



Secrets of Sport Nutrition: Road cycling

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Introduction:

Road cycling is an endurance sport where the majority of training time is spent exercising at sub maximal level. The sport requires strength and endurance to meet the demands of the distances covered and anaerobic capacity to meet the challenge of hill climbing and sprints. Cyclists need to be muscular and lean to maximise the power-weight ratio that is particularly important in hill climbing.

Training Diet

The training diet for road cyclists will depend on a number of factors such as their age, sex, training load, distance covered and the level of competition. Young growing cyclists and cyclists with heavy training loads have very high energy demands, which need to be met through small frequent meals (i.e. 6-8 times a day). An elite cyclist cycling at speeds of 26mph will burn 21kcal per minute for example. It is therefore not surprising that energy intakes in the Tour de France have been recorded at 9000kcal per day.

The high energy requirements of road cycling can be met by consuming convenient high-energy food and fluid supplements such sports/ cereal bars, gels, sports drinks during cycling. However that said, nutrition preparation before and post race is also critical to cycling performance.

Training diets should be based on sufficient carbohydrates to meet the demands of training, as endurance exercise depends largely on the supply of carbohydrate to the exercising muscle. The body only stores about 2000kcal-3000kcal of carbohydrate and these stores will last 90 minutes at speeds of 26mph. It is also important to ensure that the diet contains adequate protein to aid recovery and repair of cells as well as vitamins and minerals that are needed for good health and performance.

Table 1: Training Diet Guidelines

	Amateur	Elite	A 70 kg cyclist
Kcal (kcal/kg/day)	35 – 50	> 60	4200kcal
Carbohydrate g/kg/day	6 - 8	8 - 12	560 g
Protein g/kg/day	1 – 1.4	1.2 – 1.8	84 g

Fluid Needs in Training

Cyclists have high fluid needs as training sessions tend to be of longer duration. In the warmer months, fluid needs may be even higher. Cyclists are often limited by the amount of fluid they can consume during training as fluids needed during training have to be carried on the bike. It is therefore very important to keep well hydrated by drinking water thorough the day and extra fluid after training.

General recommendations are:

- **Before training/ an event: 2 hours before:** Drink 400-600ml fluid with the pre-event meal, top up with 200-250ml prior to the start.
- **During ride:** Drink 150- 350ml every 15-20 minutes, or at least 500-750ml sports drink/water per hour. If training is on the road, plan to refill your water bottle regularly and use these stops as markers of fluid intake (colour of urine).
- **After training/event:** Drink to replace sweat losses. Drinks containing carbohydrates (i.e. sports drinks, low fat milk shakes, smoothies, fruit juice, recovery shakes) are all good options- particularly if you are a cyclist with higher energy requirements.

***TIP:** Training is the ideal time to practice and perfect your fluid strategy

Nutrition Pre-event

When and what you eat pre-event, before training will be determined by the timing of your training/event. If time allows, it is recommended that you consume a carbohydrate rich meal (200-350g carbohydrate) approx 2-4 hours prior to the start

(I.e. Pre-event meal). However if you are having an earlier start to an event, it is important that the meal the night before is high in carbohydrate, and then you top up your glycogen stores with a light snack 1-2 hours prior to the start (i.e. Pre-event snack).

Examples of Pre-event Meals are:

1. Oats porridge/ muesli/ cereal + semi-skimmed milk + fruit + fruit juice/cordial
2. Bread/toast with peanut butter + honey/jam/marmite + sports drink
3. Baguette /bread roll with low fat cheese/ham + jam + glass of milk
4. Sandwich including lean meat/ low fat cheese filling + fruit + cordial
5. Smoothie made with low fat yogurt + fruit
6. Low fat creamed rice + banana + juice/cordial
7. Baked potatoes + baked beans + low fat grated cheese + juice/cordial
8. Pasta/rice topped with tomato based sauce + lean meat + juice/cordial

Examples of Pre-event Snacks are:

- Isotonic sports drinks
- Pre- exercise sports bars
- Low fibre Cereal bars
- Fruit bun/ Malt loaf
- Fresh fruit i.e. banana
- Dried Fruit i.e. raisins, dried mango, berries
- Low fat yogurt

***TIP:** Practice makes perfect! Consume different pre-event meals and chose the one that works best for you.

Nutrition during the race/cycle

Many studies have shown that carbohydrates are ingested during an event (particularly for events that last > 90 minutes) fatigue is prevented as glycogen depletion is prolonged and consequently cycling performance is improved.

