Nutrition for exercise

Why is eating the right food important?

It's very likely that you have seen tennis players eating bananas during a match or cyclists in the Tour de France gulping sports drinks or taking energy gels. The foods and drinks that athletes drink are all carefully planned to help them with their performance. We all need to eat a healthy, balanced diet with the right mix of carbohydrates, proteins and fats. When you exercise, your body needs extra energy because it's working harder. This helps to maintain your body weight, keep your bones strong, and maximise how well you train and perform. If you don't get enough energy in your diet, you will feel weak and tired, and you may be at an increased risk of illness and injury. It's also important to make sure that you stay well-hydrated when you exercise.

Foods that contain plenty of carbohydrate, for example, pasta, rice and potatoes are the key energy source for exercise. Carbohydrate is broken down into glucose, which is your body's main fuel. A small amount of glucose can be stored as glycogen in your muscles until it's needed, so eating enough carbohydrate before exercise is important to keep your supplies replenished. If you don't have sufficient glycogen, you won't have the energy to exercise to the best of your ability. You may also start to lose muscle mass, as your body will need to break down protein in your muscles to use as an alternative energy source.

How much energy do you need?

There are many different ways to work out your daily energy needs. One way is by working out your basal metabolic rate (BMR) – this is the number of calories you need to keep your body functioning properly when you're resting. A number of things affect your BMR, including your age and weight, and it will also go up at times when you're using more energy, for example, when you exercise or if you're pregnant.

You can work out how many calories you need each day by multiplying your BMR by your physical activity level (PAL). There are different methods for calculating these figures, but guidelines have been produced based on average weights and PALs. These are called the UK Dietary Reference Values and suggest a daily intake for 19 to 50-year-olds of 2,550 calories for men and 1,940 calories for women.

A simple way of working out how much energy you need is to add to or subtract from this figure depending on how much you exercise and what you're aiming to achieve – for example, you may be trying to lose excess weight or perhaps you want to build up your muscle strength.

Before exercise

What you eat before exercising will determine how much energy you have and how well you perform. Not eating the right foods may mean that you struggle to complete your workout and aren't able to do your best.

Ideally, eat a meal that contains plenty of carbohydrate three to four hours before exercising. This will increase both your blood glucose and your glycogen levels. Try to make sure that whatever you eat before exercising also contains a moderate amount of protein to help with

your recovery after exercise. Keeping it low in fat and fibre will help to prevent digestive problems, such as stomach pain and feeling sick.

If you're going to be taking part in particularly strenuous exercise, you may also wish to have a small snack one to two hours beforehand. Similarly, if you don't have much time before you start, you may prefer to eat something lighter. This should also be high in carbohydrate – you may find it useful to stick to foods that are higher in sugar as these are easier to digest and provide energy more quickly.

You may need to experiment with the timings of your pre-exercise meal and/or snack to make sure that you don't feel uncomfortable once you start exercising.

Below are some ideas for snacks and meals to have before you exercise.

Pre-exercise meals
Sandwich filled with chicken
Pasta with tomato-based sauce and vegetables
Baked beans on toast
Porridge made with skimmed or semi-skimmed milk
Pre-exercise snacks
Banana
Smoothie made with skimmed or semi-skimmed milk
Cereal or energy bar
Small carton of fruit yogurt

If you're taking part in a competition and planning on exercising for longer than 90 minutes, perhaps running a marathon or taking part in a long-distance cycle race, it's a good idea to follow a carbohydrate-loading programme. This involves reducing your training and increasing how much carbohydrate you eat in the final three days before the event. Aim to eat 8 to 10g of carbohydrate per kg of body weight.

During exercise

Eating during exercise helps to provide glucose to your working muscles, which stops you from getting tired too quickly and increases your endurance and performance. How much you need to eat depends on how long you're active for and is especially important when you're exercising continuously for more than an hour.

If you're doing intense exercise for over an hour, try to eat 30 to 60g of carbohydrate every hour. You can either get this from a sports drink or carbohydrate-rich food that is easy to digest, such as a cereal bar. Try to eat this in small amounts at intervals, rather than a lot all in one go. It's also important to drink water while you're exercising to prevent you from getting dehydrated.

The table below has some ideas for snacks during exercise.

Food or drink	Portion size providing 30g carbohydrate
Bananas	One to two (medium-sized)
Isotonic sports drink	500ml
Raisins	One handful
Cereal bar	One bar

After exercise

It's really important that you eat something soon after exercise to replenish your stores of glycogen. How much and when you eat will depend on how long and how hard you have been exercising, and when you plan to exercise next.

Try to eat within the first 30 minutes after exercising. Aim to eat about 1g of carbohydrate per kg of body weight every hour for up to four hours afterwards. For example, if you weigh 60kg you need to eat about 60g of carbohydrate. You may prefer to have this in the form of a high-carbohydrate drink if you don't feel like eating straight after exercising.

If you don't plan on doing your next workout for a day or so, ensuring your next meal contains plenty of carbohydrate should be enough to top up your glycogen stores. Including protein in whatever you eat after exercising may be beneficial because it helps to build and repair your muscle tissue.

Below are some ideas for snacks after you have been exercising.

Post-exercise snacks
One to two cartons of fruit yogurt
One sports bar (containing carbohydrate and protein)
Handful of dried fruit and nuts
Fruit smoothie

Vitamins and mineral supplements

In general, if you eat a healthy, balanced diet, you should get all the vitamins and minerals you need however, a lot of us due to busy lifestyles struggle to get these. I would be happy to give advice at a personal level after discussing and assessing your personal needs.

Action points

- Eat a meal that contains carbohydrate three to four hours before exercising.
- Eat a snack that contains carbohydrate one to two hours before exercising.

- Try taking in 30 to 60g of carbohydrate every hour during exercise sessions that last for longer than an hour.
- After exercising, eat a meal that contains plenty of carbohydrate and some protein to help top up your glycogen stores and repair your muscle tissue.
- Remember to keep hydrated when you exercise too.