



European Powerlifting Federation

NUTRITION - FUELING YOUR SPORT

It is common knowledge that poor diet is a decisive factor in many conditions and diseases, including obesity, certain types of cancer and heart disease. The link between good health and good nutrition has been well established, and interest in nutrition and its impact on sporting performance is now a science in itself. Whether you are a competing athlete, a weekend sports player or a dedicated daily exerciser, the cornerstone to improved performance is a well balanced diet.

Daily requirements

the basic training diet should:

Provide adequate energy and nutrients to meet the demands of training and exercise.

- Include a wide variety of foods like wholegrain breads and cereals, vegetables
- (particularly leafy green varieties), fruit, lean meat and low fat dairy products.
- Enable the athlete to achieve optimal body weight and body fat levels for performance.
- Promote a quick and full recovery during exercise.
- Provide adequate fluids to ensure maximum hydration.
- Consider both the short and long term health of the individual.

An athlete's diet should be similar to that which is recommended to the general population. Energy intake should be divided into:

- More than 55 per cent from carbohydrates
- About 12 to 15 per cent from protein
- Less than 30 per cent from fat.

Athletes who exercise strenuously for more than 60 to 90 minutes daily may benefit from increasing the amount of energy they derive from carbohydrates to 65 to 70 per cent of energy intake. The World Health Organisation states that athletes can comfortably consume up to 35 per cent of energy from fat without compromising performance. Some sports nutritionists have recently suggested that extra fat in an athlete's diet may improve performance for endurance events - this is a new area of thought and is currently not widely recommended or practiced.

Carbohydrates

Foods rich in carbohydrate, particularly unrefined carbohydrates like wholegrain breads and cereals, should form the basis of the diet. More refined carbohydrate foods - such as white bread, jams and lollies - are useful to boost the total intake of carbohydrate. During digestion, all carbohydrates are broken down into a simple sugar, called glucose.

Glucose is the body's primary energy source and is delivered to every cell via the blood. Excess glucose is converted into a substance called glycogen and stored in the liver and muscle tissue. Once glycogen stores are full, glucose is stored as fat, however, this storage process requires a lot of energy.

Glycogen

Glycogen is the most important energy source for the body during exercise.

When you exercise, the glucose present in the blood is used as an energy source. The body converts the stored glycogen back into glucose in order to fuel the exercising muscle tissue and other body systems. Athletes can increase their stores of glycogen by regularly eating high carbohydrate foods. This is particularly important for athletes who exercise strenuously for more than 60 to 90 minutes daily.

If carbohydrate in the diet is restricted, a person's ability to exercise is compromised due to poor glycogen storage. This can result in a loss of protein tissue (and muscle), as well as urinary loss of essential ions, such as potassium.

Glycaemic index

The glycaemic index (GI) ranks carbohydrate-rich foods based on their rate of digestion and absorption. Moderate to high GI foods can efficiently deliver carbohydrate to the body during exercise and recovery. This is why they are increasingly used by sportspeople. However, it is generally recommended that the bulk of the carbohydrate consumed in the overall diet should have a low glycaemic index.

Eating should be tailored to maximise the performance of the particular sport in which the individual is involved. The type and timing of food eaten are often specific for different sports and different individuals.

Pre-event meal

A high carbohydrate meal three to four hours before exercise is thought to have a positive effect on performance. A small snack, one to two hours, before exercise may also benefit performance. Some people's blood glucose levels may react negatively to eating close to exercise - it varies between individuals.

The pre-event meal should be easily digestible, high carbohydrate, low fat, low fibre and known not to cause gastrointestinal upset. Examples of suitable pre-competition snacks include fresh fruits and juices, muesli bars (without the chocolate coating), bread, toast, cereal with low fat or skim milk. Contrary to popular belief, consuming sugary foods or drinks just before a sporting event doesn't give your energy levels an immediate boost.

Eating during exercise

If exercise lasts longer than 60 minutes, it might be a good idea to eat some source of carbohydrate during exercise to top up blood glucose levels and delay fatigue. Low fat and low fibre food choices of a high glycaemic index, such as lollies (without chocolate) and sandwiches made with white bread, are ideal in these situations. Sports drinks and very diluted cordial or fruit juice offer the benefit of delivering both carbohydrate and fluid to the body.

Eating after exercise

To top up glycogen stores after exercise, the best foods to eat are carbohydrates with a moderate to high glycaemic index. This is best done in the first half hour or so after exercise. This should then be followed by foods high in carbohydrate, with a low glycaemic index. Exercise should be avoided during recovery.

Protein

Protein is an important part of a training diet. It plays a key role in post-exercise recovery and repair. Protein needs are generally met by following a high carbohydrate diet, because many foods - especially cereal-based foods - are a combination of carbohydrate and protein.

The amount of protein recommended for sporting people is only slightly higher than that recommended for the general public. For example:

- General public and active people - the daily recommended amount of protein is 0.75gm per kg of body weight (a 60kg person should eat around 45gm of protein daily).
- Sports people involved in non-endurance events - who exercise daily for less than 60 minutes: daily protein intake should be between 0.75 to 1.0gm of protein per kg of body weight per day.
- Sports people involved in endurance events and strength events - who exercise for longer periods (more than one hour) or who are involved in strength exercise, such as Powerlifting, should consume about 1.24 to 1.7gm of protein per kg of body mass.
- Dietary surveys have found that most athletic groups comfortably reach and often exceed their protein requirements by consuming a high energy diet. Despite this, protein and amino acids (the building blocks of protein) are popular nutritional supplements.

Ektomorph = lean type (high energy user) 50 – 60 % carbohydrate, 25 – 20 % protein, 25 – 20 % fat

Mesomorph = muscularly type, (normal energy user). 40 – 50 % carbohydrate, 30 – 25 % protein, 30 – 25 % fat

Endomorph = tendency to over weight (low energy user) 30 – 40% carbohydrate, 40 – 35 % protein, 30 – 25 % fat

Water

heavy sweating depletes the body of water. Dehydration can impair athletic performance and, in extreme cases, can lead to collapse and even death. Drinking plenty of fluids before, during and after exercise is very important. The thirst mechanism should not be relied upon as a reliable indication to drink.

Following exercise, you should drink 500ml of water for every 0.4 to 0.5kg of weight lost during exercise. Fluids are especially important in warm and humid conditions. Water is the preferred fluid in most situations. Sports drinks may be useful in ultra-endurance events (greater than 90 minutes) or when a quick recovery is necessary. If you prefer taking commercially prepared sports drinks, make sure that they are low in sodium - no more than about 30mmol (millimoles) per litre. Sodium can interfere with glucose getting into the cells and may exacerbate dehydration.

Pregnant women, children, adolescents and the elderly should pay particular attention to their fluid intake.

The use of salt tablets to combat muscle cramps is no longer advised, since it is lack of water - not lack of sodium - which affects the muscle tissue. Persistent muscle cramps might be due to zinc or magnesium deficiencies.

Things to remember

- Good nutrition can enhance sporting performance.
- Carbohydrate should form the basis of the diet.
- Athletes can increase their stores of glycogen by regularly eating high carbohydrate foods.