

Maintaining a High Energy Diet

As you are required to ride each day, your energy (or fuel) needs are increased above and beyond your normal requirements. Interestingly, we don't seem to have evolved to the point where our bodies automatically adjust our daily food and fluid intake to accommodate for this increase in exercise. As a consequence you may struggle to maintain your normal body weight.

For some of you this maybe a relief and assist you to lose a few unwanted kilo's. However, for those of you that started the ride at a healthy weight it's important you maintain your weight throughout the duration of the ride.

In order to maintain your weight you will need to increase your daily energy (kilojoules) intake. The following tips will assist you in achieving a high energy diet to meet the added demands of daily riding:

- **Spread your total food intake across the day and increase the number of times that you eat:** Avoid becoming too full at a meal — aim for three meals and 2–3 snacks over the day. Be sure to meet the suggested fuel targets when your on the bike (refer to Fuel and Fluid Strategies on the Bike)
- **Add high-energy fluids to meals and snacks:** Fluids can supply a compact form of energy and nutrients. Good choices are fruit juice, flavoured milks, smoothies, liquid meal supplements like PowerBar ProteinPlus Powder Drink, cordials and sports drinks.
- **Set limits on bulky, high-fibre foods:** Although fibre-rich foods are often valuable in key nutrients, an oversupply can lead to fullness and gastrointestinal discomfort. For balance, replace some of these foods with lower fibre or less-filling alternatives. Choose lower-fibre forms of breads and cereals. Juices, smoothies, canned and dried fruits, and hearty soups provide easy eating options while supplying the goodness of fruits and vegetables.
- **Add extra energy to meals/snacks:** Add compact energy to existing foods or meals. For example, add sugar, honey or jam to breads or cereals; ice-cream, yoghurt and honey to smoothies; spreads such as avocado on sandwiches; and dessert to dinner in the evening.
- **Plan ahead:** Pack portable snacks such as cereal bars, canned fruit, tubs of yoghurt, and tetra-paks of milk or juice. PowerBar ProteinPlus drink and bars are also convenient and portable choices.
- **Remember, it is quality and quantity:** To minimise body fat gains while gaining muscle mass, avoid 'pigging out' on nutrient-poor foods. Excessive energy intake will promote fat deposition, while a reliance on nutrient-poor foods may mean that requirements for some nutrients are not met.

Fuel and Fluid Strategies on the Bike

During the ride, your primary focus should be on consuming appropriate amounts of carbohydrate, fluid and sodium in order to meet fuel, fluid and electrolyte requirements. The amount of these nutrients you require will depend on your overall training level, your body weight and the pace at which you are riding.

Fuel Needs

You should aim to consume between **30-60 grams of carbohydrate** for each hour you are on the bike. For riders cycling quickly, particularly for large male riders, you should aim to the higher end of this range – 50-60 grams. If you're riding slowly and will be stopping for lunch during the course of your daily ride, then aim for the lower end of the range – 30-40 grams.

In order to meet the above suggested targets for carbohydrate you will need to include a range of carbohydrate containing fluids (i.e. sports drinks) and foods. Everyone should have at least two drink bottle holders so you can carry one drink of sports drink and one drink bottle of water.

As a general rule, it's a good idea to have half **a drink bottle of sports drink every two hour when riding**. This will provide roughly 20 grams of carbohydrate. You can manipulate your hourly fluid intake by varying the amount of water you drink in addition to your sports drink. When conditions are cooler in the morning, you may only drink 100-200ml in addition to your half drink bottle of sports drink. As conditions hot up during the day however, you may end up drinking 300-500ml of water per hour in addition to your sports drink.

In addition to your sports drink, to top-up your hourly intake of carbohydrate add a banana, half a sandwich, half a sports bar, 1-2 biscuits, or a sports gel. The table below provides information about a range of foods, so you can develop your own hourly fuel strategy.

Carbohydrate content of foods for the bike			
Food	CHO (g)	Food	CHO (g)
Sports Gel (i.e. PowerBar Gel)	20-30	Banana – 1 medium	20
Sports Bar (i.e. PowerBar Performance Bar)	40	Sultanas/raisins – 40g (Small Box)	30
Jelly Lollies/Jelly Beans, – (30g)	20	Sports drink (i.e. Mizone Rapid) – 600ml	30-40
Killer Python	20	Potato Crisps – 20g packet	10
Vegemite Sandwich (crusts removed, white bread)*	25	Jam/Honey Sandwich (crusts removed, white bread)*	30
Mars Bar – Fun Size	15	Fruit Bar – 20g	10
Cereal Bar	25	Fruit Muesli Bar	15
2 x sweet biscuits (i.e. Fruit Pillow)	20	Rice crackers – 15g packet	13
Fruit bun (i.e. ½ Hot Cross Bun)	~25	Muffin – home made (medium)	~30

* Bread based items are a rich source of sodium

Drinking strategies when you're riding!

