

Sports Nutrition Factsheet



PLANT-BASED
Health Professionals UK

Promoting Sustainable Health and Nutrition

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Plant Gains

Higher antioxidant intake which delays the onset of fatigue during exercise and improves post-exercise recovery.¹

KEY ADVANTAGES

Higher carb diets can delay onset of fatigue and maintain power output in endurance-based and intermittent exercise.⁷

Improved blood flow usually within 6 weeks of switching to a plant-based diet.⁴ Subsequently more oxygen and nutrients delivered to working muscles.⁵

Dietary nitrate intake -as in beetroot, spinach, lettuce, cress and rocket (arugula) - leading to improved vascular function.⁶

Healthier gut profiles A growing amount of evidence links gut health with improved athletic performance and recovery.³

Promotes healthy weight⁸

Key nutrients for plant-based athletes

Vitamin B12

- **Deficiency** is common among all dietary patterns.
- **Supplementation** is required for **ALL** on a plant-based diet.

Iron

- **Include** greens, legumes, whole grains, nuts and seeds.
- **Boost iron absorption** by eating vitamin C-rich foods alongside them.
- **Supplementation** is not recommended unless deficiency confirmed on blood test.

Selenium

Selenium is found in grains, nuts and seeds – just two Brazil nuts a day provides your daily requirement.

Calcium

Get plenty of calcium from greens, beans, and fortified dairy alternatives.

Iodine

Seaweed, iodised salt (half a teaspoon provides the recommended intake of iodine), fortified dairy alternatives.

Omega-3

2 tablespoons of flax seeds or chia seeds or hemp seeds, or 3-4 walnuts or an algae-based supplement.

Vitamin D

- Vitamin D is mainly made in our skin after sun exposure.
- **Supplementation** recommended for **ALL** during winter months.

Zinc

- Found in legumes, whole grains, nuts and soy products.
- Soaking, fermenting and sprouting grains and legumes can **increase absorption**.
- **Supplementation** has not shown to improve athletic performance.

In the UK there are no separate recommendations for athletes. It's assumed that athletes' higher caloric intake also increases the intakes of most micronutrients.

Carbohydrate intake

Carbohydrates provide the **main fuel** for the brain and working muscles. Research shows that high carb diets delay the onset of fatigue and maintain power output during both continuous and intermittent exercise (as is required in most sports).⁹

GENERAL OUTLINE FOR CARB INTAKE

Situation

Low intensity or skill-based activities

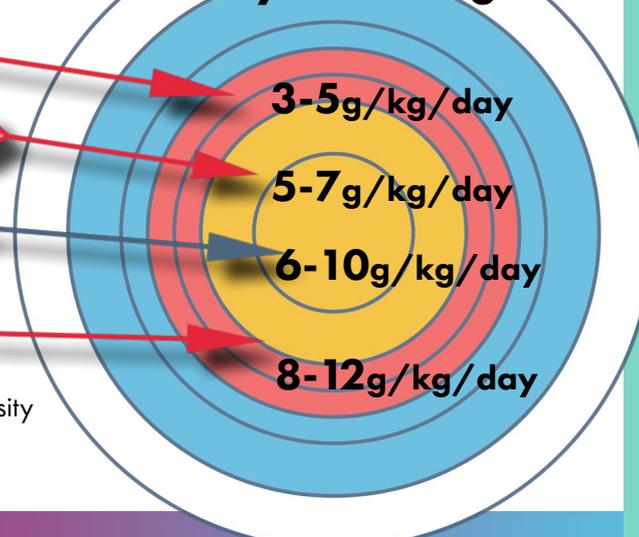
Moderate exercise program (e.g. 1 hour/day)

Endurance program (e.g. 1-3 hours/day of moderate to high-intensity exercise)

Extreme commitment (e.g. 4-5 hours a day moderate to high-intensity exercise)

E.g., an athlete weighing **60kg** training with moderate-high intensity for **1 hour every day** could benefit from consuming **300-420g** carbohydrates a day (**5-7 x 60**).

Carbohydrate targets



Carbohydrate loading

To promote high carbohydrate availability for optimal performance during high intensity lasting over 90 minutes, consuming 10-12g carbohydrates/kg per day for 36-48 hours prior to the event is a proven strategy known as carbohydrate loading.

i.e. **600-720g** carbohydrates a day for a **60kg** athlete in the **1-2 days** prior to a marathon. In order to achieve this very high carbohydrate intake, foods high in fat, protein and fibre may need to be temporarily limited, and the focus should be on **carb-rich foods** like rice, pasta, potatoes, grains, starchy fruit and vegetables, and drinks like fruit juice.



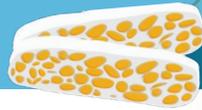
Carbohydrate intake during exercise

Exercise type	Duration	Carbohydrate intake
Brief exercise	45 minutes	Not needed
Sustained high intensity exercise	45-75 minutes	Small amounts
Endurance exercise, including 'stop and go' sports	1-2.5 hours	30-60g/hour
Ultra-distance endurance exercise	2.5-3 hours	Up to 90g/hour





Protein requirements



TOFU

Protein requirements for the general public is **0.75g/kg bodyweight/day**

E.g. **60kg adult** would require **45g** protein a day (0.75×60). Studies show in-takes among vegans across Europe and America tend to be between **70-80g a day**^{10,11} — already well above the average recommended intake.

