THE MASTERS ATHLETE

ISSUE 8 AUG 96 | *A total fitness guide to optimise training and performance for the older athlete* | ISSN: 1322-7831

Guest Editorial - Stan Perkins, Masters Games-the sleeping giant.

The masters segment of sport is the fastest growth area in sport worldwide!

Stan Perkins

A central organising body is responsible for the overall planning of a masters games, together with the provision of umbrella support to complement the individual sports that are specifically responsible for the organisation and conduct of their sporting competition.

In Australia the tendency has been for governments to provide the financial support to enable the games organisation to take place, with support from the business sector adding to the quality of the event. Generally the participants provide a substantial proportion of the overall costs of the event through administration fees paid in addition to the fee set by their sport.

Emphasis is placed upon participation rather than performance (the "sport for all" concept). The challenge facing the sports organisers is to ensure that all participants have an enjoyable and meaningful competition, regardless of their ability.

A strong program of social functions and free time for self-choice activities is included in addition to the sporting activities to provide an opportunity for socialising, shopping, touring and other holiday pursuits. In summary, Masters Games is sport and tourism.

■ The Growth Indicators

In 1990, 45.4% of the Australian population were over the age of 35, an estimated 7.7 million people.

Statistics show that Australia and New Zealand lead the world in their levels of participation in mature aged sport, mainly due to:

- Our climate encourages outdoor activity
- The age groups involved all had compulsory school sport
- The "baby boomer"
- More leisure time due to reduced work hours
- Careers and families well established
- The availability of a large range of sports
- We have mobile populations (70%)

A survey of participants in the 1991 Australian Masters Games showed the profile of a Masters Games participant to be: male, age group 45-49, tertiary educated, employed in business with income exceeding $35000, an established home, and a grown family.

This equation is obviously a very appealing one to business but it is taking a long time for business to realise the opportunities that exist.

This was not the case with government. Government at every level in Australia quickly realised the economic benefits of mature age multi-sport festivals.

In Queensland the first state Masters Games in Townsville in 1995 were hailed by the Mayor as a major success for the city in every way.

■ The Economic Impact Factor

In 1991, the Third Australian Masters Games held in Brisbane produced a $10.6 million impact on the Queensland economy. In 1994 the World Masters Games attracted over 23,500 participants to Brisbane and an economic return of $50.6 million.

Why then has business been so slow to realise the potential of Masters Games as income sources and an opportunity to profile products and services?

■ The Network factor

The Gold Coast has all the ingredients for a successful hosting of the Malanda Queensland Masters Games, but we were floundering for business support and community awareness. A change in the marketing direction saw an almost immediate improvement. We obtained additional support from Queensland Events Corp. That immediately gained results in the sponsorship area.

We determined that the people and businesses of the Gold Coast must want to host the Masters Games and be keen to be part of the planning and presentation of the event. Business on the Gold Coast has struggled so if we wanted its support we had to provide the games product to business and sell its benefits.

Sports supported the concept and so did the board. All will know that the Masters Games are in town and that they are good for business. They are fun and yes they are for older people but ....they have dollars and spend them.....they have a love of life and fitness and they enjoy it.....they are business.....Sports business.

Sports too will benefit considerably from their involvement in the games. Administrators are developing new skills and several are no longer relying upon the resources of the state association in Brisbane. Some will make money. Some will form beneficial relationships with sponsors and business supporters. Council is providing improved facilities at several venues that will benefit sport.

■ Conclusion

Queensland leads the world in masters sport and I believe the levels of co-operation and communication that have been achieved between the partners in the 1996 Malanda Queensland Masters Games have set the standard for all future events. Masters sport is multi-sport in its nature but to succeed it must be single-minded in its quest to attain its objective.

This requires a commitment by all the parties to work together, to network and remain focussed. Only when this is achieved will the goal of providing a unique and enjoyable experience to all participants, sports administrators, organisers, volunteers and key stakeholders and sponsors be realised. Business and sport are now partners of necessity in an economy that is now demanding a return for investment and a justification for involvement. Business managers are responsible to their shareholders in the same manner as event organisers are responsible to their key investors - the participants.

Stan Perkins is General Manager of the Malanda Masters Games and the former National Secretary of The Veteran Athletic Association of Australia.

This Issue..

Editorial

Hello again. This issue's Guest Editoral is written by Stan Perkins, Manager of The Malanda Queensland Masters Games. Stan discusses the benefits Masters Games provide to the community. We also welcome Dr Colin Solomon who will become our regular running contributor, and Tracey Langfield who writes about common triathlon injuries and more importantly how to prevent them.

If you have a renewal notice in this issue it means your time is up and this is your last issue unless you return that notice (with $29 of course!).

Hope to see many of you at the Malanda Queensland Masters Games or the Gold Coast Marathon.

Peter and Claire

THE MASTERS ATHLETE

Proudly supported by the Australian Sports Commision

Australian Sports Commission

Print Post No: PP439224/00013

ENDURANCE

Putting it all together

© by Dr Peter Reaburn

In earlier issues of TMA, we examined the different training intensities that endurance athletes should use to develop endurance. More than which of these heart rate intensities is more essential than the others, is how do we put these training intensities together to maximise endurance performance.

Peter Reaburn

While sports science does not have the specific answers to this question, in this article I'll propose a model of periodisation that is based on the training principles of progressive overload and adaptation. After all, that is all periodisation is - putting all these training intensities together so that we're ready to race to the best of our ability.

Just before we discuss periodisation, the table below (Table 1) will refresh our memories of the six heart rate training zones.

The art of training correctly is putting these training intensities together during a week (microcycle), during a 3-4 week block (mesocycle), or throughout the season (macrocycle) to maximise training time and prevent overtraining. In the old days we had the "hard-easy" principle. Today's sports scientists and elite coaches are suggesting hard, medium, and easy days during a week long microcycle and hard, medium or easy weeks during a 3-4 week mesocycle. The basic principle is that the above training intensities are manipulated to stress the body at times (hard/medium) and then to allow the body to adapt to that stress with easy work.

Zone	Name	Intensity
1	Recovery	<65% Max HR
2	Aerobic	65-75% Max HR
3	Extensive Endurance	75-80% Max HR
4	Intensive Endurance	80-85% Max HR
5	Anaerobic Threshold	85-90% Max HR
6	Maximal Aerobic	>90% Max HR

Table 1: *The six heart rate training zones.*

A microcycle might consist of six training sessions with a day off but with two periods of easy, medium, hard days. During the base development or preparation phase where we are getting the "miles in the legs" or "k's into the arms", the terms easy, medium and hard might be distances covered getting longer or intensity levels 2-4 being manipulated and distances held constant. During the specific preparation or mid-season phase, the same easy, medium, hard schedule might be in place, but hard might be level 5-6, medium levels 3-4, and easy level 2.

A mesocycle might be a 3-4 week period where a hard week is followed by an easy week, then a medium week. Again assuming six sessions a week, a hard week mid-season might be 2 x level 2-3, 1 x level 4, 1 x level 5, and 1 x level 6 with an easy week being 1 x level 4, 1 x level 1, 3 x level 2, 1 x level 5. As a rule of thumb increase volume through early season phase, lift intensity and drop volume during mid-season, and do the same during the competition phase.

The endurance training year can be broken up into three main phases - the base or foundation phase, the transition phase, and the speed/power training phase, with a final taper.

1) Base / foundation training is performed during the non-competitive period of the training year and builds the aerobic base on which more intense training is built. Levels 2-4 are emphasised with kilometres gradually built up. This phase may last up to 12-16 weeks depending on the time lag between your last competition and your years of experience.

