

Exercise is almost as necessary for your body as food and sleep. Being physically active will help maintain a healthy body-weight and will improve stamina, strength and flexibility. Not only will you be physically fit, but you will also feel more alert and will have more energy for life. You don't have to be a professional football or tennis player to reap the benefits of being active. **All that is required is 60 minutes for children and teenagers, and 30 minutes for adults most days of the week.** This could be anything from a brisk walk to participating in a favourite sport.

FACTFILE NO.1

Your daily exercise requirement can be done in one session, or broken up over the day. Both are equally beneficial.

Getting Energy From Food.

There are three nutrients in food which the body can use as fuel for exercise; these are carbohydrate, fat and protein.

Carbohydrate is the most critical fuel source for exercising muscles and a sportsperson's diet should be very rich in it.

Fat can also be used as energy for exercising muscles. However, we cannot



ARE YOU PHYSICALLY ACTIVE?

run on fat alone, as our bodies are unable to burn fat if there is no carbohydrate available. A small percentage of energy will come from **Protein**, and it is usually reserved for emergency situations.

For instance, in a marathon, energy levels will be very low towards the end of the race and the body will start to use more protein as an emergency energy supply.

The body uses different ratios of these fuels depending on the type of exercise. The harder the exercise, the greater the amount of carbohydrate used. In fact, if you were to run a 100m sprint, your muscles would only burn carbohydrate. By slowing down the pace, or exercising for longer, the muscles will start to use fat as well as carbohydrate as a fuel source. This would be the case during a brisk walk or a game of netball or football. It is generally only when the body runs low on carbohydrate stores that a significant amount of protein will be used as a fuel source.

FACTFILE NO.2

As your fitness level improves, your muscles become trained to use a higher proportion of fat as fuel. This means less carbohydrate stores are used up and you will be able to exercise for longer before getting tired.

The Body's Fuel Reserves.

While tens of thousands of calories are stored as fat in adipose tissue, the body only has a limited supply of carbohydrate.

Carbohydrate is stored in the liver and in muscle, where it is referred to as glycogen. Most of us have less than 2,000 calories stored in glycogen reserves, and we use this supply going about our daily routines, even sleeping.

The more active one is, the faster these stores are used up and, when they are low, the body becomes tired. Starting exercise with low glycogen levels will lead to poor performance. Therefore it is important to eat plenty of carbohydrate foods to keep these levels topped up.

Adopting a higher carbohydrate diet can be easy.



FOCUS ON CARBOHYDRATE.

FACTFILE NO.3

Only a limited amount of energy is stored as glycogen.

However, the more you train the more glycogen can be packed into your muscles. This will continue until the glycogen store expands to reach its natural capacity.

Having obtained a good understanding of the main principles of nutrition for sport, you need to be able to put it all into practice. Knowing the theory is only half the battle. Being able to fit it in with everyday life is the other half.

How Much Carbohydrate and When?

In practice, all meals and snacks should be based around foods which are high in carbohydrates. **When planning a meal, think FIRST of a high carbohydrate food (such as bread or potatoes) and THEN work out what other foods to eat with it.**

Group 1 Main Energy Foods	Group 2 Quick Energy Boosters
Breads/baps/rolls Breakfast cereal Potato/pasta/rice Scones / crackers/ fruit loaf Carrots/parsnips/ peas/corn All Fruit Yogurt / yogurt drinks	Sweets/ confectionery Jelly Biscuits Chocolate Sports drinks
These foods should be used as the main source of energy. They are packed full of carbohydrate, as well as many other important nutrients.	These foods should only be used when a quick boost of energy is required. They contain little/no nutrients.

Eating BEFORE Exercise.

It is vital that glycogen reserves are as full as possible before training or a competition. To do this, have a high carbohydrate breakfast in the morning and your last meal should also be high in carbohydrate, 3-4 hours before setting off. A pre-exercise carbohydrate snack immediately prior to exercise has been found to be useful for some athletes.

What About DURING Exercise?

If you are going to be exercising over a long period of time, for example at tournaments or in competition, it is important to bring along plenty of small carbohydrate snacks to keep your glycogen levels topped up e.g. a large banana, a fruit scone, a sandwich, 2 oranges or a yogurt.

What Should I Eat AFTER Exercise?

If glycogen stores have been depleted after a hard training session, they must be replenished. This is a process called **refuelling**. The best time to start refuelling is as soon as possible, as glycogen storage is faster during the two hours immediately after exercise. If you delay eating carbohydrate after exercise, glycogen manufacture will be slower and it will take longer to refuel. Suitable post-exercise snacks are given in the table opposite. Including a protein rich food in your post-exercise snack will enhance glycogen repletion. Choose at least 2 immediately after exercise.

