

Enhance a Marathon Runner's Performance

Nutrition Pre

Nutrition is well planned eating practices that help athletes maximise training effects, maintain health, reduce the risk of injury and sustain peak performance. Nutrients build and maintain body cells, regulate body functions and provide energy.

Importance

Marathon runners often prefer to run on an empty stomach to avoid gut discomfort, however pre nutrition strategies are vital to achieving a successful training outcome.

Dietary strategies influence an athlete's performance such as fluid balance, availability of carbohydrate for fuel and lactate accumulation from anaerobic efforts. Increasing and/or supplementing muscle fuel stores before and during a race will assist in marathons to offset the depletion of stored carbohydrate (glycogen).

Training

An athlete's carbohydrate intake should be based on their daily training load (increasing carbohydrate and energy intake during high intensity days and decreasing intake when volume and intensity are reduced). Strategic intake of carbohydrates soon after training will aid rapid muscle glycogen repletion, particularly if training twice on the same day. Including protein rich foods throughout the day assists to rebuild muscle protein and red blood cells as part of the repair and adaptation process.

Frequent demanding endurance training sessions require sufficient fuel and recovery strategies to manage fatigue and to optimise training adaptations.

Advantages and Disadvantages

Advantages

- Provides fuel and energy for maximum performance
- Carb loading boosts muscle glycogen as the stomach is unable to digest much volume during the race as blood redirects away from the stomach and towards active muscle

Disadvantages

- Unable to consume much nutrition during the race as blood flow redirects away from the stomach to active muscles
- Small deficits in nutrition compound over time and can cause significant issues if undetected

How and When

Recovery Fueling:

Carbohydrates, nutrients, protein and fluids (throughout training).

Top Up Nutrition:

Carbohydrate loading (only for race day preparation).

A marathon runner would use this type of nutrition prior to completing the event. Consuming foods rich in carbohydrates approximately one hour before the race, and a sugary fluid (juice) approximately half an hour before the race, can provide a top up to muscle glycogen.

CARBOHYDRATES

- Gels
- Chews
- Sports Drinks
- Fruit

**200-300
CALORIES
PER HOUR**

PROTEIN & FAT

- Energy Bars
- Nuts
- Beef Jerky
- PB&J

Race Preparation

Marathon runners should carbohydrate load over the 24-48 hours before the event to increase muscle glycogen stores, improving fuel availability during the event. Consuming low fibre foods, reducing high protein or high fat foods and using compact liquid carbohydrate foods over the last 12-24 hours before the event can help to reduce the risk of stomach upset during the race.

Some pre nutrition foods include:

- Muesli bar
- Peanut butter
- Toast
- Banana and honey
- Rice
- Pasta

Essentials

Marathon running has a high reliance on the aerobic energy system, however, anaerobic efforts are also required for surges, hills or a sprint finish.

The main factors causing fatigue during competition are fuel (carbohydrate) depletion and dehydration. Storage of adequate muscle fuel (glycogen) is required to ensure runners can complete the events at their preferred intensity.

Fluids

Distance runners should aim to drink enough fluid each day to replace losses. Fluid needs are influenced by factors such as temperature, sweat rate, exercise intensity, duration and altitude. It is not necessary to replace all fluid losses during the race, but rather aim to replace approximately 150% of the fluid lost over approximately 4-6 hours following the competition.

PRE-RACE CARB NEEDS

4 HOURS PRIOR TO RACE

Foods like oatmeal, yogurt, banana, raisins, juice, and water (140g)

1

2 HOURS PRIOR TO RACE

Foods like toast with jelly and a sports drink (75g)

2

45 MINUTES PRIOR TO RACE

Energy gel or chew and water (25g)

3



Enhance a Marathon Runner's Performance

Nutrition Post

Nutrition is well planned eating practices that help athletes maximise training effects, maintain health, reduce the risk of injury and sustain peak performance. Nutrients build and maintain body cells, regulate body functions and provide energy.

Importance

Refueling after a marathon is as important as nutrition during training and before a marathon. Some foods can restore muscle and bone strength and reduce inflammation better than others.

Recovery

It is important to eat foods and drink fluids that contain carbohydrates, protein and electrolytes within the first 30 minutes after the marathon. Refueling immediately after a marathon provides the building blocks that are a key part of the process that repairs what was damaged during the race. A quick recovery from immediate refueling will allow you to recover faster in the days and weeks following the race.



Essentials

Long distance races deplete glycogen storage which means refueling with carbohydrate-rich foods soon after finishing will help to optimise recovery. Recovery should further include healthy fats to reduce inflammation, fluids to rehydrate and replace sweat losses and nutrient rich foods to increase energy levels.