2) Transition training or mid-season training can last 6-8 weeks and is done by introducing levels 4-5. Recovery between level 5 sessions is important so as to allow quality work to be done during those sessions. Volume (kms) drops but intensity is lifted during this phase. Races should be entered and considered to be level 5-6 training.

3) Speed and power phase is undertaken in the last 4-6 weeks where, although all other levels are maintained, level 6 work is introduced to give endurance speed to the masters athlete. Volumes are reduced as a result of the intensity being high. Again, recovery work (level 1) is crucial after hard workouts while the other levels should not be forgotten.

The transition and speed / power phases are where injuries may occur since intensities are so high. Listening to your body during these phases is essential and recovery methods such as massage, water running, cross-training or spas should be used extensively. Importantly, both threshold (level 5) and maximal aerobic power (level 6) training is difficult and should only be undertaken by healthy masters who have no cardiac risk factors, a training age of 2-3 years, are not prone to overuse injuries, and who have undertaken an extensive foundation phase.

However, I see no reason why the masters athlete cannot train as relatively intensely as the younger athlete. The only differences I see is that the training pace will be relatively slower (generally!) and that the number of intense sessions in a microcycle or mesocycle may be reduced. This is due to the anecdotal evidence that we take longer to recover from the intense sessions than the youngsters. As a general rule, when doing quality work (levels 5-6), be fresh - quality counts!

4) Tapering or peaking is a highly individual matter but usually takes place during the last 7-10 days prior to major competition and involves a gradual or dramatic reduction in training volume (kms) and frequency. Intensity and frequency of training should be maintained. Indeed, a recent study found that middle distance runners significantly improved their performance times by sharply reducing their training volume while maintaining or increasing their training intensity seven days before a race. This taper method was superior to both a reduction in training intensity and total rest in the week prior to competition. It is generally accepted that the longer the athlete has been training for, the longer the taper can be. However, if training duration has been short, then a "drop taper of 2-3 days where volume is dr dramatically might be suggested.

Putting the yearly training program together is an art based on sound principles. I've given you some scientifically-sound principles. You now have to listen to your body, draw upon your own experiences, and be aware of your lifestyle (work stressors, family commitments etc) in developing your training program. The astute older athlete will not just do what they've always done - try something new and watch the difference.

The Team

PETER REABURN - Editor

CLAIRE REABURN - Co-ordinator

The Masters Athlete is published every two months by Sports Performance Consultants, PO Box 779, Kenmore, QLD 4069, Phone (07) 3378 1439. Information herein is solely for the guidance of our readers, and is not intended to substitute for professional or medical advice. Sports Performance Consultants disclaims responsibility or liability for any loss that may be incurred from the use or application of any information in *The Masters Athlete.*

SUBSCRIPTIONS

Individual $29/yr Assoc/Clubs $50/yr (2 copies) Overseas $AUS40/yr

EDITORIAL CORRESPONDENCE

The Masters Athlete, Sports Performance Consultants, PO Box 779, Kenmore, QLD 4069.

DESIGN & PRINTING

PC GRAPHIC ART PTY LTD
PHONE (07) 3358 4654 **FAX (07) 3358 1351**

SPORT PSYCHOLOGY

How To R.e..l...a....x

© by Dr Stephanie Hanrahan

Many of us are aware that relaxation can not only help us sleep the night before competitions, but also help us perform more fluidly and with more control. Basically, we can't be tense and relaxed at the same time, and we can't be anxious and relaxed at the same time. Given the choice of being tense and anxious or relaxed, I think most of us would choose the latter.

Stephanie Hanrahan

■ What is Relaxation?

Relaxation is a state where one is physically and mentally free from uncontrolled tension, anxiety and negative thoughts. Physical relaxation includes decreasing the tension in muscles and lowering heart rate and respiration rate. Mental relaxation includes ri[illegible]ing the mind of negative or unwanted t[illegible]ghts and reducing anxiety.

■ Relaxation is a Skill

Knowing that we need to relax isn't enough. We also need to know how to relax. Just as learning proper technique in freestyle, transition skills in triathlon and climbing technique in cycling take time and practice, so does the skill of relaxation.

Because there are two types of relaxation, the same relaxation technique won't work for every individual in every situation. For example, if you are having trouble falling asleep because your brain won't shut up - you keep thinking about problems at work or what you need to do in the next few days - a relaxation technique that focuses on reducing tension in the body may not be as effective as a technique designed to quiet the mind. On the other hand, an athlete who gets too tense physically during competition would probably benefit from [illegible]cise designed to relax the muscles. [illegible]llows are three example of relaxation [illegible]ues.

■ Abdominal breathing

Abdominal breathing is a relaxation and concentration exercise that focuses on breathing in a particular way. The easiest way to learn the technique is to lie down on your back with your legs uncrossed. (If you have back trouble, put your feet and lower legs up on a chair). Place one hand on your stomach, just below your belly button, and then rest the other hand gently on top of it.

- Inhale so that your stomach and hands rise as you breathe in.
- Exhale so that your stomach and hands fall as you breathe out.
- Try to take the same amount of time breathing in as you do breathing out.
- Try to make the transition between the two as natural as possible as if your breathing has a mind of its own.
- If other thoughts come into your head, stop, and refocus on your breathing. Some find it useful to thank the thoughts for making an appearance, and then letting them float on through.
- Continue breathing in this manner, but now every time you exhale repeat the word "relax" silently to yourself.
- If other thoughts come into your head, refocus on your breathing and the word "relax".

You may want to replace the word "relax" with a different concentration word. At first spend about 6-10 minutes on this exercise each day. Eventually decrease the time to 3-5 minutes. You may also want to change your position from lying down, to sitting, to standing, and then eventually to a position that is relevant to your sport. Abdominal breathing is a useful exercise for calming your mind when trying to sleep. It is also a great refocussing exercise that can be used effectively either before or during competition or training.

■ Progressive Muscular Relaxation (PMR)

PMR is a physical relaxation exercise. Often when we try to relax our muscles on command we aren't able to do so. PMR relies on the overshoot principle. Basically we have a constant state of tension in our muscles. If we first increase that tension and then relax, we will automatically dip below that initial level of tension. To begin, lie on the floor with your hands at your sides palms up and your legs uncrossed.

- Focus on your breathing - stomach up as you breath in, stomach down as you breath out.
- Gradually squeeze your right hand into a fist. Make it tighter, tighter still, as tight as you possible can. Hold it.
- Now think to yourself, "stop" and "relax".
- Let the tension drain out of your fingers. Notice the difference between tension and relaxation.
- Stomach up as you breath in, stomach down as you breath out.
- Now bring your attention to your right upper arm, gradually tighten the muscles of your upper arm. Make them tighter, tighter still, as tight as you possibly can.
- Now think to yourself, "stop" and "relax".
- Feel how heavy and relaxed your right arm is.
- Stomach up as you breathe in, stomach down as you breathe out.
- Continue with the same process through the following parts of your body:
  - Left hand
  - Left upper arm
  - Right foot (as if forming your foot into a fist)
  - Right calf (be sure you tense gradually)
  - Right thigh
  - Left foot
  - Left calf (be sure to tense gradually)
  - Left thigh
  - Buttocks (squeeze)
  - Stomach
  - Chest
  - Upper back (squeeze shoulder blades together)
  - Neck (push head into the ground)
  - Tongue and jaw (push tongue up against the roof of your mouth)
  - Face (squeeze eyes, nose, and mouth -scrunch up face)
- Now do a mental check of your body for any signs of tension. If you come across part of your body that does not feel particularly relaxed, increase the tension inthat part of your body, hold it, and then think to yourself, "stop" and "relax". PMR can be useful for complete muscle relaxation. It can also be used to learn to relax specific groups of muscles that may be too tense during performance. For example, rowers may use it to learn to relax their grip on the oar and runners may use it to relax their jaws. Unnecessary tension in muscles during performance only wastes energy and also causes a decrease in the fluidity of movement.

