

# Fuelling Peak Performance Workbook

## Module 4

All Systems GO

Nutrition for Competition

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*Nutrition for Competition, Body Weight and Fat Control*

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## Competition Nutrition

Preparing for a competition or an event can bring a number of things with it. Anxiety, nervousness and anticipation are a given but what about preparing the body with food? It is now the time to put into practice everything that has been trialled in training. Practice and experimenting with food and fluids is a key aspect of a successful competition. Nobody wants a surprise when competing.

### Should I carbohydrate load?

- ★ Only appropriate for events lasting 90 minutes or longer
- ★ Elevates glycogen levels and this extra supply of carbohydrate has been demonstrated to improve endurance exercise by allowing athletes to exercise at their optimal pace for a longer time. It is estimated that carbohydrate loading can improve performance over a set distance by 2-3%
- ★ 1-4 days of exercise taper while following a high carbohydrate diet (7-12g/kg body weight) is enough to elevate muscle glycogen levels
- ★ Don't leave the preparation till the night before
- ★ Possibly not as effective for females

*For more detail about the history and background of carbohydrate loading, see the links in **Resources** in this workbook.*

*A sample carbohydrate loading plan is attached in this workbook.*

There is good evidence to show that an inadequate intake of carbohydrate in the days prior to competition will significantly reduce exercise performance, even in sprint events and games. If the event is shorter than 90 minutes, carbohydrate loading is NOT necessary but it is still crucial that a diet with enough carbohydrate and protein is eaten to provide the energy to compete. Now is not the time to randomly eat everything in sight and an eye should be kept on calorie intake and the consumption of fatty foods.

The advice to give to you students and athletes the night before an event should be to try a pasta or rice based meal with some lean meat, chicken or fish plus vegetables or salad on the side. Go for the tomato based sauces rather than the rich, heavy, fat laden cream based variety. Don't forget to keep sipping on the water too.

## The Pre-Event Meal

The pre-event meal needs to be low in fat and should contain approximately 100-150g of carbohydrate. Timing, amount and type of food will depend on individual preferences and needs of the sport. Experimenting is important (but only in training not on competition day). If there are issues with anxiety and gastrointestinal upset, a liquid meal might be preferable as discussed previously.

It is really important to eat breakfast/brunch on the day of an event (this may be the pre-event meal) and some good choices for this meal includes:

- ★ Cereal without bran (Weet-bix, porridge, natural muesli, Mini-wheat's) with low fat milk and fresh/canned/frozen fruit
- ★ Toast, fruit loaf, English muffins or crumpets with baked beans, spaghetti, tomato or egg or plain jam, honey or vegemite
- ★ Pancakes with fresh fruit and syrup
- ★ Fresh or tinned fruit (forget the prunes) and yoghurt
- ★ Up & Go or Sustagen Sport with a banana

Remember from our earlier discussions that just like training sessions, if the event or competition will last longer than an hour, glycogen stores will need to be replenished during the event.

It is essential that carbohydrate intake begins well before the first signs of fatigue are apparent. What type of food and fluid is used will depend on the logistics of the activity. For swimmer's, it is difficult to consume food but possible to drink sports drink, which will provide carbohydrate and electrolytes. Cycling allows more solid food whilst running longer than an hour really only allows for carbohydrate gels and sports drink. Sometimes it can seem like a major hassle to carry fuel belts and bottles but the benefits in performance far outweigh the initial logistical problems.

The amount of carbohydrate required during training is as follows:

Exercise	Length of time	Carbohydrate
Brief exercise	< 45 min	not required
Sustained high intensity exercise	45 - 75 min	small amounts (including mouse rinse)
Endurance exercise	2+ hrs	30-60g/hr
Ultra-endurance exercise	4+ hrs	Up to 90g/hr (glucose/fructose mix)

Foods containing 25-30g of carbohydrate include:

- ★ 1 carbohydrate gel
- ★ 1 large banana
- ★ 2 slices of bread with jam/vegemite
- ★ 400ml sports drink
- ★ 1 muesli bar or ½ sports/energy bar

**Don't forget!** If carbohydrate is consumed without enough water, side effects such as stomach upset, abdominal pain and dehydration are likely. This will ultimately lead to poor performance and in some cases, inability to finish a training session or race. Aim to consume around a cup (250ml) of water per carbohydrate item.

## Preparing for Tournaments and Multiple Heat Competitions

Tournaments and multi-heat competitions can be very challenging from a sports nutrition perspective. It is extremely common to see junior athletes at pool, court and trackside getting stuck into hot chips, large jelly snakes, buckets of lollies and anything else they can get their hands on in between events, games or races! Often what they have just loaded up with is fat and super quick acting sugar which won't last until the next event but will certainly either make them sick or push them to fatigue. This can be done a lot better with the right information and prior planning and organisation.