Fluids

Distance runners should aim to drink enough fluid each day to replace losses. Fluid needs are influenced by factors such as temperature, sweat rate, exercise intensity, duration and altitude. It is not necessary to replace all fluid losses during the race, but rather aim to replace approximately 150% of the fluid lost over approximately 4-6 hours following the competition.

Bibliography

- Australian Institute of Sport n.d., Recipes, viewed 7 July 2021, <<https://www.ais.gov.au/nutrition/recipes>>
- Better Health Channel n.d., Sporting Performance and Food, viewed 3 August 2021, <<https://www.betterhealth.vic.gov.au/health/HealthyLiving/sporting-performance-and-food>>
- Human Kinetics Journals n.d., Dietary Supplements and the High-Performance Athlete, viewed 22 July 2021, <<https://journals.humankinetics.com/view/journals/ijsnem/28/2/article-p104.xml>>
- Human Kinetics Journals n.d., Energy Deficiency in Sport, viewed 29 July 2021, <<https://journals.humankinetics.com/view/journals/ijsnem/28/4/article-p316.xml>>
- Medicine & Science in Sports & Exercise n.d., Exercise and Fluid Replacement, viewed 15 July 2021, <https://journals.lww.com/acsm-mse/Fulltext/2007/02000/Exercise_and_Fluid_Replacement.22.aspx>
- Medicine & Science in Sports & Exercise n.d., Nutrition and Athletic Performance, viewed 15 July 2021, <https://journals.lww.com/acsm-mse/fulltext/2016/03000/Nutrition_and_Athletic_Performance.25.aspx>
- Sports Dietitians Australia n.d., Distance Running, viewed 3 July 2021, <<https://www.sportsdietitians.com.au/factsheets/food-for-your-sport/food-for-your-sport-distance-running/>>

Advantages and Disadvantages

Advantages

- Refueling immediately after a marathon will optimise your recovery
- Consuming foods and fluids post marathon will help rebuild muscles and bones that were damaged during the race. It will build them back stronger, increasing your strength for the next run

Disadvantages

- Failing to fully recover from a marathon with the correct nutrition will increase the risk of injuries
- You must be careful not to over refuel your body with more nutrients than it needs, as it will store any excess as fat. If this happens after every run, your body will continue to store the fat, over time resulting in an increase in weight

How and When

Recovery Fueling:

Carbohydrates, nutrients, protein and fluids (after race).

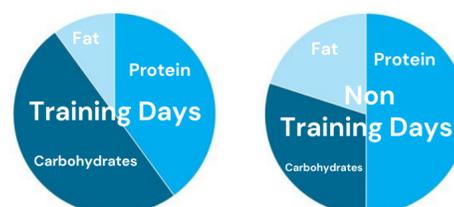
A marathon runner would use this type of nutrition after completing the event. Consuming foods rich in carbohydrates will provide the basis for your body's recovery.

Race Recovery

In combination with the main foods for refueling, sports drinks are a quick and easy way to replace lost nutrients and light foods to replace low blood sugar levels. A glass of milk and milo provides a broad range of nutrients including protein, carbohydrates, vitamins, minerals and electrolytes.

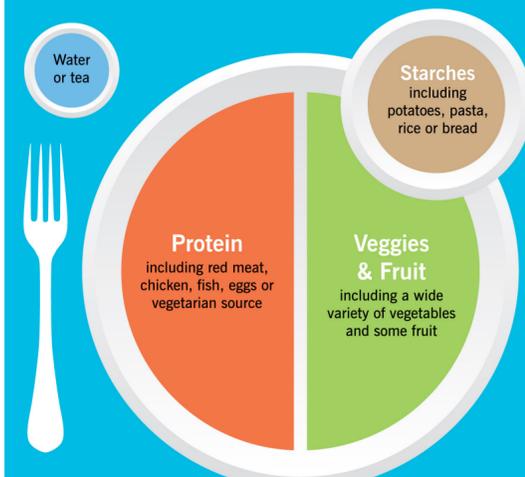
Some post nutrition foods include:

- Tuna, avocado and salad sandwich
- Eggs on toast with vegetables
- Yoghurt with muesli, nuts and fresh fruit



Post Workout Meal

Your first meal after an intense workout



- Eat your largest meal of the day after exercise.
- Eat more vegetables than fruit with this meal.
- Choose mostly whole foods with minimal processing.
- Choose local or organic foods when possible.
- Use smaller or larger plates based on your own body size.