■ Biofeedback

Biofeedback is a technique that involves getting information about our biological or physiological functioning of which we are normally unaware. By getting immediate and ongoing feedback about how are body is functioning, we can eventually learn to gain some control over that function. A lot of fancy machines exist that can be used to measure muscle tension, blood flow, and a variety of other functions. For the purposes of this article, I chose a biofeedback technique that a lot of people should be able access.

A lot of us use heart rate monitors as part of training, to make sure that our heart rates stay within a predetermined range. For some of us this helps us from being too lazy and working at too low a level of effort. For others of us, it keeps us from pushing too hard.

Heart rate monitors, however, can also be useful when learning to relax. Obviously, with relaxation the point is to try to get your heart rate as low as possible. Some people are successful by focusing on the heart beating on the watch and then willing it to slow down.

continued on Page 4...

SPORTS NUTRITION

How are your Blood and Bones? - issues of iron and calcium

© by Holly Frail

The importance of adequate intake of Iron and Calcium cannot be underestimated as we age gracefully. Strong robust bone structure and the ability to provide oxygen to our working muscles are central to optimal training and competition performance.

Holly Frail

Yet, it is easy to overlook these essentials, especially if we reduce our total food intake to counteract the age-related slowing of our metabolic rate. Quality of food choices and an awareness of how we can enhance the absorption of iron and calcium is a must, particularly for we females involved in masters sports.

■ IRON

Iron deficiency is a nutritional problem commonly reported in heavily training athletes - especially females, and those involved in endurance sports. While the exact cause has not really been established, early detection and dietary intervention are essential in order to avoid long term reduction in our ability to train and compete.

The role of iron in the body

Iron is involved in oxygen transport in the blood and muscles through its association with haemoglobin and myoglobin. Masters athletes with low iron stores (serum ferritin) suffer tiredness and poor recovery. If this situation becomes more severe and haemoglobin levels drop (iron-deficiency anaemia) then symptoms such as severe fatigue, headaches, cramps, and shortness of breath are common. It is also believed that reduced resistance to infection may occur. Only a blood test can determine your iron status.

The term "sports anaemia" is often used to describe the low iron stores seen more commonly in the athletic population. This may be in part a result of the dilutional effect of increased blood volume due to aerobic training. Even if these low iron stores do not directly affect performance, early treatment is warranted to prevent the development of a true anaemia.

Which masters athletes are at risk of iron deficiency?

- menstruating females
- vegetarians
- endurance athletes - particularly females
- individuals on low-energy diets or trying to lose weight

How do you become iron deficient?

Everyone loses iron regularly through the bowel, bladder and skin (sweat). Of course, females also lose iron when they menstruate. Increased blood loss occurs due to injury or surgery, increased sweating, and through trauma to internal organs and red blood cells during exercise (via the bladder, bowel and feet when we run and blood cells are crushed). Athletes in heavy training may also have decreased ability to absorb iron from the diet. Combined with this are the problems of inadequate intake due to a strict vegetarian, low kilojoule or "fad" diet.

How much iron do we need?

Recommended iron intake for older athletes:

Males and non-menstruating females	7mg/day
Menstruating females	12-16mg/day
Endurance training - males/non-menstruating females	7-17.5mg/day
Endurance training - menstruating females	16-23mg/day
Pregnancy (trimesters 2&3)	22-36mg/day

Where do we find iron?

Iron is found in the diet in two forms

Haem iron - which is readily absorbed by the body. It is primarily found in animal products such as liver, kidneys, red meat and the dark flesh of poultry, fish and seafood.

Non-haem iron - which is less readily absorbed and is found primarily in plant foods. The best sources are breakfast cereals, pasta, rice, bread, dark green vegetables and pulses (dried peas and beans). Iron absorption from these sources may be enhanced by combining them with meat or a source of vitamin C in a meal. It is also important to remember that tannins (in tea), excess caffeine (tea, coffee, cola), unprocessed bran, and oxalate (in spinach) all interfere with iron absorption. So it's unlikely that Popeye really got much iron out of his spinach (unless he included the can!).

GOOD FOOD SOURCES OF IRON

FOOD	SERVE SIZE	mg per AVERAGE SERVE
Liver or pate	75 g	8.3
Lean Beef	2 slices(75 g)	2.3
Lean lamb	2 slices(75 g)	1.9
Chicken (skinless)	1 small breast(75 g)	0.5
Fish	1 small piece(75 g)	0.3
Egg	1 (55 g)	1.0
Baked beans	1/2 cup(120 g)	1.9
Apricots (dried)	5-6 (50 g)	2.0
Fruit	Average piece	0.5
Wholemeal bread	2 slices	1.4
Green leafy vegetables	1/2 cup	1.4
B'fast cereal (enriched)	Average serve	5.6

Do I need supplements?

Supplements should only be taken on medical advice after blood tests have been carried out. Excess can result in organ damage and gastro-intestinal symptoms, as well as inducing deficiencies in copper and zinc.

Tips to pump up your iron intake

- Include "haem" iron sources every (meat, poultry and fish) e.g. pastra sandwich, chicken in a stirfry
- Include lean red meat 3-4 times per week e.g. lean mince in a pasta sauce or with beans as a "chilli con carne"
- Try liver or kidneys for a rich source of iron e.g. a thin spread of liverwurst on bread instead of butter
- Vegetarians should include "non-haem" sources such as legumes, grains and vegetables to obtain their iron needs. Also think about using cast iron pots.
- Choose iron-enriched breakfast cereals
- Include sources of vitamin C with your meals to enhance absorption of non-haem iron e.g. juice with your breakfast cereal, capsicum in a stir-fry
- Avoid excess caffeine (coffee, tea, cola), tannins (tea) and unprocessed bran that may inhibit absorption of your iron

■ CALCIUM

Unfortunately aging leads to "thinning of the bones" and possible osteoporosis in both

Sport Psychology continued from Page 3...

Others try a variety of relaxation techniques (including abdominal breathing, PMR, or imagining yourself in a relaxing place) and see which technique helps them slow down their heart rate the most.

The US biathlon team (cross country skiing and shooting) used heart rate monitors for biofeedback training to help them learn to quickly lower their heart rates after skiing before shooting.

You will probably want to try more than one relaxation technique. But whatever technique(s) you choose, remember that relaxation is a skill that requires time and practice to master.

males and females. In older female endurance athletes however, the consequences for our sport and our health are more prevalent.

The role of calcium in the body

Most of the body's calcium is stored in our skeleton. Apart from its role in bone strength and health, calcium is also involved in muscle contraction, blood clotting, enzyme function and nerve transmission. Another interesting fact for older athletes is that calcium may play a role in reducing blood pressure.

Who is at risk of calcium deficiency?

Exercise on the whole serves to strengthen our bone structure. However, for those female athletes who are post-menopausal, osteoporosis may be seen as the significant loss of calcium from the bones as a result of lowered oestrogen production. This leads to lower bone density and brittle bones that fracture more easily. A similar condition, known as osteopenia, occurs in their younger cohorts due to menstrual irregularities or amenorrhoea (absence of menstruation). Osteopenia is often associated with low weight or body fat levels and/or intense training. It is most often seen in endurance athletes, or those who have been involved in dance, gymnastics or sports such as diving.

Inadequate calcium intake at younger ages may have played a role in the development of these conditions, and it certainly plays a part in prevention and treatment.

How much calcium do we need?

Males and females	800mg/day
Post-menopausal or amenorrhoeic females	1000mg/day

Where do we find it?