Drinking too little or too much during exercise can be dangerous to your health and decrease your exercise performance. In hot, humid conditions it's important you drink enough. In cool conditions however, it's important you don't over drink and risk diluting plasma sodium levels. Here are a couple of tips to help you stay in fluid balance during a typical stage on the GREAT AUSTRALIAN BIKE RIDE.

- Each morning during the ride, you should include fluid with your breakfast at the start of the day. Ideally this should be about 1½-2 hours before the ride as this will allow fluid not retained by the body to be passed as urine. As a general guide include 400-600ml of fluid with your pre-ride meal/snack. The exact amount you include should vary according to your individual tolerance and the environmental conditions.
- Be sure to have two drink bottle (bidon) holders on your bike. That way you can have one for water and one for sports drink.
- For riders cycling quickly, take cues from other riders when drinking as its more likely you want drink adequately to replace your sweat losses.
- For rider cycling slowly, drink according to your thirst, particularly in cool conditions.
- At no point should you drink more than your hourly sweat losses. Athletes exercising slowly, in cool conditions are susceptible to drinking in excess of their hourly fluid needs.
- Sports drinks (e.g. Mizone Rapid) offer the added benefit of providing fluid, carbohydrate and electrolytes simultaneously. Research has shown that consuming sports drink enhances performance of endurance exercise and increases voluntary fluid intake.
- Have a top-up during the mid-ride break (lunch). Fluid consumed with food is better retained due to the sodium content of food (i.e. bread is a rich source of sodium). As a general guide include 400-600ml of fluid with lunch. The exact amount you include should vary according to your individual tolerance and the environmental conditions.
- Caffeine contained in coffee, tea and cola based soft drinks won't dehydrate. If you're a regular coffee drinker, there is no harm in including coffee throughout the course of the ride. Don't use concentrated forms of caffeine though, such as NO-DOZE.

Make sure you meet your daily fluid needs!

Keeping Pace with Daily Fluid Requirements

Recently, the Department of Health and Ageing released new 'Nutrient Reference Values for Australians and New Zealand'. For the first time ever, they included recommendations for water – yes, the first time. The Nutrient reference values for total daily water intake are 3.4L and 2.8L for men and women, respectively.

Now, that is **total daily fluid** including water provided by fluids as well as water contained in foods you eat. In actual drinking terms, it's 2.6L and 2.1L daily for men and women respectively. Given an average glass contains 250ml, if you're a male you need to drink an amount of fluid equivalent to about 10 glasses of fluid daily and for females 8 glasses daily.

What about when you're exercising heavily every day?

In order to determine whether your keeping pace with your daily fluid needs - You need to ask yourself 3 simple questions each morning.

- Am I thirsty?
- Is my morning urine dark yellow?
- Is my body weight this morning noticeably lower when compared to yesterday morning?

If the answer to any **one** of these questions is "Yes," **you may be dehydrated.**

If the answer to any **two** of these questions is "Yes," **it is likely that you are dehydrated.**

If the answer to **all three** of these questions is "Yes," **it is very likely that you are dehydrated.**

Practical suggestions to keep pace with your daily fluid losses

- Have fluid with each of your meals throughout the day. Fluid is better retained when consumed with meals, namely due to the electrolytes contained in food
- Some fluids, don't hydrate you as well as others. Water, juice, sports drinks and milk are great choices and should be your first choice to replenish your daily fluid needs. Caffeine and alcohol containing drinks, don't dehydrate you, it's just that they don't rehydrate you as effectively
- If you don't like plain water, adding a splice of lemon and/or lime to your water may make it taste more appealing
- When your off sight seeing after your daily ride, be sure to carry a drink bottle with you so you can top-up your fluid intake between meals

Recovering after the Ride

The serious business of nutritional recovery

The International Olympic Committee Consensus on Nutrition for Athletes details nutrition recovery as:

- Restoring fluid balance by replacing fluids and electrolytes lost in sweat
- Re-fuelling carbohydrate (glycogen) stores
- Facilitating protein synthesis for repair, rebuilding and adaptation
- and, ensuring immune system activities are restored following exercise.

Restoring fluid and electrolyte balance

Even when well planned, it is likely that you will finish the ride with some degree of dehydration. This is particularly true for your long ride days, in hot and humid environments, where sweat losses exceed the usual intake of fluid tolerated during exercise.

