

NUTRITION FOR DISTANCE RUNNING

Distance runners compete over a variety of race lengths, most commonly 10km, 15km, half marathon (21.1km) and the marathon (42.2km). While there is a 10 000m track event, most distance running is done as road races or cross-country runs. Ultra-distance races such as 50 mile, 100km, 100 mile and 24 hour races are also becoming increasingly popular.

Training

Elite distance runners will typically train 6-7 days a week, often twice a day, with weekly training loads of up to 160-200km/week, depending on their phase of training and the events they are targeting e.g. 10km Vs marathon. Training may include speed/interval/threshold sessions, 1-2 longer runs, as well as easy/recovery runs. Some runners will also do strength/core work in the gym.

Competition

Elite runners will compete in a number of races of varying distances each year, with a few key races being chosen for full preparation and peaking. They may compete weekly over a season of road races (summer), or cross-country runs (winter), treating many of these as hard training sessions. Marathon runners are unlikely to compete more than once or twice in a year over this distance.

Distance running is predominantly an aerobic activity, with elite male athletes running from well under 30 minutes for 10km, to just over two hours for the marathon.

Physical Characteristics

Most elite runners have low total body weights, being small in stature and lightly muscled, particularly in the upper body. These physical traits are important given they have to carry their body weight over many kilometres. Distance runners also typically carry very low body-fat levels.

Common Nutrition Issues

Fitting in the fuel

Many elite distance runners will combine full/part time work or study with their training commitments. This, combined with the large volume of training undertaken, can make it difficult for athletes to meet their daily fuel (carbohydrate) requirements. A poorly planned diet and/or one that places too much emphasis on protein rich or high fat food choices will result in inadequate repletion of muscle glycogen stores. This may have a negative impact on training performance and recovery, especially if this period of inadequate refuelling goes on for long periods of time.

The runner's carbohydrate intake should reflect their daily training load i.e. more for harder training days, less on easy/recovery days. A useful strategy is to establish a dietary routine which emphasises nutrient dense carbohydrate rich foods that meets the fuel demands on an easy training day. On heavier loading days, where fuel requirements are increased, additional carbohydrate rich foods can be orientated around training to enhance performance during or recovery after the session. For example, consuming sports drink/gels during a long run and a carbohydrate rich snack soon after finishing.

Optimising recovery

Running will not only challenge the runner's carbohydrate stores, but also cause some damage to muscle fibres, which will delay recovery. Strategic intake of carbohydrate rich food soon after training will enhance the rate of muscle glycogen repletion and make it easier for athletes to consume enough carbohydrate before their next training session. This is especially important when they are undertaking two training sessions/day. Including a small serve of protein at this time may further enhance the recovery process, as well as promote more positive adaptations from the session. These recovery goals can be met by consuming a regular meal e.g. bowl of cereal, or if training/racing away from home, a portable, non-perishable snack e.g. liquid meal supplement, can of creamed rice.

Fuelling early morning training

Many runners will train early in the morning, either out of habit or simply due to other commitments, making it difficult to consume any food/fluid prior to the session. The decision on whether to consume any carbohydrate rich food/fluid at this time should be guided by the type of training being undertaken. If doing a quality session e.g. intervals, the athlete should aim to maximize carbohydrate availability with intake of an easily digested carbohydrate rich snack e.g. toast with honey, or fluid before or consume carbohydrate e.g. sports drink/gel, during the session. If, however, the goal of the run is simply to put "miles in the legs", some water before and during may suffice, and may even enhance the physiological response from the session.

Iron Deficiency

Distance runners, particularly females, are at a high risk of low iron status secondary to both increased losses e.g. in sweat, from gastrointestinal bleeding, red blood cell damage, and/or poor intake of iron rich foods. The latter is particularly a concern for "fussy meat eaters" or those on an energy restricted diet.

Unfortunately, it is becoming increasingly common for athletes to self-prescribe iron supplements in the belief it may provide a performance edge or to counter the feelings of fatigue associated with the heavy training loads. However, athletes need to be aware that supplementation will only be of benefit when a recognized deficiency exists. Indeed, excess iron intake may compromise immune function and in susceptible individuals, lead to iron overload or haemochromatosis (See factsheet on Iron).

Gastrointestinal Problems

Many runners report gastrointestinal problems e.g. stomach cramps, diarrhoea, during hard runs, particularly races. The cause of these problems is largely unknown, but it seems to be related to the intensity of the running, the stress of competition, hydration status, or the type and volume of food consumed before the run. Often, it is best to run on an empty stomach, with the pre-race/training meals eaten well in advance. If this is not practical e.g. early morning session/race, a sports drink or gel taken before or during the run may be advisable. Choosing low fibre foods and/or replacing meals with liquid meal supplements the day before hard training sessions or important races may also help alleviate concerns.

Race day fluids and fuel

The goal of food and fluid intake prior to racing is to top up fuel stores and optimise hydration status. Therefore the foods and fluids consumed should be ones that are rich in carbohydrate and low in fat, fibre and protein. Some practical examples may include toast/plain muffins with jam or honey or pancakes/pikelets with maple syrup. Liquid meal supplements provide a compact and quickly digested alternative to solid food in situations where time is scarce or pre-race nerves are a problem.

Fuel and food requirements during the race will depend on a variety of factors including the race distance, the adequacy of the pre-race meal, as well as the environmental conditions. For events up to the half marathon, provided the athlete consumed an adequate pre-race meal, there is little benefit in consuming additional carbohydrate during the race. Race nutrition strategies need only focus minimising the level of dehydration. While elite runners will typically finish these races with a fluid deficit, they should still aim to minimise the extent of this by implementing their own individualised hydration plan (See Hydration fact sheet).

For the marathon, athletes will need to be more aggressive with their intake of fuel and fluids, both in the lead up and during the race itself. In the two days before the race, they should undertake a carbohydrate load to help “super compensate” muscle glycogen stores (see Carbohydrate Loading fact sheet), as well consume a carbohydrate rich pre-race meal.

During the race, they should look to create opportunities to have regular access to fuel and fluids. Sports gels provide a compact source of carbohydrate that runners may easily carry with them while running or have at “special needs” stations located at various points along the race course. Sports drinks and cola also provide an opportunity to top up fuel stores, while simultaneously providing a fluid to help minimise the fluid deficit, which in a marathon can be substantial. It is important that athletes practice their fuel and fluid strategies in lead up races/hard training sessions to assess tolerance when consuming these products ‘on the run’.

This fact sheet is based on AIS / National team athletes and is therefore specific to these athletes. Written by AIS Sports Nutrition, last updated May 2009. © Australian Sports Commission.