

# KEY NUTRITIONAL FACTS TO IMPROVE PERFORMANCE FOR THE COMPETITIVE CYCLIST

The importance of nutrition in sport was first recognised by the ancient Olympians and there remains widespread acceptance of its role today<sup>1</sup>. In fact it has been stated that 'no single factor plays a greater role in optimising performance than diet'<sup>2</sup>

Below are some key facts covering macro nutrients, nutrient timing and food sources as well as a few tips on what to eat more or less of. This is just a taster of how to use food to improve on performance and enhance recovery.

## MACRO NUTRIENTS:

Athletes involved in moderate to high levels of intense training may need greater amounts of carbohydrate and protein than an individual engaged in a fitness programme.

Guidelines are as follows:<sup>3,4</sup>

### Carbohydrates

Carbohydrates maintain blood glucose levels during exercise and replace muscle glycogen. Low energy intakes may increase the risk of fatigue and injury.

**Suggested amounts: (amounts are per kg body weight/per day)**

5-8g/kg/day (e.g. 300-480g for a 60kg person) for moderate amounts of intense training

8-10g/kg/day for high volume amounts of intense training

Preferably the majority of carbohydrates should come from complex carbohydrates or low Glycaemic Index (GI) foods (whole grains - brown bread, rice and pasta, vegetables and legumes).

### Proteins

Protein is essential for muscle repair and performance. Insufficient intake may result in muscle wasting and training intolerance.

**Suggested amounts:**

1-1.5g/kg/day for moderate amounts of intense training

1.5-2g/kg/day for high volume amounts of intense training.

High quality protein includes poultry, fish, eggs, nuts and some protein supplements made from whey or casein. Various studies indicate that a maximum serving of 30g protein at any one time is optimal for muscle protein synthesis<sup>5,6</sup>

### Fats

The dietary recommendations are similar for an athlete and a non-athlete. Fat is a source of energy, fat soluble vitamins and other important nutrients.

**Suggested amounts:**

1-1.5g/kg/day

0.5-1g/kg/day if trying to decrease body fat

The type of fat is the most important consideration – limit saturated fats and eat plenty of essential fatty acids (oily fish, nuts, seeds and oils such as hemp, flax and olive oil).

## NUTRIENT TIMING

Performance may be enhanced and recovery improved by the added dimension of 'nutrient timing'<sup>7,8</sup>. The principles of this concept can be adapted to address the muscles' metabolic needs during periods when they are producing energy, recovering from exercise and growing in strength<sup>9</sup>

Guidelines are as follows:<sup>3,4</sup>

### Pre training:

3-4 hours beforehand: consume a meal which is high in carbohydrate (this is enough time for the carbohydrates to be digested and stored as muscle glycogen).

Aim for 3g/kg carbohydrate, moderate protein, and low fat and fibre to facilitate gastric emptying. Make sure it's familiar to you!!

30-60 minutes beforehand: consume a light carbohydrate and protein snack.

Aim for a minimum of 50g carbohydrate (1.1g/kg and 5-10g protein).

**Some suggestions:**

Handful of nuts and half banana

Oatcakes or rye bread with nut butter, hummus

### Some suggestions for a pre-training smoothie:

**Berry Buzz**

100g natural yoghurt,

100g berries,

100g grapes

½ tsp hemp/flax/olive oil,

10g whey protein and water

**Punchy Pina**

125ml coconut water

125ml coconut milk

225g fresh pineapple

or tinned pineapple

25g ground almonds

### During training:

If exercising for longer than 1 hour, a carbohydrate and electrolyte drink will help to maintain glucose levels and prevent dehydration. Electrolytes include Sodium Chloride, Potassium and Magnesium. Dehydration may limit performance.

Aim for 600-1200mls/hour of 6-8% solution (minimum is 100mls/10 minutes) achieved by adding 60-80g glucose, sucrose or maltodextrin to 1000mls water - can add 20g fructose as part of this but fructose may be a gastric irritant for some.

Make your own drink with grape juice/water 200/800mls (24g carbohydrate) plus 30-50g maltodextrin. If you are making your own drink you may need to add in electrolytes, especially if the weather is hot.

### After training:

Many studies show that consuming carbohydrate and protein together post exercise is more effective than consuming either of these on their own, ideally within 30-45 minutes of finishing exercise. A drink is often preferable such as a smoothie, which you can make yourself.

Aim for a 3:1 or 4:1 ratio of carbohydrate to protein with high GI carbohydrates (but as stated earlier watch the fructose). Aim for 1-1.5g/kg carbohydrate.

Whey protein is the type of protein recommended post exercise as it rich in Branch Chain Amino Acids and is absorbed in to the bloodstream very quickly.

After intense exercise or if wanting to train again on the same day, repeated fuelling every 2 hours will help to replenish glycogen stores and aid protein synthesis.

### Some suggestions for a recovery smoothie:

20g whey protein

200g banana

Handful of berries or 100ml grape juice

A few seeds

1 tbsp nut butter

2 tbsp natural yogurt

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## Food sources

### 20g carbohydrate

100g	Banana
200g	Stewed (no sugar) or raw apple
200g	Pineapple
200g	Pears
250g	Orange
100g	Sweetcorn
200g	Peas
250g	Carrots
100g	New potatoes
70g	Baked potatoes with skin
100g	Oatcakes
30g	Oats
50 - 66g	Wholemeal bread
70g	Rye bread
120g	Chick peas, cooked
75g	Brown rice, cooked
80g	Brown pasta, cooked
110g	Lentils, cooked

### 20g protein

62g	Chicken/turkey breast
70g	Beef fillet steak
83g	Canned tuna, sardines
83g	Salmon, grilled
90g	Cod, baked
3 whole eggs	Eggs
154g	Cottage cheese
570mls	Milk
5 tbsp	Nut butter
6 tbsp	Pumpkin seeds
50g	Almonds
70g	Walnuts, hazel nuts, Brazil nuts
400g (1 large tin)	Baked beans
100g	Red kidney beans
100g	Lentils, cooked
250g	Tofu
240g	Hummus
217g	Wholemeal bread

Please note these are a rough guide only.

### EAT MORE OF...

Vegetables are an excellent source of carbohydrates, fibre, phytonutrients and antioxidants.<sup>10</sup> A diet rich in vegetables and fruit (in particular berries) of varying colours will help provide the athlete with many of the micronutrients necessary for performance and recovery.

### EAT LESS OF...

The Food Standard Agency recommends no more than a daily amount of 70g added sugar for men and 50g for women, but this varies depending on our size, age and the amount of activity we do.<sup>11</sup> There are healthier ways to ensure adequate energy is obtained other than through sugary foods. Beware of foods labelled 'Low fat' as these may contain more sugar than foods which do not say they are low fat.

## References

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