Calcium may be found in a wide range of foods such as dairy products, canned fish, green leafy vegetables, nuts and seeds. It is important to remember that the lactose present in dairy products aids their absorption. Many calcium-enriched milks on the market help us reach our requirements without excess fat or kilojoules.

Vegetarians should remember that soy products should be fortified with calcium to provide a good source in the diet. Dietary factors that increase the risk of bone calcium loss include excess protein and salt intake.

Do I need supplements?

Calcium supplements are on the whole poorly absorbed and are only recommended when it is impossible to obtain our needs from the diet. This may be due to allergies or strict vegetarian lifestyles.

Tips for "boning up" on calcium

- Choose at least three serves of calcium containing foods per day (more if you are post-menopausal or amenorrhoeic)
- Reduced fat dairy foods provide the calcium without the extra fat, cholesterol and kilojoules
- Include salmon and sardines (mash up the bones)
- Vegans should ensure adequate calcium from non-dairy sources such as calcium-enriched soy products, nuts and seeds.
- Use low fat high calcium and carbohydrate meals and snacks such as:
  Cereal with reduced fat milk or yoghurt
  Salmon sandwich
  Low fat fruit "smoothie" drink
  Low fat rice pudding
  Pasta with low fat white/cheese sauce
  Homemade pumpkin soup with added buttermilk

DIETARY SOURCES OF CALCIUM

FOOD	SERVE SIZE	APPROX. CALCIUM (mg)
Whole milk	200 ml	250
Skim Milk	200 ml	250
Skim milk - calcium fortified	200 ml	310
Cheese	20 g	160
Cottage cheese	100 g	80
Low fat yoghurt (flavoured)	200 g	350
Low fat yoghurt (plain)	200 g	320
Ice -cream	60 g	80
Salmon	100 g	200-330
Sardines	100 g	330
Oysters	100 g (=10)	140
Almonds	50 g	130
Tahini (sesame seed paste)	20 g	70
Spinach	100 g	50
Soy milk	200 ml	30
Tofu - soy curd	100 g	130
Soy milk - fortified	200 ml	230

Did You Know?

- Masters winners at Boston Marathon were Lorraine Moller (40 yrs) NZ in 2:32:02 at eighth overall, and Herbert Steffny, (42 yrs) of Germany in 2:19:33 and 32nd overall.
- You use up more calories in the action of eating a stick of celery than are contained in the stick itself.
- In 1972, a Swedish man balanced on one foot for over five hours, using nothing for support.
- Mr Vroom is a motorcycle dealer in South Africa
- Human adults breathe 23,000 times a day

From *Not Many People Know That!* by Michael Caine

RUNNING

What will I do in the Off-season?

© by Dr Colin Solomon

The off-season for a runner can be defined as the period of time during which the athlete is not specifically training for, or competing in, their specialist event.

The off-season serves two main functions:

1) to allow many components of physiological function to recover, either partially or fully from the competitive season;
2) to form a solid physiological foundation from which the training regime can diverge towards specific training and competition goals.

Long-distance runners and cross-country runners will utilize the track season as the off-season, and track runners will utilize the cross-country season as the off-season. However, due to the similarities in the competitive events conducted during both these seasons, many masters runners compete during both seasons. Similarly, for those of us who specialize in road-racing (5km, 10km, half marathon, marathon), there is no defined season, and races are conducted all-year round. Taken together, these running seasons allow us to compete all year round, and for successive years, continuously. Therefore, if an off-season is to be taken, it is up to you to define the period of time that will be utilized, and to change your training accordingly during this period.

The design of the off-season programme will be a function of what the individual athlete wants from this period. Training during the off-season, can range from total rest through to changes in emphasis on specific types of training. Like the training programme utilized during the competitive season, the off-season training programme must be designed to train the SPECIFIC physiological system intended. Also, the off-season is the time to experiment with different types of training sessions and techniques.

MAINTENANCE

The off-season can be used to simply maintain aerobic-power. For this purpose, the training programme should be designed to: 1) remove high-intensity/speed sessions; 2) maintain the intensity of each session; 3) decrease the duration of each session; 4) decrease the frequency of sessions. For example;

Competitive-Season Week (Duration/Intensity):

1 x long/slow, 2 x Interval/high,
1 x Fartlek, 2 x Medium/Medium

Off-Season Week:

3 x Medium/Medium

COMBINATION TRAINING

Even though training during the off-season is concentrated on long/low, and medium/medium training sessions, it is important to maintain a degree of resistance (hill) and high-intensity sessions. Maintenance of these sessions will aid in preserving the nerve and mechanical aspects of running under these conditions. Both the resistance and high-intensity components can be incorporated into the off-season training programme by including one moderately hilly fartlek session per week.

DE-TRAINING

If the athlete chooses total rest or a significant decrease in total training volume, during the off-season, it is expected that both the aerobic power and speed will be decreased. These changes occur relatively rapidly with only 2-4 weeks of decreased training resulting in a 5.9% decrease in VO2peak. Even for the masters athlete who maintains, or increases, aerobic power during the off-season, speed would be expected to decrease and this must again be specifically re-trained prior to the competitive season.

RE-TRAINING

Depending on training undertaken during the off-season both aerobic power and speed can decrease back to pre-training levels. The magnitude of this decrease will determine both the format and total time of the re-training programme. If we have allowed a significant decrease in physiological function to occur, then training should resume with sessions of low duration and low intensity. Training should then continue with progressive increments in duration, intensity, and frequency, but with regular weeks of decreased total training load, to allow recovery from training.

AEROBIC BASE

Based on the rationale of a solid physiological foundation, the primary purpose of the preparatory function of the off-season is increasing aerobic power. As is the case for ALL training, aerobic power training must be SPECIFIC. We should utilize long-low training sessions ranging in duration from 60-120+ minutes and at the lowest established training intensity. Two of these sessions per week can be completed during the off-season if increasing the aerobic base is the objective.

EXPERIMENTATION

The off-season provides you with the opportunity to experiment with different training techniques that could, and possibly should, not be utilized during the competitive season. These techniques could include:

- Re-hydration techniques; volumes and frequency of fluid intake, type of fluid used.
- Hill sessions; running longer, steeper hills (with-in limits).
- Stretching; use the extra time to develop flexibility.
- Water-running; this can provide a variation for training, and is useful during times of injury.
- Running mechanics; develop stride, body position and arm-swing.

OVERTRAINING

One problem that may arise during the off-season is that of over-training. Although you have removed the high-intensity sessions from the training programme, the continuous repeated long/low training sessions used to increase aerobic power can lead to a high total volume of training. In addition to chronically decreased energy levels, an inappropriately high total training volume, irrespective of the intensity, can result all the negative physiological, neural, hormonal, immunological, and mechanical symptoms associated with overtraining.

MULTI-SPORT ATHLETES

For those athletes involved in triathlons, the off-season provides the opportunity to change the emphasis of training for one or more of the components. This change of emphasis allows an increase in the time and effort placed into one component without the problem of increasing the total volume of the training programme. Also, during the off-season, it is not as critical to maintain the balance across the components of the event which is important during the competitive season. For example, triathletes can decrease the amount of training time spent swimming and cycling, allowing an increase in the time that can be spent on running training, without increasing the total volume of training.

YEAR-ROUND COMPETITION

Given the opportunity to compete on a continuous basis, and the variety of events available, many runners choose not to utilize a formal off-season. Therefore, as an alternative to an off-season, to optimize performance, year-round we can rotate our training through the three basic phases of 1) Base, 2) Hills/Speed, 3) Taper. This routine is used to target specific events or series of events. Year-round competitors must be especially aware of overtraining, as the Base phase does not replicate an off-season, due to the longer distances covered and the relative short duration of this phase (4-8 weeks).

