

Resource Section

A. Overtraining

The heavy demands of physical preparation may result in overtraining. Overtraining refers to the effects of all the stresses (physical, social, and psychological stress), that athlete's experience. Here are some of the symptoms of overtraining:

- ✓ Slow healing of minor bruises, cuts and abrasions
- ✓ Susceptibility to infections such as colds and flu
- ✓ Loss of appetite
- ✓ Lethargy and an unwillingness to train
- ✓ Chronic muscle soreness
- ✓ Loss of body weight
- ✓ General malaise, for example, tiredness or a temperamental attitude
- ✓ Low hemoglobin levels
- ✓ Elevated resting lactic-acid levels

Overtraining can be a serious problem, as it makes injuries much more likely, and over trained athletes tend to feel discouraged about their performance, their training, and sport in general. It is therefore very important that you know how to spot the symptoms of overtraining and either reduce or eliminate training until the athlete is healthy again.

B. Time to Experiment

The transition/off season is the time to 'experiment'. This is the time to play with your position on the bike, try new sport drinks and race day nutrition, work on you spinning style in cycling, stroke turnover in swimming and running efficiency/stride length. There is a great deal of fine tuning and experimentation you can do during the off season. Read up on the sport, ask other people in the sport for advice, play with some different techniques. Set yourself some goals over the off season to 'experiment'.

C. Carbo Loading

The preparation during the last few days and hours before the endurance event can mean the difference between success and failure. Generally, the best scheme for endurance athletes preparing for any exercise event lasting longer than 60-90 minutes is to taper off the exercise gradually during the week before the event, while consuming more than 70% carbohydrate during the three days before the event. The pre-event meal is another important consideration. The meal three to five hours before the event should be 500-800 Calories of light, low fiber, starch. The human body has only limited stores of carbs. Exercise training at 60-80% of VO_{2max} leads to muscle glycogen (carb) depletion after 100-120 minutes. Exercise at 80-95% will deplete muscles even sooner. When carbo loading or "supercompensation", the diet should provide more than 8g of carbs/kg of body weight (approx. 70% carbs in diet). Studies show that runners in a 30km time trial are able to run 4-5 minutes faster than when on low carb diets. In another study of well trained cyclists, it was found that the best pre-race meal was a 200g carb meal (800 Calories) 4 hours before the event, and a 45g carb snack immediately before the race. Studies also show that proper hydration immediately before the race can delay the onset of sweating and a lower increase in body temp. hydration is also equally important during the carbo loading session.

- ✓ Although hard training can continue during periods of carb restriction, athletes may tire easily and become irritable, and the quality and quantity of training may suffer. Some athletes therefore sacrifice some compensation and use only one day of carb restriction. Some researchers suggest that carb restriction is not necessary.
- ✓ Method 3 should not be used more than once every six weeks; priorities regarding competitions and events are therefore essential.
- ✓ For each gram of glycogen stored, approximately 3 grams of water are stored. This may cause the muscles to feel heavy.
- ✓ Many starches are rich in the B vitamins; vitamin supplements may therefore be beneficial during carb restriction periods.
- ✓ If 7 days remain until the competition, the extra day could be added to either the carb restriction or the overload period.
- ✓ Most of the supercompensation achieved through carbs occurs in the first two days of the overload.

- ✓ Below is a sample menu for carbo loading based on scientific research.

Breakfast	Food	Calories
1 cup	grape nuts	404
2 cups	2% milk	242
1 whole	banana	105
1/2 cup	seedless raisins	247
2 cups	orange juice	224
1 piece	whole wheat bread	84
2 tsp	honey	43
Lunch		
2 pieces	whole wheat bread	168
1 tbs	peanut butter	96
2 whole	apple	162
2 cups	cooked brown rice	464
2 cups	mixed vegetables	105
1 tsp	seasonings	5
1 cup	low-fat yogurt	231
2 whole	bagles	330
Supper		
1/2 whole	fresh tomato	12
1/2 cups	loose leaf lettuce	5
2 oz	cooked chicken	108
2 pieces	whole wheat bread	168
1 tbs	low-cal dressing	35
2 cups	canned pineapple juice	278

