

Nutritional Advice for Swimmers.

A well-chosen diet that meets the specific needs of the swimmer can help:

- Optimise gains from the training programme
- Enhance recovery between training sessions and competitions
- Achieve and maintain ideal body weight and physique
- Decrease risk of illness and injury
- Increase confidence though being well-prepared and ready to face competition
- Consistently achieve high levels of performance
- Concentration in training and at school

A Swimmer's daily energy intake provides for immediate energy demands and influences body energy stores, playing an important role in performance by manipulating energy intake to achieve advantages in their sport. It is essential that energy intake is not restricted as this can interfere with metabolic and hormonal function. What you eat and drink will affect how you perform on a daily basis.

E - Energy – get yours from carbohydrates

A - Attitude – a positive attitude towards food choice is essential

T - Tasty – taste is important, always try to make food tasty

W - Water is essential for life and for swimming

E – Enjoy your food it puts you in a good mood when you enjoy it

L – Little and often is the best way to stay energised

L – Lots of fruits and vegetables benefit your immune system

S – Spend some time planning and organising your snacks and drinks

W – Worrying about food at competitions should be a thing of the past

I – Invest in good quality food not convenient fast food

M – Make breakfast an essential part of your preparations

W – Water bottles need cleaning regularly

E – Energise to survive the rigours of long hours training

L – Learn to rustle up some quick, tasty meals on your own

L – Lastly enjoy the occasional treat – you deserve it

When deciding what to eat and making snacks / meals consider the following. Every meal should aim to contain:

- **Quality Protein Source** (lean medium/large portion), options include beef, pork, chicken, turkey, fish, eggs, milk, and cheese (soft-cottage).
- **High Carbohydrate Content**, options include breads, potato, rice, and pasta. Eat a variety of whole grains e.g. brown bread, rice, pasta, wraps, pitta. Limit white rice and bread.
- **Low Fat Content**, try not to have fried food, high-fat cheeses (hard-cheddar), add too much cooking oil to meals, cut off the fatty rinds off meat, and try not to eat a lot of crisps, cakes, biscuits, chocolates, and sweets (choose one of those as a treat once or twice a week only).

Carbohydrates

The main source of energy during training is derived from carbohydrate, therefore, it is not surprising that high carbohydrate meals and drinks are essential to provide energy and facilitate recovery. The timing of meals and snacks, however, is important. There is no difference in the glycogen synthesis of liquid and solid carbohydrates.

Moderate/High GI Carbohydrates provide readily available Carbohydrate for glycogen synthesis and are therefore very important in recovery meals, many are also rich in nutrients and protein. Proteins also assist in glycogen re-synthesis when Carbohydrate intake is not adequate. Examples include:

- Most breakfast cereals
- Most forms of rice
- White and brown bread
- Sports drinks and soft drinks
- Sugar, jam and honey
- Potatoes
- Tropical fruits and juices

Proteins

Amino acids from protein help form new tissue such as muscle and repair old tissue; they also help build hormones and enzymes to regulate metabolism and body functions. Most athletes consume enough protein without the use of supplements, even during high-levels of training, however athletes who restrict their energy intake are at risk of failing to satisfy their protein needs. An increased protein balance combined with Carbohydrate is desirable during recovery from endurance and resistance training to balance the faster rate of protein breakdown during exercise, and then to promote muscle growth, repair and adaptation.

Essential vitamins and minerals

- Iron – important for making red blood cells. Deficiencies will impair performance and unexplained fatigue should be investigated as supplementation may not address the real cause of fatigue (good sources – liver, meat, beans, nuts, dried fruit e.g. apricots, wholegrains e.g. brown rice, fortified breakfast cereals, dark green leafy vegetables e.g. kale and watercress)
- Copper – triggers the release of iron and produces red and white blood cells (good sources – nuts, shellfish, offal)
- Magnesium – helps turn food into energy (good sources – leafy green veg e.g. spinach, nuts, brown rice, wholegrain bread, fish, meat, dairy)
- Phosphorus – helps build strong bones and teeth and helps release energy from food (good sources – meat, dairy, fish, bread, brown rice, oats)
- Potassium – helps control the balance of fluids in the body and helps the heart muscle work properly (good sources – bananas, broccoli, parsnips, brussel sprouts, pulses, nuts, seeds, fish, shellfish, beef, chicken and turkey)
- Selenium – helps the immune system work properly and prevent damage to cells and tissues (good sources - brazil nuts, fish, meat and eggs)