ROWING

Choosing the Right Gear

© by Jeff Sykes

Many masters rowers in competition today will have been around long enough to remember the days when veteran rowers were presented with the oldest and worst kept equipment in the boatshed and that was what they seemed to accept as their lot.

Jeff Sykes

The past decade, however, has seen dramatic changes to this way of thinking where most veteran athletes either purchase their own equipment or at least have a standing within their club where they have equipment equal to their ability.

In the past decade there is no doubt rowing equipment has progressed dramatically in three particular areas.

■ Boat

Firstly, boats have become lighter and stiffer to the extent that minimum weight boats are available to most new boat purchasers. These weights are 1 x - 14kg., 2 x/2 - 27kg., 4 x - 52kg., 4+ - 51kg., 4- - 50kg., 8+ - 96kg. These boats are available in a variety of stiffness's with the top heavy weight young athletes having a need for the stiffest boats possible.

The new honeycomb core boats built to the minimum allowable weight are a definite advantage to veteran rowers provided they have reached a reasonable skill and proficiency level. A lighter boat is more easily accelerated each stroke if rowing is in time. Over the masters race distance of 1000 metres we have to do about 110 accelerations or strokes. The lighter boat does not run as far. However, before run there is acceleration and a lighter boat, if rowed properly, accelerates more and is at a higher speed at the finish of the stroke. Furthermore, a lighter boat decelerates quicker than the heavier boat. However, when all is considered, give me the lighter boat any day.

The lighter boat must be stiff enough and comfortable enough to absorb the power a veteran can apply. This does not necessarily mean the stiffest, most carbon-reinforced boat the Olympic Class male athlete may require. The range of more glass fibre, less exotic materials some reputable builder have at lower than top prices may be suitable. In addition, a two to five year old elite type boat will be just as good provided care has been taken of the outer hull and fittings. The boat must possess all the comfort features of the best quality boat.

It is difficult to go past the most reputable builders to get a suitable boat. Remember a $1000 saved in purchase doesn't necessarily make a good buy. Remember you can't go under minimum weight, as it will mean instant disqualification on a spot weight check. Therefore you need to be at least 2% higher to feel secure, this in reality suggests if your boat is within 10% of minimum weight don't be concerned. Very big people who need very large boats may find it difficult to buy a suitable size boat within 10% of minimum weight.

Don't always believe what the seller of the boat tells you, takes scales with you to boat inspections and use them. Bathroom scales with the prospective new boat on your shoulder is better than a guess.

Your boat needs to be within 10% of minimum weight, needs to have a solid feel in rig and fittings and needs to have a comfortable feel when you row it. Nothing goes past your own subjective opinion - does it feel good to you? If it is a top brand boat but doesn't feel good you should perhaps consult a qualified boat builder or coach who may be able to help your selection.

■ Blades

The second major development occurred in early 1992 when Concept II (U.S.A.) invented a new Cleaver or hatchet-type blade. This blade allowed less slip but with an easier removal at the finish over the previously popular macon blade. Less slip and easier removal meant that blades could be shorter outboard with the same inboard. This allows the rower to accelerate the boat more each stroke - provided they have the reserve strength and speed to do this. Accelerating a boat more each stroke means the hull is moving more quickly at the extraction of the oar. Undoubtedly this invention was responsible for the lowering of most rowing record times in the past four years.

■ Oars

The third major development has been in oar design. Unlike the latest in shells I'm not at all convinced the latest in oars can be of great assistance to veteran rowers. There is no doubt that our current rowers load there bodies with much more resistance than ever before in the history of our sport. Oar blades are bigger, oar shafts are stiffer, and boats are stronger and stiffer. Therefore, there is far less slip or storage of energy exerted than ever before. I'm sure this is greater in 1996 than in 1995 and that 1995 was greater than 1994. It is something that has been increasing yearly in the past decade with a big jump in 1992 when Cleaver blades were introduced. Stress fractures in rowers are now the most common injury, yet in 1985 they were unheard of.

It is my subjective opinion that at the age of 27 I pulled a 294 cm sculling blade with a 87 cm inboard and 158 cm of spread and pulled it as hard as I could with some fade in the last 1/2 of my best races. At over 50 years of age I would fool myself if I believed I should be more severely geared.

Little research has been recorded on veteran performances but my opinion is if the average 1000 metre race was divided into 4 equal 250 metre pieces, the average drop off in speed would be greater in % terms than in elite 2000 open racing. If I am right, no average veteran can look at the workload of the average young male rower today, in fact we are so far from it that it is frightening.

I am not advocating resurrection of the old spruce scull with the smaller type blade. No doubt the round shaft Carbon and Fibre Glass shaft oars of today are superior in most dimensions just as the Concept II invention of buttons and gate combination will take years for someone to surpass.

I'm not going to ever suggest anything but the cleaver blade. Although it looks strange, one only has to observe how it cuts the water

continued on Page 8...

Rowing continued from Page 7...

to know that it is efficient in its ease of holding the water then releasing at the catch. However, what I'm going to warn you about is buying the longest, the stiffest and the biggest chopper blades as used by our Olympians and think that you at over 40 can pull them for 3 to 4 minutes in a race. This is at the very least being over optimistic and at the worst it can mean more stress fractures than our younger athletes get. It will most certainly mean rowing some very fast first half of races with the second half feeling like towing the Queen Mary.

I definitely suggest all your cleaver blade selections be to the shorter end of the scale, that the shafts be the most bendy available within reason and; although I'm hesitant to make this suggestion, that you remove up to about 10% of the cleaver blade area.

I have taken 1cm off the bottom of my own springy cleavers with the result of having more left in my body in the second part of a race, I have a less stiff and tired body and cope better with hard training sessions. In general, I enjoy rowing with the small cleaver blade more.

I believe more objective testing needs to be carried out on oars for veterans but until such time I can but write about experience going back 30 years. The well known Sam McKenzie actually reduced blade size to increase speed. The major reasons for this were that possibly Sam had an extremely long stroke on a narrow spread without the strength of todays' athletes. Perhaps the load was also perceived to be too great. However, I'm certain when all else leaves the body of the veteran rower at the 650 metre mark a little blade slip does wonders for the only thing left, the fighting spirit, enough to carry you aggressively to the line.

Remember that a good boat will seldom win a race for you. Someone else who has trained harder and wants to win more will have the same good boat. However, a bad boat cannot allow any athlete to reach their full potential.

Finally, good boats and oars are produced by long standing companies with lots of experience behind them. Beware of copies, they only have the outside appearance of another's work. Good equipment is like good athletes - the strength is in the heart, the rest is developed around it.

Athlete Profile

Name:
Chris Lyndon
Age:
49 yrs

Sports/Events:
Rowing
Occupation:
Past: Solicitor
Present: Company Director and Solicitor
What do you enjoy about masters sport?
Training, Competition and Companionship
What motivates you to participate?
Pursuit of excellence, fitness and health.
How do you keep yourself motivated?
Desire to win, goal setting (long and short).
Favourite training session:
On the water in the coxless pair at 6am with "The Group".
How often do you train:
Winter: weekly - 3-4 times on water (1hr)
1-2 times run (5km)
1-2 times weights (45mins)
Summer: Maintenance only (running, weights etc)
Do you train under a coach, with a group of friends, or by yourself? Why?
Train in crew boat and usually with other crews. Too lazy to work alone. Enjoy the company and the challenge from other crews. No formal coaching but gratefully receive some "pearls" from passing coaches (too busy generally for "Dad's Army").
Person most admired and why?:
Politician: Nelson Mandela - a humble man respected by everyone. A role model for all politicians.
Sportsman: Kieren Perkins - no "prima donna" and Australia's best young ambassador.
Other interests/hobbies:
Coaching, gardening, sleeping and fishing.
Your most memorable moment in sport:
Lining up (as stroke of the eight) in the final of the World Games against former Olympians from Russia, New Zealand and other foreign lands (ie Victoria).
Your most memorable moment in life so far:
Life has been full of memorable moments.
Favourite movie:
The Outlaw Josie Wales
Favourite book:
Don't know.
Favourite 'bad' foods:
Licorice and ice-cream
Favourite 'good' foods:
Pasta and Porridge
Philosophy on life:
Never look back and wish for what might have been.