Reproduction of both of the tables in the link below please with source noted (with a couple of modifications that we can discuss)

[http://www.ausport.gov.au/ais/nutrition/factsheets/competition\\_and\\_training/nutritional\\_preparation\\_for\\_tournaments\\_and\\_multiple\\_heat\\_competitions](http://www.ausport.gov.au/ais/nutrition/factsheets/competition_and_training/nutritional_preparation_for_tournaments_and_multiple_heat_competitions)

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## Managing Body Weight

For some athletes, excess body fat slows them down and ultimately reduces performance. Body shape and the amount of body fat that we have is also very much linked to how we feel about ourselves mentally which has an impact on performance too. In addition lets not forget that you are working with adolescents and this can be a crucial time in terms of body image and self-esteem.

The important thing when attempting to lose body fat is to go about it in a way that takes into account overall health and wellbeing and sporting goals without the use of radical and extreme methods resulting in rapid, excessive weight loss.

A perfect example of this is the professional kick boxer that rang me last week for help in losing the 20kg that he had gained over a 6-month period as a result of injury. He had already lost 10kg in 3 weeks (!) and 'needed' to lose the rest in the next two weeks! He had managed to lose 10kg through extremely restrictive eating and daily bouts in the sauna. Both of which are not endorsed by sports dietitians like me. The thing is, for athletes like this, it can often be about culture and history and how they have always done things. Losing body weight can be a slow process but healthier for the body this way.

Despite the attraction of many supplements, pills and potions produced by the weight loss industry with the sole intention of you buying them, the equation to lose body fat and weight is very simple.

Energy in (food) must be less than energy out (exercise). It is almost too simple for many people who just want quick results.

### **Energy in (food) has to be less than or equal to energy out (exercise)**

#### **Remember:**

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**There are no shortcuts to any place worth going.**

**- Beverley Sills, Opera Singer**

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The aim of weight loss is to lose body fat but keep lean body mass (muscle) the same. Losing body fat should be a long term goal and the healthiest approach is to set a realistic goal of 0.5kg per week. This is equivalent to a 500g tub of butter or margarine but many people underestimate the worth of losing this in a week. This amount can be achieved by a small reduction in calories or kilojoules each day.

#### **Where is body fat lurking?**

Body fat is stored as triglycerides in adipose tissue, which is made up of specialised cells, each of which contains a large fat globule. The number of fat cells reaches a maximum at the end of the growth period at puberty. How your students are controlling their food and activity right now will dictate the number of these cells. The composition of our whole fat or adipose tissue is approximately 75-80 % fat, 2-3 % protein and 8-10% water. In the case of most young adult males, body fat is between 8 and 18 %. For normal young females, body fat reserves are greater, usually between 18 and 30 %. In the case of an athlete training for a marathon, the body may be very lean and body fat may be as low as 4-5 %.

Body fat percentage is not used now in elite sport and the total amount of fat across 7-8 sites is more commonly used. The amount of body fat differs hugely between individuals and will depend on age, genetics, sport, diet and training amount and intensity. It is really

important that we continually educate adolescents not to compare themselves with someone else, it is not a level playing field! (although this is exactly what so many of them do, particularly the girls)

Don't forget about the toxic fat that deposits on internal organs. The television ads over the past couple of years have been quite useful in creating awareness around this.

### **The consequences of fat in an athletes diet?**

- ★ Concentrated source of energy but not readily available to exercising muscles
- ★ Can increase body weight and decrease agility and speed
- ★ Fat may take the place of much needed carbohydrate, therefore decreasing energy levels. Stomach emptying is slowed down by fat in food and creates a feeling of fullness, may be less likely to consume enough carbohydrate.

A major adaptation to endurance training is an increased capacity for fat burning, which can reduce the reliance on muscle glycogen and blood glucose. This can only be a good thing! Endurance exercise is considered to be greater than a 2-hour block of time.

### **The effect of exercise on the use of fat?**

- ★ Carbohydrate is preferred with high intensity work
- ★ For mild-moderate exercise (< 60% VO<sub>2</sub> max) fat provides 50-70% energy, increases when CHO stores are depleted
- ★ Training leads to increased fat burning in muscle cells

### **The effects of consuming carbohydrate on the use of fat as a fuel while exercising?**

Exercising in a fasted state (8 hours since the last meal) results in a greater proportion of fat being used as the exercise fuel compared to doing the same workload after a carbohydrate-containing meal or snack. However, it is possible that you may be able to exercise harder and for a longer period if you consume carbohydrate before exercise. Overall, this will result in greater energy use and a better contribution to the negative energy balance that is needed to cause fat loss. To make a decision about eating before your workout, it is useful to consider the goals of the session. If your primary goal is to improve performance, have something to eat before exercise. If your primary goal is weight loss, and you will do the same amount of exercise regardless of whether you eat or not, save your meal until after the session.