- Sodium chloride (salt) – helps keep the levels of fluid in the body balanced (take care not to consume too much as this can lead to health problems in later life)
- Zinc – helps make new cells and enzymes and process macronutrients in food (good sources - meat, shellfish, dairy foods, bread and cereal)
- Calcium – very important in adolescents and females for healthy bones and teeth, it also regulates muscle contractions including your heartbeat and makes sure blood clots normally. All athletes should try to consume 3 portions of calcium rich foods a day (good sources – dairy, green leafy vegetables such as broccoli and cabbage but not spinach, soya beans and soya products with added calcium, nuts, bread and anything made with fortified flour)
- Vitamin A – helps the immune system work properly, vision in dim light, keeping the skin and the lining of some parts of the body e.g. nose healthy (good sources – dairy, eggs, oily fish, liver or liver pate). The body can also convert beta-carotene into vitamin A (good sources – spinach, carrots, sweet potatoes, red peppers, mango, papaya, apricots)
- There are many different types of B vitamins but B6 and B12 are especially important for adolescent athletes. B6 allows the body to use and store energy from carbohydrate and protein and forms haemoglobin the substance in red blood cells which carries oxygen around the body (good sources – pork, poultry, fish, bread, wholegrains, eggs, vegetables, soya beans, peanuts, milk, potatoes and fortified cereals). B12 – makes red blood cells and keeps the nervous system healthy and helps release energy from food (good sources – meat, salmon, cod, milk, cheese, eggs, fortified cereals)
- Vitamin C – helps protect cells and keep them healthy, maintain healthy skin, blood vessels, bones and cartilage, helps with wound healing (good sources – oranges and orange juice, red and green peppers, strawberries, blackcurrants, broccoli, brussel sprouts and potatoes)
- Vitamin D – helps regulate the amount of calcium and phosphate in the body which keep bones, teeth and muscles healthy (good sources – sunlight should provide all the Vit D you need between April and September. It can also be found in oily fish e.g. salmon and mackerel, red meat, liver, egg yolks, fortified foods. Supplementation may be useful during the autumn and winter)
- Vitamin E – helps maintain healthy skin and eyes and strengthen the immune system (good sources – olive oil, nuts and seeds, wheat germ found in some cereals)

Long periods of strenuous exercise stress the body, therefore adequate energy, protein, vitamins and minerals are essential to health and performance, most athletes can meet Recommended Daily Intakes (RDI) through their diet. You should consume at least 5 portions of different fruit and vegetables a day – **Eat the Rainbow** – different colours of fruit and vegetables offer different benefits.

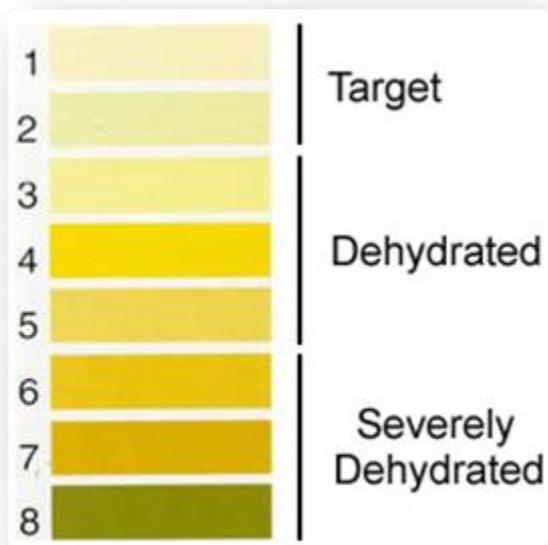
1 portion = 1 large piece (apple / banana) or a handful of smaller types (peas / grapes).

Water

No more than 2% of body weight should be lost during exercise therefore it is necessary to drink as close to sweating rate as possible. Water is stored with carbohydrate so it is essential that substantial amounts of fluids are drunk with meals and snacks.

As a general rule everyone should drink 2 litres (8 glasses) of water a day. For every hour of training / moderate-high intensity exercise completed during the day another litre of water should be consumed. Therefore a swimmer doing 2 hours of training a day should drink 4 litres of water a day.

Monitoring your “pee” If you are hydrated it should be pale in colour and lots of it. If it is bright yellow and a small amount you are probably dehydrated and need to drink more.



Hydration in Competition: In hot and humid indoor conditions dehydration can occur quickly. Fluid intake should be matched with fluid lost during competition. If properly hydrated prior to event a swimmer should need 200-500mls per hour to prevent dehydration.

Hydration in training

- **Before Exercise:** Ideally drink 500ml two hours prior to exercise and 125 – 250 ml immediately before to reduce the risk of dehydration. This may not be possible in early morning sessions. However athletes should ensure that some fluids are consumed, as the body will be dehydrated from the overnight fast whilst sleeping.
- **During Exercise:** Athletes should try and drink at regular intervals during training to reduce dehydration. A rough guide for 125 – 200ml to be consumed every 15 minutes. Athletes need to be careful as it is possible to drink too much.
- **After Exercise:** Fluid replacement should begin immediately after exercise; athletes should try to drink 600ml as soon as possible. Athletes should also try to keep sipping on fluids throughout the day in order to maintain the recommended ~ 2 litres of fluid outside of training.