Advice to masters athletes wanting to improve:
Have achievable goals in both training and competition. Try not to let the momentum slip.
Other Comments:
The only things better for stress than sport are sex and alcohol and neither of them are on the program for the World Masters Games.

From the Research

The Power of Parent's Example

Ever wondered what role your mum or dad had in keeping you involved in sport? Indeed, ever pondered what effect your activity levels are having on your own kids? Recent research from the US suggests that both mum and dad's activity level affect a children's fitness level and that dad's activity levels is the best predictor of both their son's and daughter's actual physical activity level.

100 girls and 156 boys were tested for both fitness level (one-mile run/walk) and physical activity levels (questionnaire). Parents fitness and physical activity levels were assessed by a validated self-report questionnaire. Both dad and mum's fitness level were significantly related to both son's and daughter's fitness levels. However, while dad's physical activity level was significantly related to both sons' and daughters' physical activity level, mum's was not. In addition, dad's physical activity level was significantly related to both sons' and daughters' fitness level. The results strongly suggest that a dad's physical activity level is crucial in determining activity levels in their kids.

The power of example: physical activity and fitness in parents and their children. Hager, R.L. & L.A. Tucker. Medicine and Science in Sports and Exercise 28(5), S23, 1996.

Water Running - does it really work?

The purpose of this study was to see whether deep water running could be used as a substitute for on-land running in maintaining on-land running performance and aerobic capacity. Eleven (10M, 1F) competitive (19 minutes for 5k) runners aged 32±5 years trained with only deep water running 5-6 times per week for four weeks. 5k run performance, anaerobic threshold, aerobic capacity and anaerobic threshold measures were done on a treadmill before and after the four weeks of deep water running. No changes were observed in any of the parameters measured before and after the deep water run training. The results strongly suggest that deep water run training can maintain on-land 5k run performance and can maintain the important endurance performance factors.

Effect of four weeks of deep water run training on running performance. Bushman et al. Medicine and Science in Sports and Exercise 28(5), S191, 1996.

SWIMMING

Getting older - and tighter!

© by Dr Peter Reaburn

Flexibility is the range of motion about a joint. The flexibility requirements of specific joints are specific to each swim event. For example, a freestyle swimmer may need good shoulder and ankle flexibility but a breaststroke swimmer requires good hip, knee, and ankle mobility.

Unfortunately for us, flexibility decreases with age. Decreased joint mobility may be due to joint instability, disease, joint capsule (the connective tissue surrounding the joint), ligament shortening, or loss of elasticity in muscles and tendons. Theoretically, this decreased flexibility can reduce muscle force output and thus strength, power and speed. While no research has conclusively shown a relationship between swim success and flexibility, in swimmers greater flexibility should mean faster times by:

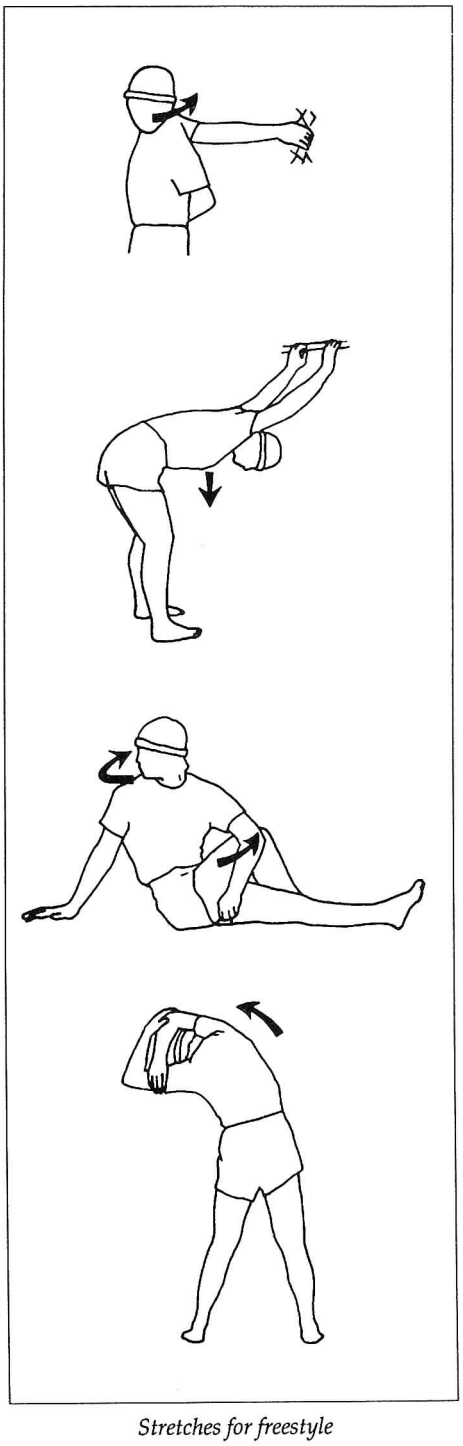
1) allowing force to be applied to the water for longer;
2) allow arm recovery and kicking movements that don't disturb body alignment; and
   lower the energy cost of swimming by lowering intramuscular resistance to movement.

A recent study of veteran sprint runners in Canada demonstrated that both decreased hip flexibility and lower limb strength were major reasons for decreased stride length and slower times as sprint runners aged. This finding strongly suggests that to help maintain stroke length, the masters swimmers should incorporate joint specific flexibility training into their program. While most of us will use stretching exercises as part of our warm-up and cool-downs, from my experience few masters swimmers or athletes will program flexibility training as an important training method in its own right. This can be done in front of the TV while watching the news or favourite sports show. I've included a few "essential" stretches for the masters freestyler. The guidelines below are recommended for your stretching routines.

- Do stretches 3-7 times a week for 10-20 minutes a session.
- Do 3 to 6 sets.
- Hold the stretches for 10-15 seconds.
- Stretch after warming the joints (arm circles, cords, light jog).
- Apply the stretches without pain.

Consult a sports physiotherapist for further guidance in this area.

What about stretching before racing? Recently, a couple of my buddies returned from the American College of Sports Medicine Conference in Ohio. In the proceedings were two papers that suggest that stretching immediately before strength or power events may decrease performance. One paper showed that vertical jumping ability, a measure of leg power, decreased following both ballistic (bouncing) and static (normal) stretches in young, untrained males. The second paper from the same group of researchers showed decrease strength of the hammies and quads after 20 minutes of either ballistic or static stretching in young men and women. For those readers wondering why, the researchers suggest that the decreased strength following stretching is due to nerves (Golgi tendon organ) in the muscles stimulating an inhibitory action on the nerves that make the muscles contract forcefully. While these findings strongly suggest that stretching just before power and strength events may decrease performance, no research has examined whether actual 25 or 50m sprint performance is decreased after stretching. However, it might be worthwhile experimenting for yourself by doing your stretching well before your race rather than as we normally see it done, just before the race.