## Tips for reducing body fat levels

- 1. Don't cut carbohydrates**

They are needed to provide the energy to keep up with the demands of training and they are the only source of fuel that your body uses. Tiredness and fatigue are side effects of inadequate carbohydrate. No doubt you have seen this in the classroom and on the field.
- 2. Get some protein**

When we lose weight, it's a combination of fat and muscle. Given that muscle is part of the 'engine' that helps increase metabolism and therefore fat burning, it is something that's desirable to keep as much as possible. Make sure that protein rich foods are a feature and this includes lean meats, chicken and fish plus low fat dairy products, eggs, nuts and legumes.
- 3. Moderate the fat**

Fat contains more calories than both protein and carbohydrate. Watching your intake of foods containing hidden fats like biscuits, cake, chocolate, takeaway and fried foods will help reduce total calorie intake. This is one area of great concern amongst adolescents – the foods that were once 'treats' are now everyday foods. They come to school in lunchboxes every day.
- 4. Get full**

Bulk up your meals with plenty of vegetables. Foods high in fibre will keep you fuller for longer and reduce snacking.
- 5. Don't drink calories**

Liquid calories abound in soft drinks, cordials and energy drinks without any nutritional goodness. Make water or milk your first choice.
- 6. Use sports drinks carefully**

Sports drinks can be a useful tool for exercise sessions lasting longer than 1 hour but are also high in calories. Drinking them is not a substitute for actually doing the work!
- 7. Watch out for alcohol**

This one is for the adults - remember that alcohol is very high in calories and promotes the storage of body fat. It also decreases the motivation to eat well. Of course, this can be included in the drug and alcohol education you provide to your students.
- 8. Include 3 serves of dairy**

Contrary to popular belief, dairy products can help accelerate fat loss and protect lean muscle. In addition, it is essential for growing bones and muscles in the age group you are working with.

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## Resources

### Carbohydrate Loading Fact sheet:

[http://www.ausport.gov.au/ais/nutrition/factsheets/competition\\_and\\_training/carbohydrate\\_loading](http://www.ausport.gov.au/ais/nutrition/factsheets/competition_and_training/carbohydrate_loading)

### Nutritional Preparation for Competition:

[http://www.ausport.gov.au/ais/nutrition/factsheets/competition\\_and\\_training/nutritional\\_preparation\\_for\\_tournaments\\_and\\_multiple\\_heat\\_competitions](http://www.ausport.gov.au/ais/nutrition/factsheets/competition_and_training/nutritional_preparation_for_tournaments_and_multiple_heat_competitions)

### Eating and Drinking before Sport:

<https://www.sportsdietitians.com.au/factsheets/fuelling-recovery/eating-drinking-sport/>

### Powering Active Adults Cookbook: (Because you need to look after yourself as well as your students!)

<http://www.legendairy.com.au/~ /media/Legendairy/Documents/Recipes/Dairy%20Kitchen%20Cookbooks/Poweringactiveadults.pdf>

Great cookbooks for anybody but especially useful if you are a coach or manager of a team (Numbers 1 and 4 in the series are the top picks)

<http://www.ausport.gov.au/ais/nutrition/publications/cookbooks>

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**Good, better, best. Never let it rest. Until your good is better  
and your better is best.**

**- Anon**

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## 'The Carb Load' (24 hours before a competition)

### Day Before

You are aiming for 600-700 grams of carbohydrate for the day. The day should look like:

### Breakfast

2 cups cereal with 1-2 cups milk  
4 slices of toast with jam/honey

### Morning Tea

4 tablespoons Sustagen Sport in 250ml milk  
1 large cinnamon bun

### Lunch

2 cups cooked rice or pasta with 150g meat/chicken or fish and vegetables or salad  
1-cup jelly with fruit

### Afternoon Tea

4 tablespoons Sustagen Sport in 250ml milk  
1 large banana

### Dinner

150g meat, chicken or fish  
2 cups cooked pasta or rice  
Veggies/salad  
1-cup jelly or custard with fruit

2000ml sports drink throughout the day plus 2000ml water

You could also use 1-2 Carbo Shotz Electrolyte tablets throughout the day for some extra electrolytes.