Studies show that humans can at most use about **1.66g of protein/kg/day** when energy needs are met. Consuming protein above 1.6g/kg/day **makes no further difference to gains in muscle size or strength**.¹³ Furthermore, protein consumed in **smaller amounts** of **20-30g** throughout the day is **more effective** than larger amounts in fewer meals.

Requirements are likely to be lower if you are overweight.

Higher protein intake in athletes **1.2-1.6g/kg/day** has been shown to help with muscle repair and growth.

Endurance-based athletes:

1.2g/kg/day ¹²

E.g. someone weighing **60kg** need around **72g** protein a day (60×1.2).

Strength training athletes:

1.6g/kg/day.

E.g. someone weighing **60kg** needs around **96g** protein a day (60×1.6).



Protein powders are considered dietary supplements and are as such loosely regulated. They are processed and can contain added sugars, artificial flavouring, traces of heavy metals and other contaminants. Protein supplements only play a role in helping athletes to meet their high caloric requirements.¹⁴

Fat requirements



Recommended fat intake is **20-35%** of daily energy intake.¹²

Keep consumption of *saturated fat* as found in *coconut oil* (commonly used in vegan cheeses and meat alternatives) **to a minimum**.

Include a source of **omega 3** in your daily diet.

Fat intakes below 15% can **compromise** immune system and cause *menstrual issues* in female athletes and should be **avoided**.



Other lifestyle factors

Don't underestimate the power of recovery! That's the time where the body enters a state of repair, adaptation, and growth.

Nutrition plays a big role in recovery but so does **adequate sleep** and **stress management**.

Aim for **7-9 hours sleep each** night and manage stress with *regular exercise, meditation, breath-work, connecting with nature, and maintaining strong social connections*.

Hydration

Hydration status significantly affects *mood, reaction times, alertness, and performance* in both endurance and power activities.

The amount you need to drink will depend on the individual, the type of exercise, and the environment (e.g. heat and humidity).

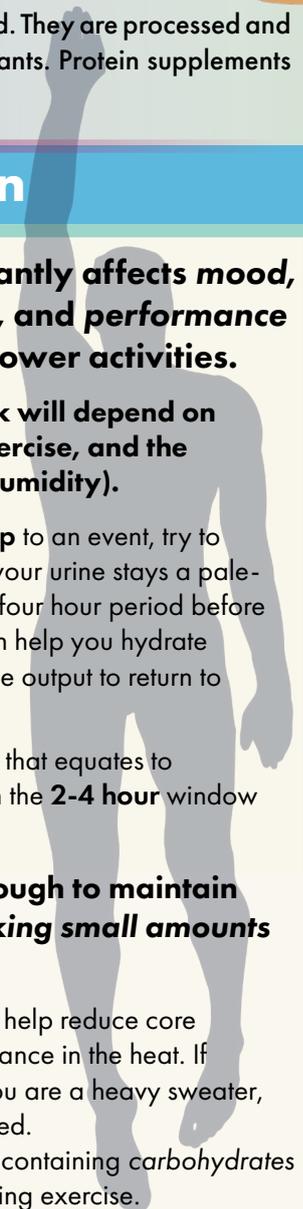
In general, in the **24-hour lead up** to an event, try to keep well hydrated, making sure your urine stays a pale-yellow colour. Then, in the two-to-four hour period before exercise, **5-10ml/kg of fluid** can help you hydrate but will allow enough time for urine output to return to normal¹⁵.

So for an athlete weighing **60kg**, that equates to **300-600ml** fluid ($5-10 \times 60$) in the 2-4 hour window before the event.

During the event, drink enough to maintain your body weight by drinking small amounts every 15-20 minutes.

Drinking cold drinks (0.5C) can help reduce core temperature and improve performance in the heat. If exercising for over 2 hours or if you are a heavy sweater, an electrolyte drink is recommended.

Post-exercise, drink **1.5L** of fluid containing *carbohydrates and sodium* for every **kg** lost during exercise.





Ergogenic aids

The dietary and lifestyle factors covered so far will make the biggest difference to your performance.

There are no shortcuts when it comes to **maximising your performance** and you can't expect supplements to replace a **healthy balanced diet** and an **efficient training plan**. The decision to use performance-enhancing supplements is up to each athlete. However, be aware that the statements about the health or performance enhancing effects on the labels of many sports products are **not backed by clear scientific evidence**. Here are a few commonly used supplements:

Sports supplement	Ergogenic effects	Concerns
Caffeine	Reduces perception of fatigue Allows exercise to be sustained at optimal intensity/output for longer	Can cause anxiety in some Can affect sleep if used in afternoon or evening
Creatine	Improves performance of repeated bouts of high intensity exercise with short recovery periods May be more effective in plant-based athletes as no creatine in the diet	Associated with acute weight gain (0.6-1 kg), which may be problematic in weight-sensitive sports Athletes with history of kidney problems should avoid creatine Safety of using creatine beyond 4 years has not been studied
Beetroot juice (nitrate)	Improves exercise tolerance and economy Improves performance in endurance exercise	May cause gut discomfort and discoloration of urine Less effective in highly-trained athletes
Sodium bicarbonate	Improves performance of short-term high intensity events that would otherwise be limited by lactic acid (e.g. 400 or 800m sprint)	Can cause severe gastrointestinal side effects in some that negate any performance benefits
Beta-alanine	Improves performance of short-term high intensity events that would otherwise be limited by lactic acid (e.g. 400 or 800m sprint)	Some products with rapid absorption may cause a tingling sensation known as paresthesia Less improvement experienced in well-trained athletes

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