Stretches for freestyle

You might get the impression that the news on flexibility for masters athletes is all bad. However, while masters athletes may have reduced flexibility relative to younger athletes, a recent Dutch study suggests that flexibility of the masters athlete is greater than similarly-aged non-athletes. These researchers measured hip and shoulder flexibility in three groups of 55-85 year old men and women - a "least active" group, a "moderately active" group, and a "most active" group. The least active group had significantly reduced hip and shoulder flexibility compared to the other two groups. This finding suggests that physical training into older age can benefit flexibility.

I strongly recommended that masters swimmers who are injury prone (possibly through joint tightness or imbalance), those who need long strokes (all swimmers), or those who need greater flexibility for range of motion reasons (eg. form strokers), should incorporate flexibility training into their schedule, and not just as a part of warm-up.

"People can be divided into three groups: those who make things happen, those who watch things happen, and those who wonder what happened."

John Newbern

TRIATHLON

Avoiding the Injury Bench

© by Tracey Langfield - Sports Physiotherapist

Triathlon is an endurance sport and as such leaves the participants vulnerable to overuse injuries - masters triathletes being no exception. The repetitions and kilometres involved in training necessitates a thorough stretching and muscle balance routine. Common injuries along with self-test and prevention strategies will be discussed.

Tracey Langfield

SWIMMING

The shoulder is implicated most frequently in swimming due to tendon impingement. The shoulder joint is held together by a cuff of muscles and their tendons - the rotator cuff. As the arm is elevated above the head (as in the arm recovery phase) or is rotated inward (as in the pull-through) a bump on the humerus is moved under the bony bridge formed where the collar-bone and shoulder blade meet. If this space is inadequate, the two will 'impinge' the rotator cuff tendons and cause pain at the top of the shoulder.

There are several causes for this space being inadequate:

1) tightness in the rotator cuff or chest muscles;

2) weakness in the muscles that stabilise the shoulder blade;

3) lack of movement in the thoracic spine;

As you move your arms above your head, approximately two thirds of the movement comes from your shoulder joint/shoulder blade complex while the final one third results from movement of your thoracic spine.

Self Test

1) Stand with your back pressed flat against the wall, move your arms upwards keeping the back of your hands against the wall. If your hands lift off the wall you may have a combination of tight rotator cuff, chest and trunk muscles with a lack of movement in the thoracic spine.

2) Lie flat on your back on the floor with your arm out just below shoulder height. Keeping your elbow bent at 90 degrees, roll your forearm down toward the floor, watching for any shoulder lift. Your shoulder should be able to rotate 90 degrees where the forearm almost touches the floor without any shoulder lift.

Prevention

1) *Stretches* - latisimus dorsi: place both hands on the wall and lean down taking your head and chest down towards the floor. If this produces sharp pain try one arm at a time or have your hands wider apart.

-high pec's: have one forearm on the wall above the level of your head, turn your body away. Make sure you feel the stretch across the chest instead of at the front of the shoulder joint.

-rotator cuff: stand with your back against a wall. Put one hand on your hip and hold that elbow with the other hand. Keep the elbow held still and pull your shoulders back together.

-thoracic spine: lie on your back over a rolled towel placed across your shoulder blades. Take both arms overhead and stretch. You can also try arching over the backrest of a chair or over the end of a bench.

2) *Strength* -the "wall test" is a good starting exercise.

-whenever you get a choice in squad try backstroke.

-a couple of back strength sessions a week including prone flies, dips etc will help.

CYCLING

Neckpain, headaches and low back pain can result from those long rides. Tissues lengthen irreversibly when held under stretch for prolonged periods.

Self Tests:

1) Can you stand with your heels, back, shoulders and the back of your head against the wall.

2) Lie face down and push through your arms to arch up like a cobra. You should be able to straighten your elbows, or close to it.

Prevention

1) the most important thing with all problems experienced on the bike is the bike position especially with regard to seat height and the length of the top tube/head stem. This should be checked by your coach or bike shop (see TMA issue 4).

2) regularly change your hand position between the drops, brake hoods and aero bars.

3) check your head position whilst riding. Don't let your chin poke forward.

4) stretch before, during and after the ride - include: chin to chest; pushing your chin back to make double chins; taking your head back; arching your back backwards.

5) off the bike do exercises that strengthen your back eg. backstroke, gym.

LOWER LIMB

The following may be attributed to cycling, running or a combination of both.

1) *GROIN PAIN* - can occur as a result of tightness in the hip flexors, gluteals, or adductors (inner thigh). Useful stretches include the forward lunge, side lunge, squat stretch, and the gluteal stretch (sitting with legs out in front, cross one leg over the other and hug it to your chest). If you stand naturally with your feet turned out then be careful with your cleat position on the bike. Not everyone's anatomy is suited to pointing the toes in and keeping the knees close to the top tube.

2) *HAMSTRINGS* - flexibility is paramount and you should aim for a 90 degree angle between leg and body. Problems during cycling requires the seat height and fore-aft position checked with regard to being too high or far back. Care needs to be taken when cycling into a strong headwind, remember to change hand positions frequently and not spend all the time on the aero bars.

3) *ILIOTIBIAL BAND FRICTION SYNDROME* - occurs as a sharp stabbing or burning pain on the outside of the knee. As your knee bends and straightens through the 30 degree angle, as in cycling and running, the iliotibial band rubs forward and backward over a bony bump on the femur. Tightness in the band will cause excessive friction and pain. The band may become tight in itself or tensioned by hip muscle tightness and overpronation of the foot. Always running with the same foot closest to the gutter or on the outside going around a track will stress the [illegible] on that same side. On the bike, friction may be relieved by dropping the seat height gradually so that the knee doesn't straighten beyond the 30 degree angle, hence stopping the movement of the ITB over the femoral bump. Also, excessive toeing in of the feet will tension the ITB.

4) *PATELLOFEMORAL PAIN* - many factors contribute to pain around the kneecap. These include:

- seat height too low/too far forward (always > 30 degree knee bend);
- wrong cleat position v's natural foot position;
- over pronation "twisting" the knee;
- running "low" with a lot of knee bend;
- tightness in the quadriceps, ITB, hamstrings and calf.

5) *STRESS FRACTURES* - are fatigue failures of bone as a consequence of overuse. Most stress fractures in triathletes will occur in the lower limb and be related to running. The sites in decreasing order of frequency are the s[illegible] foot, and the thigh bone. The pain will be related to activity and relieved by rest. X-Rays are often clear and it is more appropriate to confirm diagnosis with a Bone Scan. Most stress fractures occur 2-3 weeks after a change in the type, intensity or training distance so this must be considered in prevention with gradual changes emphasised. You should see your physiotherapist for professional assessment with regard to possible biomechanical and running faults. Females must also consider bone mineral density and hormonal factors. If you are in the high risk category water running is worth consideration as a training supplement.

6) *SHIN SPLINTS* - refers to pain on the inner lower third of the shin arising from the muscles or muscle-bone attachment. Shin splints are again related to overuse/training errors and faulty lower limb biomechanics or running style. Tightness in the calf and shin muscles are contributing factors. Frequency of this injury should not be confused with a lack

continued on Page 12...

CYCLING

Learn To Love Those Hills

© by Liz Hepple

Do you ever get that 'sinking' feeling, when you are riding along comfortably on your bike, you turn a corner and the bitumen 'monster' confronts you. Yes, a huge hill that rears up in front of you and makes your pulse race.

Liz Hepple

You fumble for the right gear, wondering whether you should grind over it in the big chain ring, spin the little gear up, or get off and walk.For those that dread the thought of hilly bike course, you can improve your hill climbing. The good news is that you can get up the hills faster without even having to go through painful training sessions. Changing your attitude, your technique and your eating habits can save valuable seconds on a climb. The bad news is that to really rub shoulders with the better climbers out there, you will need several solid hill training sessions before you see a dramatic improvement, and - yes - your legs and lungs will hurt! The following steps can be taken to overcome your aversion to hills.