Dietary supplements

There are many dietary supplements on the market and some can be useful in helping to increase carbohydrate energy in the form of sports drinks, bars and gels. Be aware of the potential risk of contamination with substances which can produce a positive drugs test – it is very difficult to tell! The Youth Sport Nutrition shakes that we have club discount for are Improved Sport Approved as are Science in Sport products.

Summary

- Carbohydrate is the main fuel and energy substrate during intense training programmes and thus, needs to make up the main part of the athlete's diet.
- A varied diet improves nutrient intake and absorption by interactions between vitamins & minerals. Encourage athletes to consume a range of foods with brightly coloured fruit and vegetables.
- Snacking around training is essential. A pre and post-training snack containing carbohydrates and protein needs to be prepared for in advance.
- It is important to ensure athletes are well hydrated during prolonged exercise, especially in hot environments as a 2% decrease in initial body weight has been shown to have negative effects on performance.
- Every athlete is unique. No two athletes will have the same nutritional demands or the same diet and hydration plan; therefore ensure that you do not compare athletes.

What to eat after training to recover

The muscles are most susceptible to restoration of carbohydrate stores within the first 30 minutes after exercise. Thereafter, the process becomes progressively more difficult. The swimmer should eat 50 to 100 grams of carbohydrate mixed with some protein whilst keeping fat ingestion low, as soon as training finishes, and definitely within the first 30 minutes after training.

Examples of appropriate snack foods:

- An apple, banana, grapes, melon, pineapple, mixed berries (other fruit)
- Cereal bar (aim for less than 5 ingredients)
- Rice pudding
- 500ml Home made fruit smoothie
- 1 thick Jam, Honey or Peanut butter sandwich (minimal butter)
- Tuna or lean meat sandwich (minimal butter)
- 2 slices of Malt Loaf (Soreen)
- Fig rolls
- Flapjack / granola bar (preferably homemade)
- Low fat milkshake 500ml and cereal bar or banana
- Cottage cheese and rice cakes / crackers
- Houmous and vegetable sticks / bread sticks
- 500ml low fat milk and cereal bar or banana
- Greek yoghurt and fruit or granola (low sugar)
- Low sugar, high fibre cereal with milk
- Scrambled / poached / boiled egg & toast
- Beans on toast
- Recovery shake with low fat milk / water

Other good snacks include dried fruit & nuts (not sugared or coated), rice cakes, popcorn, scotch pancakes, jaffa cakes, bagels, muffins (not chocolate and preferably homemade)

When doing morning training, swimmers should have a glass of fruit juice or water and a combination from the above list prior to training with a full, proper breakfast after training.

What to eat in competition

Time before race / event	Suitable food choices
2-4 hours	<p>High Carbohydrate / low fat meal that will release energy slowly, avoid foods high in sugar which release energy quickly</p> <ul style="list-style-type: none"> • Breakfast cereals (low sugar / high fibre) • Porridge • Toast / bagel with jam, honey, peanut butter, eggs, beans • Sandwich, wrap or pitta with lean meat / fish / salad • Crumpets with jam or honey • Jacket potato with beans, cottage cheese, tuna and salad • Pasta / rice / cous cous / noodles with vegetables and lean meat • Yoghurt with granola and fruit salad
1-2 hours	<ul style="list-style-type: none"> • Houmous and vegetable sticks / breadsticks • Cottage cheese and rice cakes / crackers • Half a sandwich / bagel / wrap / pitta with lean meat / fish / salad • Small portion of pasta / rice / cous cous / noodles with vegetables and lean meat • Yoghurt with fruit salad / small portion of granola • Small portion of cereal • Beef Jerky • Milkshake • Smoothie • Pancakes • Flapjack / granola bar
30mins – 1 hour	<ul style="list-style-type: none"> • Fresh Fruit • Dried Fruit • Cereal bars (with minimal ingredients) • Milkshake • Smoothie • Muffin (not chocolate) • Jaffa cakes / fig rolls • Hot cross bun / fruit scone / malt loaf • Flapjack / granola bar • Pancakes • Rice cakes / crackers • Popcorn (sweet & salt) • Rice Pudding • Nuts (not sugar coated and please adhere to any request of no nuts on poolside)
30mins or less	<ul style="list-style-type: none"> • Small banana or portion of grapes / melon (higher sugar fruit) • Water / squash / small juice • Jelly cubes or babies (4 or 5 pieces)