PUTTING IT ALL INTO PRACTICE.

FACTFILE NO.4

It takes up to 20 hours to completely replenish your glycogen stores after a hard training session or race.

FACTFILE NO.5

To increase muscle size, carbohydrate is the first nutrient to focus on. Carbohydrate provides energy to train, which stimulates muscles to grow.

Post-Exercise Snacks

- 1 large banana/other fruits
- 1/2 pint suitable sports-drink
- 2 fig rolls/wholewheat biscuits
- 1/2 jam sandwich
(1 slice bread with 1 tbsp jam)
- 1 fruit yogurt/yogurt drink
- 1 bowl breakfast cereal with milk

What About EXTRA Protein?

Protein is essential for growth, repair and maintenance of body tissue. Good sources of protein include:

**Meat / fish / chicken
cheese / eggs / peas / beans**

What About Vitamins and Minerals?

You need to eat either fruit or vegetables 5 times daily to ensure a sufficient intake of vitamins and minerals. For example **1 glass of fruit juice** at breakfast, **1 portion of fresh fruit** as a snack, **2 tablespoons of vegetables** at dinner and **salad** in a sandwich at lunch.

FACTFILE NO.6

Extra protein needs are easily met by consuming a balanced diet that meets energy needs.

Do Young Sports People Have Special Needs?

In general, intakes of calcium and iron can be poor and this may adversely affect health and sports performance.

Calcium:

Calcium is important for keeping bones strong and healthy so that they can cope with the stresses and strains that are put on them during exercise. You need to be aware of good bone health because after all, bones are the “tools of your trade”.

Very intensive training and not getting enough calcium in the diet may actually damage bones and put you at risk of Osteoporosis or Brittle Bone Disease in later life.

Remember, teenagers need 5 servings from the milk group and adults need 3 servings **daily**. One serving is:

- A glass of milk or
- A carton of yogurt or
- A matchbox sized piece of hard cheese

FACTFILE NO.7

The different variants of milk all contain the same amount of calcium.

CALCIUM & IRON

DO TEENAGERS HAVE SPECIAL NEEDS?

Iron:

A large number of girls have low iron stores which, in itself, may not be an immediate problem but can easily develop into Iron Deficiency Anaemia. Heavy training can lead to increased iron losses so taking a diet rich in iron is very important. Red meat and red meat products provide the most readily absorbed forms. Other sources include pulses, wholegrain cereals, fortified breakfast cereals, dark green vegetables, dried fruit such as figs and apricots, and eggs. Iron from these foods is not readily absorbed, but its absorption can be improved with vitamin C rich foods.

FACT FILE NO.8

Since Vitamin C rich foods help us to absorb iron from other foods, then fresh fruit, orange juice, vegetables and salads should be eaten at the same meal.

Am I Drinking Enough?

Being serious about sport means you need to focus on fluid. When exercising, the body generates heat which it must eliminate through sweat. Unless these lost fluids are replaced by drinking, you run the risk of becoming dehydrated, which can cause fatigue and impair performance.

It is important that fluids are taken regularly before, during and after exercise. Suitable drinks include water, diluted fruit juices and sports drinks. Aim to have 100-150 ml (one small glass) every 15 minutes during exercise. You can make your own drinks using the recipes below.

HOMEMADE ISOTONIC SPORTS DRINKS

- 250mls squash / cordial (concentrate)
 - 750mls water
 - Pinch salt (1g)
 - Mix together & chill
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- 60g glucose
 - 1 Litre water
 - Pinch salt (1g)
- Mix together & chill

FACTFILE NO. 9

Don't wait until you are thirsty to have a drink. By that time it may be too late and dehydration may have already set in.



YOUR DAILY MEAL PLAN.

BREAKFAST IDEAS

Any breakfast cereal with milk
Fruit / fruit juice

Yogurt
Toast / scones / muffins and jam or marmalade

THE LUNCH BOX

Any roll / bap / bread filled with cheese / egg / ham / tuna salads

Try pitta bread / wraps / bagels / cold pizza / pasta or rice salads for a change from the ordinary

Include fruit / fruit juice with milk or yogurt for a complete lunch

DINNER MENU

Fill up on potatoes / pasta / rice / noodles / tortillas.
Have with meat / fish / egg / cheese / peas / beans,
Add plenty of vegetables or salad.

DESSERTS

Fruit / yogurt
Fruit crumbles with custard / yogurt
Milky hot chocolate
Plain biscuits

SNACK SUGGESTIONS

Cereal with milk
Bagels with banana
Toast with peanut butter
Yogurts
Cheese on crackers
Plain biscuits
Cereal bars
Fruitcake / banana cake / gingerbread