1. Reduce your weight

This doesn't just mean losing the extra fat you may keep stored around your middle, but also reducing the weight of your bike. A lightweight bike and wheels will make a huge difference to your speed and confidence on a climb. If you can afford it, consider a carbon fibre or aluminium frame and lighter wheels.

2. Change your attitude

Believe it or not - hills can be your friends! Learn to enjoy riding hills by thinking positively about them. Hills are probably the best way to increase your fitness, strengthen and tone the leg muscles, and the most spectacular views can only be seen from the tops of mountains. In a race, hills can be the place where you can 'drop' other riders, so think about them helping to improve your placing.

By being positive about your climbing, you can relax and remove the tension from your upper body and can climb efficiently. Loosen the shoulders, arms and hands, and concentrate on breathing deeply and rhythmically. Count your breaths and pedal strokes (eg: two full pedal strokes, breathe in; two pedal strokes, breathe out), or pedal in time to music in your head. Enjoy the experience!

3. Improve your technique

The cycling technique used on hills is quite different to flat roads, and it is important to use the most efficient technique to suit each particular hill. The different techniques are:

a. In the saddle

This technique is used for riding long hills, and short shallow rises. Many cyclists find it tiring to ride in the saddle, but once the muscles have adapted to this position, it is the most energy efficient way to get up the hills. On long climbs, it is best to sit slightly further back on the saddle, and gently 'grip' the brake hoods (or top flat section of the bars on long steep climbs).

Smooth continuous pedalling action is even more important on hills, because any pause is exaggerated as gravity drags you back, and additional power is needed to overcome the loss of momentum. If you are having trouble with this, think of tracing a circle with the ball of the foot as you pedal. Your foot position is 'flatter' on a climb. Your heel will drop slightly below your toes just prior to pushing over the top of the pedal stroke.

b. Out of the saddle

This is best for short, sharp hills, where you don't want to lose momentum by having to change down a gear for the rise. On longer hills, you should ride out of the saddle when you want to give your climbing muscles a rest, or pick your speed up a bit, especially in a race when there is an attack. But remember, riding out of the saddle is less efficient and therefore is more tiring, and is best used on a limited basis.

The best way to climb 'out of the saddle' is to keep the trunk still and gently rock the bike from side to side. Hold the brake hoods between the thumb and two opposing fingers, relax your arms and shoulders and with your elbows slightly bent, pull back on the arm opposite to the rising leg. The hips should remain fairly high, with the feet pulling the pedals up towards them, rather than the hips dropping from side to side. Even though the bike is 'rocking', the line of travel should be straight - don't weave up the hill.

4. Maintain Cadence

Learn to spin the pedals in small gears in the saddle before trying to push big gears over the hills. Practise proper climbing technique, 'revving' a small gear at a cadence of 70 - 80 rpm. As your technique develops, practise changing to a bigger gear half way up and 'power' up the rest of the hill (changing back down to a small gear if you are starting to 'grind' too slowly).

5. Train on the hills

At least two hilly training sessions should be incorporated into your cycling routine every week. At the beginning of the season, try riding in the saddle over all the hills in a training ride, and doing some longer climbs, to give your

continued on Page 12...

Get Set!

Calendar of Events

SEPTEMBER 1 1996

Australian Short Course Rowing Championships
Qld
Contact: (07) 3846 7944

SEPTEMBER 26-29 1996

Ipswich Regional Masters Games
Ipswich, Qld
Contact: (07) 3812 0936

SEPTEMBER 13-15 1996

FISA - Masters Rowing Regatta
Hungary
Contact: (03) 9802 1457 (Bob Hemery)

OCTOBER 3 - 10, 1996

Maryborough Masters Games
Maryborough, Q'ld
Contact: (071) - 237710

OCTOBER 19 - 27 1996

Honda Masters Games
Alice Springs, N.T.
Contact: 1800 658951

OCTOBER 26 - NOV 3 1996

The Malanda Queensland Masters Games
Gold Coast, Qld.
Contact: (07) 5581 6052

NOVEMBER 10-15 1996

Australian Veteran Cycling Championships
Wagga Wagga, NSW
Contact: (02) 7642 555

FEBRUARY 1 - 9 1997

New Zealand Masters Games
Wanganue, N.Z.
Contact: +64 6 345 4555

MARCH 27-29 1997

AUSSI National Swim
Homebush, NSW
Contact: (08) 344 1217

AUGUST 9-22 1998

Nike World Masters Games
Portland, Oregan, USA
Contact: (08) 344 1217

Cycling continued from Page 11...

muscles strength and endurance. In the pre-competition phase of the season, do some hill training specific to your 'target' races, then maintain one hill training session each week during the competitive season.

Sample hill training sessions

Early season

Do four repetitions of a long shallow climb (2 - 5 kms).

1. Small gear in saddle (80+ rpm)
2. Up a gear in saddle (70 + rpm)
3. Up another gear in saddle (60+ rpm)
4. Back to small gear spinning in saddle (80+ rpm)

Pre-competition phase

Maintain the early season session above once a fortnight and include some of the following:

1. Variable Climbing. On your long shallow climb, do four repetitions climbing 12 (full) revs in the saddle in a small gear easy, go up a gear and do 12 revs out of the saddle hard, sit down and do 12 revs in the saddle at maximum effort. Repeat sequence for entire climb.

2. Hill top sprints.

Ride a circuit incorporating several 300 - 700 m hills. On each hill, 'spin' at moderate intensity in the saddle for the first part. Fifty metres from the top, go up a gear (or two) and 'attack' out of the saddle over the crest of the hill.

Competition phase

(Individual Time Triallers would not need to do the following efforts, but would maintain previous training sessions)

During the race season, you will need the ability to 'attack' hard on the hills, or chase attacking riders, so include the following in your program:

1. 'Power Sprints'.

Find a 200 - 400 m hill surrounded by flat roads (preferably a 5 - 7 km circuit). Approach the hill rolling slowly in your big chain ring, then when you get to the bottom, 'charge' over the hill as hard as you can out of the saddle. Do 3 - 5 of these with at least 5 kms very easy recovery between efforts.

6. Race Day

Now that you have developed perfect technique and are super fit over the hills, you should be ready to tackle any 'leg breakers' on race day. Drive around the course prior to the race so that you don't get any nasty little surprises, and decide what gears you are likely to need.

In a bunch race, always position yourself optimally for the hills - try and get into the top third of the bunch and never do a big turn at the front just prior to the hills. Try and ride behind the competitors you know are good hill climbers, and if any 'gaps' in the bunch appear in front of you - bridge them as quickly as possible to stay with the front bunch.

If the pace is slow, choose a small gear and maintain your rhythm - saving your strength for any attacks. If you feel good by half way up the hill, change to a bigger gear and try an 'attack'.

Whether in a time trial or a road race, focus on keeping good technique, and remember, that even though your legs are aching - so are everyone else's. 'Power' over the rise of the hill, rather than slowing as you get to the top, and quickly regain your rhythm and breathing once back on the flat or downhill.

Finally, but most importantly, as you reach the top of the hill ahead of the other riders, look over your shoulder, smile and tell them you'll see them at the finish!

Triathlon continued from Page 10...

of importance. If pain does not settle with stretching, massage, and a change in training then a professional opinion should be obtained due to the myriad of pathologies that present as pain in this region.

So, if you manage to evade all of these I'll look forward to seeing you enjoying the next race!

Tracey is a sports physiotherapist with a particular interest in triathlons. She has been a regular participant in triathlon and running since 1991 and has now joined the masters ranks. Tracey currently works with the Club Tristyle squad and Queensland Netball.