Breakfast	Calories	Carb grams	% Carbs
Breakfast	1349	290g	86%
Lunch	1561	292g	75%
Supper	606	108g	71%
Totals	3516	690g	79%

		Vitamins			
Totals	Protein	Iron	A	B1	C
Totals	116g	25mg	15009IU	4.2mg	425mg
% RDA	207%	250%	300%	280%	708%

Sample menu - 3516 Calories, High Carb (79%)

On the following page is a table that incorporates various carbo loading regimens taken from the NCCP Level 3 coaching manual. As the above sections suggest, the off season would be a great time to try different methods of carbo-loading before a particular workout. Keep a log as to which method works for you and why.

Carbohydrate Loading							
Methods	Expected increase in glycogen stores	Days					
		1	2	3	4	5	6
Method 1 Carb loading 2 days or less prior to competition.	up to 150%	Diet: 2 days until competition 80-85% of calories from carbs					
		Exercise: 2 days of RESTRICTED ACTIVITY - low intensity, short duration exercise recommended.					
Method 2 Carb loading 3 days prior to competition with exercise depletion.	up to 200%	Diet: 3 days until competition 80-85% of calories from carbs following exercise depletion			80-85% of calories from carbs		
		Exercise: Exhaustive exercise in intensity and duration required for the competition			2 days of RESTRICTED ACTIVITY - low intensity, short duration exercise recommended, during carb overloading period		
Method 3 Exercise depletion, carb restriction, and carb overload (4-6 days until competition).	up to 250%	Diet: carb restriction following exercise depletion		4 days until competition carb restricted to 500-600 calories. Rest of calories from fat/protein.			
		Exercise: Exhaustive exercise in intensity and duration required for the competition		carb overload - 80-85% of calories from carbs 2 days of RESTRICTED ACTIVITY - low intensity, short duration exercise recommended, during carb overloading period			
	up to 300%	Diet: carb restriction following exercise depletion		5 days until competition carb restricted to 500-600 calories. Rest of calories from fat/protein.			
		Exercise: Exhaustive exercise in intensity and duration required for the competition		carb overload - 80-85% of calories from carbs 3 days of RESTRICTED ACTIVITY - low intensity, short duration exercise recommended, during carb overloading period			
	over 300%	Diet: carb restriction following exercise depletion		6 days until competition carb restricted to 500-600 calories. Rest of calories from fat/protein.			
		Exercise: Exhaustive exercise in intensity and duration required for the competition		carb overload - 80-85% of calories from carbs 3 days of RESTRICTED ACTIVITY - low intensity, short duration exercise recommended, during carb overloading period			

D. Mental Training

Mental training encompasses a broad category from learning to focus on your performance to overcoming the pain associated with extreme effort. During training, you should learn to become aware of your thoughts. When your mind starts to wander, your performance will decrease (some say as much as 20%). For example, if you are on a long bike ride and your mind starts to wander (i.e. what you need for groceries), your speed will decrease. Mental training incorporates techniques like thought parking, which teach you to recognize when your mind wanders, so you can stop the thought (or park it and think about it later), and re-focus on your race or training.

Another form of mental training occurs when you are at the end of a hard workout, you have one more set to do but don't think you can do it. Instead of giving in and not finishing the workout, go one step further and add one more interval to the set (do this once in a while to push the mental and physical limit). This not only gives the body a physical training effect, but also trains the mind to be able to overcome more difficult physical situations. This gives the mind confidence to handle physical stress at greater levels. How "hard" is "hard" is in the eye of the beholder and is relative to the ability of that individual to deal with physical stress. Experts say that maximal physical performance is 10 - 20% mental capacity. So if you don't train your mental capacity, your physical performance could be lessened by as much as 10-20%.