Guidelines during cyclists are as follows:

- Carbohydrates: 1 g/kg body weight per hour i.e. 60-70kg rider: 60-70 g CHO
- Drink 150-350ml every 15-20 minutes, or at least 500-750ml sports drink/water per hour

***TIP:** Start from the start. Begin refueling early in the event rather than waiting for fuel stores to become depleted.

Cyclists are lucky as they can literally be “rolling buffets”. However, most cyclists do not like to carry any extra weight than they have too, hence sports drinks are a convenient way to meet both fluid and carbohydrates requirements simultaneously.

Examples of foods that can be consumed during cycling are:

- Bananas
- Dried fruit i.e. dried berries, tropical fruit mix, fruit bars
- Isotonic sports drinks
- Carbohydrate gels
- White bread sandwiches with jam/ honey/ marmite
- Sports bars/ cereal bars
- Jelly babies/ beans and sugar-type lollies

***TIP:** Avoid trying out gels and sports drinks for the first time on race day. Make sure you're comfortable with using them during training before the big event.

Examples of foods containing 50g of carbohydrate are:

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| • 2 bananas | • 3 slices thick sliced bread |
| • 3 medium apples | • 1 jam sandwich (2 slices bread + 1.5 tbsp jam) |
| • 800ml isotonic sports drink | • 1 bagel |
| • 2 Carbohydrate gels | • 2 crumpets/ English mushrooms |
| • 15 dried apricots | • 2-3 slices malt loaf |
| • 1- 1.5 (35g) sports bars | • 1 large bowl (60g) breakfast cereal |
| • 3 (25g) cereal bars | • 200- 250g cooked pasta |
| • 6 jaffa cakes | • 200-250g cooked rice |
| • 60-70g packet of jelly sweets | • 1 large potato (250g) |
| • 330ml fruit smoothie | • 1 large chocolate bar (70-80g) |
| • 500ml fruit juice | |

***TIP:** Start reading food labels so that you begin to learn how many carbohydrate, protein and fat is in the food you eat.

Nutrition for Recovery

Recovery is particularly important on cycling tours or if cyclists are racing twice a day or even on consecutive days. Recovery nutrition after a training session/ event should encompass:

- Rehydration (replace fluid losses by 150%)
- Refuelling (replenish muscle and liver glycogen)
- Repair & adaption of muscle

Immediate recovery snack

To maximise glycogen storage it is important to consider the timing, the type and amount of carbohydrate to consume. Maximal glycogen repletion is achieved at carbohydrate intakes between 1-1.2g per kg of body weight provided at 30 minute intervals (75-90g of carbohydrate per hour). A carbohydrate intake above 90g per hour provides no additional benefits with muscle glycogen storage and may cause gastrointestinal problems. Research has also shown that including 10-20g of protein in your recovery snack will enhance the uptake of carbohydrate. Sports drinks, fruit juices are a good source of carbohydrate. Opting for yogurt or milk based drinks for example provides both carbohydrate and protein and replaces fluid at the same time.

Carbohydrate-rich snacks (50g Carbohydrate) providing at least 10g protein

- 250-350ml fruit smoothie
- 500ml fruit juice + 60g salted nuts
- 500ml low fat flavoured milk
- 600-800 ml sports drink + 35g biltong/ beef jerky
- 60g breakfast cereal with ½ cup low fat milk
- 200-250g fruit salad with 200g fruit yogurt/ custard
- Many recovery bars – check label
- Sandwich including cheese/meat/chicken filling and 1 piece of fruit or 300ml sports drink
- 2 crumpets/ toast with thick spread of peanut butter/cheese

***TIP:** Accept you aren't going to feel hungry or want to eat, rely on liquid calories. Just do it.

Examples of foods containing +/- 10g of protein are:

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| • 35g cooked lean beef/pork/lamb | • 35 g biltong/ beef jerky |
| • 40g skinless cooked chicken | • 200 g cooked lentils/beans |
| • 50g cooked fish or canned tuna/salmon | • 60g nuts/seeds |
| • 200g low fat yogurt | • 120g tofu |
| • 30g low fat cheese | • 4 slices of bread |
| • 70g cottage cheese | • 500g cooked pasta |
| • 2 small eggs | |

Recovery meal

2-4 hours after an event, follow your post exercise snack with a more substantial meal containing both carbohydrates and protein. Eating rice/ pasta/ or bread together with lean sources of protein such as meat, poultry, fish will achieve the correct carbohydrate: protein ratio needed to promote recovery and gear you up for the challenges of the next day.

References

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