but that all counts for nothing if you fold up and can't go with the pain in the parts of the race where things really count - at the end of the bike and the whole run. That is when you have to be tough. That's when your body is screaming at you to stop and a thousand reasonable excuses are spinning through your head to pull out, to slow down, to walk. That is when you need to be strong - just then. Don't ever walk. Walking in the run wastes the most time. I find it best to make a rule that I never walk no matter how slow I am running.

Savour the moment

When you make it to the finish line savour the moment. You have achieved what few people have the opportunity, resources, or drive to do. One of the high points of my sporting career was finishing my first Ironman triathlon.

Grant recently came 90th in Hawaii and holds a PhD in psychology.

Get Set!

Calendar of Events

March 12-14 1998

AUSSI National Swim
Hobart, Tasmania

Contact: (03) 62231317

7-15 March 1998

Aust. Veteran Games
Wagga Wagga, NSW
Contact: (069) 235428

April 9-13 1998

Aust Vet Track & Field Champs
Brisbane, Qld

Contact: (07) 38701736

April 16 - 26 1998

State Autumn Masters Games
Ballarat, Victoria
Contact: (03) 53205730

June 21-30 1998

World Masters Swim Champ.
Casablanca, Morocco
Contact: (08) 83441217

October 17&18 1998

Qld. Vet. State Cycling Champs
Location to be advised

Contact: (07) 33901477

October 19 - 27 1998

Honda Masters Games
Alice Springs, NT
Contact: (089) 515 329

October 31- Nov 8 1998

Asia Pacific Masters Games
Brisbane, Qld
Contact: (07) 55640480



Cycling continued from page 9

time to maintain some fitness (eg: 3 - 4 weekly sporting activities), but without pushing yourself hard. When you go for a ride, chat to your friends and enjoy the scenery - don't ride too far or do any hard efforts. This stage is vital for physical and psychological regeneration.

Summary

As I mentioned, this is a simple plan, and may find that you need to do two six month 'Periodisation' Plans per year, but the process is the same, only the duration of each stage is different. Be sure that if you plan your training, not only will you race better in those important races, but the variety will help avoid burnout.

This article has been reprinted because of several requests regarding periodization.

From the Research**A Cool bath for Hot Performances**

Summer heat and humidity is upon us. So are the rowing, track and tri-seasons. Put racing and hot and humid conditions together and previous research suggests slower performances. However, recent Australian research suggests a cold bath before racing may help performance in the heat. Researchers from Bathurst took eight (5M, 3F) youngsters (20-34 yr) and got them to run on a treadmill as far as they could in 30 mins in hot (32 degrees) and humid (60%) conditions on two separate days. One day they did the test without any precooling, the other day they lay in a bath of cool water for an hour then ran the 30 minute tests three minutes later. The bath was 28 degrees (a warm pool) for the first 5-10 mins then was dropped in temperature to 23-24 degrees for the rest of the hour. The athletes ran 304±166m further after precooling, and had lower body and skin temperatures before, during and after the tests.

Booth, J. et al. Improved running performance in hot and humid conditions following whole body precooling. *Medicine and Science in Sports and Exercise* 29(7), 943-949, 1997.

ANNUAL CYCLING PLAN

Suggested weekly training program during different Phases
*RE = Recovery day of approx 30 kms easy

Base - Prep 1	Base - Prep 2	Max VO2	I.A.T.	COMP'N	RECOV.
2 x 80+k	2 x 80+k	1 x 100k	1 x 100k incl. SE	1 x 100k incl. SE	3 x RE
2 x 50+k	1 x SE hills	1 x SE hills efforts	1 x Max efforts	1 x race	Fun Activities
2 x RE	1 x SE flat	1-2 x Max efforts	1 x IAT efforts	1/2 IAT efforts	
	2 x RE	2 x RE	1 x race	1/2 Max efforts	
			2 x RE	2 x RE	

Not the National Top 10**1. Spinach**

High in folic acid and iron, spinach is especially good for keeping your body healthy. Try making a spinach and ricotta filo or spinach pie.

2. Sweet Potato

Lots of fibre and Vitamin A make sweet potato a real treat. Sweet potatoes are widely available so try one soon with some Indian or African food.

3. Broccoli

Chock full of Vitamin C, broccoli is great in soups and pasta dishes. Alternatively try it in a salad or just munch on it raw.

4. Carrot

Carrots are one of the best sources of Vitamin A and not bad on fibre either. Try them raw on their own or in salad or cooked in a stew or pasta dish.

5. Brussels Sprouts

These are not everyone's favourite usually because they are overcooked. However they are very high in both fibre and Vitamin C and worth a second try. Just blanch.

6. Pumpkin

Lady Flo would have use believe that this is the best vegie of all. Pumpkin Pie or Scones are all very well but can anything beat Roast Pumpkin on Christmas Day.

7. Snow Peas

On their own or in a stir-fry or salad, snow peas are delicious. They are high in iron and Vitamin C and make a great snack.

8. Capsicum

These nutritious peppers are widely available in green, red and yellow. They are versatile enough to include in salad, pasta or soup and taste great all on their own.

9. Potato

Roast Potato or Potato Salad make a healthy alternative to chips or wedges. Potatoes can't be beaten for dietary fibre or iron.

10. Cauliflower

Like broccoli, cauliflower is a very flexible vegetable, though this one is high in Vitamin A. Try it roasted for something different.

Source: Vegetarian Resource Group

Did You Know

- Gordie Howie played 33 seasons of National Hockey League (Ice Hockey). In 1980, as a 52 yr old grandfather, he was named an NHL Allstar for the 22nd time.
- Albert Beckles won the Mr Olympia body building title in 1984 at the age of 52 years.
- Carlos Lopez of Portugal won the Los Angeles (1984) marathon at the age of 42 years. At 43 he set a new world marathon record (2:07:12) and won the world cross country championship.
- In 1985, Richard Bass, at the age of 55 years, became the oldest person to conquest Everest.

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