Every so often it is also important to perform a workout that you don't think that you would be able to perform. For example climbing a hill that is too big (or do it multiple times), going for a run that is too long or doing butterfly for 200m or 10x 100m fly (painful?). The body has an amazing capacity to be pushed to extreme limits. I had a coach once say that you will never know how hard you can push until someone pushes you. Find someone to train with, who is better than or equal to you as this will force you to push your limits. Keep a log so you can see how far you have pushed in the past and then take yourself even further, faster and harder than you have ever done. You will be surprised how much your body can handle, but always remember the most important portion of any training regimen is **REST!**

Coping With the Pain

- Phase 1 — preparing for the pain. Develop statements that suggest an ability to handle the pain phase:
 - "You have developed a plan to handle fatigue."
 - "Start to concentrate on your technique details."
 - "The others will be hurting just as much as you, but you have a strategy."
 - "You will be able to perform better than the others now because you have a strategy."
- Phase 2 — confronting and handling the pain:
 - "You will tolerate this."
 - "Go through each strategy item intently."
 - "Thinking of strategies is more important than thinking about pain."
 - "The pain is a cue to concentrate harder than you ever have before."
 - "This is the signal to focus on performance efficiency."
- Phase 3 — coping with feelings of pain at critical moments. An awareness of fatigue periodically emerges during performance and distracts the athlete. The athlete needs to handle these sensations and refocus on the task:
 - "Tiredness is a sign to work on."
 - "What do you do? You start with behavior one."
 - "Sure it hurts, but you can manage it if you concentrate on technique."
 - "Use your strategy. It will help you to keep control."
 - "As the pain mounts, switch to the alternative strategy."
- Phase 4 — using reinforcing self-statements. After the stressful activity is over, the athlete should appraise his or her coping strategy:
 - "Good. You did it."
 - "Concentrating on technique really helped."
 - "You can do even better."

Tips of Energizing

Over the long run, the way to naturally and regularly feel full of energy is to train and regenerate the body with an effective program of rest, fluids, and nutrition.

Here are some things athletes can do in the short term to energize:

- Exercise. Short, vigorous activity gets the circulation going.
- Stretch and breathe. Stretch each major muscle group while taking a deep breath from the abdomen.
- Visualize. Visualize setting aside feelings of fatigue.
- Do attention-demanding drills. Hand-eye and foot-eye activities are effective.
- Be expressive and assertive. Physically or mentally rehearse with lots of expressiveness and assertiveness.
- Interact. Support and share challenges and opportunities with those around you.
- Take showers and massages. The temperature contrasts of a shower and the stimulus of massage can facilitate getting energized.
- Listen to or watch tapes.
- Practise dissociative activity. Change alone is often an effective stimulus. In addition, time spent away often results in coming back resensitized to the energizing potential of the performance environment.
- Visualize. Use any of the techniques presented later in this section.
- Set and review goals.
- Focus on energizing cues that typify how you want to perform.
- Draw energy from the environment. Visualize drawing energy from spectators, opponents, teammates, etc.
- Transfer energy. Visualize transferring energy from negative emotions — for instance, anger, fear, surprise, disgust, or contempt — to positive energy such as desire, challenge, anticipation, drive, or confidence.
- Store excess energy. Through visualization, store excess anticipatory excitement for future performance.

Here are some techniques to use to develop the skill of energizing:

- Identify sources of wasted energy or blocks to the efficient flow of energy.
- Make the elimination of wasters and blocks a major goal.
- Regularly visualize energizing responses to key situations.
- Regularly practise effective energizing techniques.
- Periodically monitor and evaluate the effectiveness of skills and responses.
- Automate energizing responses to key situations.

Note: This material is from Botterill, 1986.

This resource section was developed to help you find ways to improve your triathlon training and racing. A great deal of information has been presented here for your reading enjoyment, and to help you develop a training schedule that will suit your own particular needs. Every athlete is very different in their individual training needs, which make it very difficult to make a general training plan for everybody as a whole. This training plan was developed to give you the resources to create a plan according to your individual training needs.

If there are any questions that I can answer, or tips that I can provide, feel free to contact me, Jon Tracy, MSc (Exercise Physiologist). My email is jono3of6@hotmail.com. Enjoy the program, and have fun training in the winter, and racing in the summer.

“Tri a Tri, Attempt an Olympic, Submit to Ironman” – Jon Tracy