Any sweat not replaced with an adequate fluid intake during the ride should be replaced following. The success to which you rehydrate after exercise, will depend on how much you drink and then how much of this fluid is retained and re-equilibrated within your body fluid compartments.

A quick fire method to measure your fluid balance and percent body weight loss during your daily ride is to:

Step 1 – Measure body weight before exercise in minimum clothing

Step 2 – Measure body weight after exercise (once again in minimal clothing, towel dried)

Step 3 – Calculate the difference between pre and post-exercise weight

Weight lost predominantly reflects a mismatch between fluid intake and fluid loss during exercise. One kilogram of body weight loss reflects 1 litre of fluid that has not been replaced during exercise.

Note: Consideration must be given to the fluid consumed during exercise and fluid losses (such as urine) if you are trying to calculate sweat losses. Also, during extended exercise, weight loss associated with the use of body fuel stores should to be considered in this calculation.

By calculating your fluid balance during a session you can implement current guidelines which suggest you consume 125-150% of your fluid losses over the first 4 to 6 hr of recovery in order to fully restore fluid balance. Depending on factors such as the type and timing of what we consume, we may be good at retaining this fluid or we may waste a lot in unnecessary wee stops. **Tips to help you rehydrate following your daily ride:**

- Select fluids you like to drink as your likely to drink more of these fluids
- It's best to space your fluid intake out over a period of time, rather than gulp a large amount quickly
- Have fluids slightly chilled as this will encourage your intake of fluid.
- It's good to have some savoury foods with your fluids as this will assist in the amount of fluid you retain. Bread based items, rice crackers, or even salted nuts are all good choices.
- Alcohol – limit your alcohol intake and drink light options. The more concentrated your alcoholic drink, the more poorly it rehydrates. If you do choose to drink alcohol in the evening with your meals, limit your intake to 1-2 standard drinks.

A STANDARD DRINK =

- 100ml wine
- 375ml stubby lite beer
- Middy of full strength beer
- Nip of spirits



Replacing fuel stores

Effective recovery of muscle and liver fuel storage requires two main ingredients – carbohydrate intake and time. Roughly speaking, when conditions are favourable, muscle glycogen can be stored at a rate of about 5% per hour. Thus it can take ~ 24 hours to fully replace muscles stores that have been fully depleted.

The key factor to refueling muscle stores following exercise is the amount of carbohydrate you consume. It appears that around 1 g per kg bodyweight or just over is enough to commence refuelling at the maximal rate. In the 1-2 hours after strenuous exercise, your body is primed to deliver blood glucose to the muscle, take it up, and store it. So when carbohydrate is consumed in this “window of opportunity”, it will promote refuelling at the high end of the normal storage range. This is worth taking advantage of when recovery time is short and refuelling needs are high.

Depending on the timing of your next ‘real meal’, what you have eaten before and during the ride, and your other nutritional goals, females should aim for 20-60g of carbohydrate, while males should aim for 30-80g of carbohydrate soon after the ride to kickstart refueling. The following table includes a range of snacks that will meet these suggested targets:

Females – 20-60g of carbohydrate	
Food	Carbohydrate Content
Piece of Fruit	~20 g
Tub of reduced fat fruit yoghurt	~30g
4 crackers and jam + 250ml of apple juice	~50g
Males – 30-80g of carbohydrate	
Liquid meal supplement (i.e. PowerBar Protein Plus)	40g
Banana Sandwich	50-60g
Fruit Bun + 600ml sports drink	~75g

Enhancing protein recovery

Protein was forgotten in the nineties when carbohydrate was all the craze. Now the tide has turned, such that it's probably worth including protein into your post-exercise recovery snack. Several recent studies have shown that timing your protein intake strategically after exercise is as important as your total daily protein intake. Although you may not be trying to grow muscles, many other processes of recovery and adaptation between exercise sessions involve building protein. From what we have learnt at this stage, it appears that you don't need a lot of protein to tick all the boxes for your post-ride protein synthesis. It appears that 10-20 g of a good quality protein seems the ideal range for a protein recovery snack (for examples see below).

Appropriate post ride snacks which contain >10g of protein:

- 200g tub of Low-fat fruit Yoghurt/Custard/Rice Custard
- Cup of cereal and milk
- 1-2 slices of toast with milo milk
- Lean meat/fish/chicken sandwich
- 4 x crackers and cheese
- Liquid meal supplement (i.e. PowerBar Protein Plus Drink)
- Fruit and Nut mix – handful (50g)