

The basics of nutrition is to stay healthy!

If you are not healthy, you cannot perform! It is as simple as that! This doesn't mean sport or exercise; it means everyday life – productivity and well-being. For the time being, this isn't a "clinical" section about nutrition and disease, but the practical information you need to stay fit, healthy and full of energy everyday.

Tips to control appetite

Many of us are hardwired to consume excess calories when they are around us in abundance. Thousands of years ago, when man hunted for food, this was a vital behaviour to get through periods when food was sparse. In the modern era, the array of biochemical signals sending messages to the brain that influence appetite cause havoc when it comes to weight management. If only it was as simple as: nutrient depleted – increase appetite – eat – feel full – stop eating!

Below are our top tips to help control appetite:

- Eat a quality breakfast every day (eggs, Greek yoghurt with nuts, cottage cheese, smoked salmon, rye bread)
- Eat protein at all meals, but especially at breakfast
- **Avoid refined carbohydrate** only meals and snacks such as a bowl of pasta, chips, cereal, chocolate, crisps, biscuits and cakes
- Get your calories and nutrients from solid foods rather than liquid based meals or drinks
- Start lunch or dinner with a salad or eat an apple whilst you're waiting for your food
- Drink at 2-3 litres of water a day
- Eat plenty of fruit and vegetables at every meal
- Eat raw vegetables as a snack (carrot sticks, sugar snap peas, courgettes, peppers, celery)
- Eat a diet that is high in fibre – include regular portions of whole grains, beans, pulses, fruit and vegetables
- Eat Slowly and chew your food properly
- Avoid getting distracted during meals times such as eating in front of the television
- Sleep for at least 7 hours a night and get adequate rest when required

Gold, silver & bronze snacks...

Snacks form an important part of your daily food intake and require just as much attention as the rest of your diet. This is one of the easiest areas to make significant improvements.

Ideally, protein (20-30 g) should form the basis of your snacks with the addition of some low glycaemic index carbohydrates, vitamins and minerals. At least one snack a day should contain a variety of fruit and vegetables.

Avoid sweet treats and snacks high in trans fat where possible. These include chocolate bars, muffins, crisps and biscuits. Below is a guide to choosing your snacks. Gold choices are what you should be striving to integrate into your diet whilst using Silver and Bronze choices for the occasional treat.

GOLD snack choices

- **1 small pot low-fat cottage cheese on Ryvita® or oatcakes.** Oatcakes provide low-GI carbohydrate and fibre. Cottage cheese is a good source of protein.
- **1 small pack of Beef Jerky/Biltong.** This is an excellent high protein snack. Chewing it also keeps you busy! Be careful not to choose flavoured Jerky as these often have added sugar and salt.
- **Hummus with celery, carrots, peppers, broccoli, cauliflower.** Chickpeas in Hummus contain protein whilst the vegetables are excellent sources of vitamins, minerals and low-GI carbohydrate.
- **Mixed nuts and seeds.** Brazil, Almonds, Walnut, Cashew, Pecan nuts are all great options. These provide a source of protein and a variety of vitamins and minerals. Use one handful as a portion size.
- **Apples or pears.** Apples are a source of soluble fibre and contain antioxidants and vitamin C. Pears are high in potassium and also a good source of fibre. The relatively low sugar content of these fruits makes them a great choice for people looking to lose weight or control appetite.
- **Low fat Greek Yoghurt (Total® yoghurt).** This is a great low-fat, low-calorie snack that still provides some protein and is very versatile. You can add cinnamon, nuts, seeds, berries or oats to match your dietary goals.

SILVER snack choices

- **Nut butter (Whole Earth®, Meridian®) spread on oatcakes.** Nut butter (peanut, almond, cashew) is filling and packed full of good fats. Avoid cheap varieties, butters containing palm oil and sunflower seed butter.
- **Fresh fruit (tropical fruits, ripe bananas, peeled fruits) and dried fruits.** Tropical fruits have a higher GI than apples and pears. Whilst they still contain plenty of vitamins and minerals, they lack the fibre found in many other fruits.
- **Low-fat rice pudding pots.** Under 200 kcal, a source of calcium and packed with low-GI carbohydrates makes this very convenient pudding a good snack choice, particularly if you have exercised during the day.
- **Yoghurt.** Yoghurts are a great source of calcium and many other vitamins and minerals. Be aware that many types of yoghurt are packed with sugar. Choose yoghurt that is low in sugar and higher in protein and fibre.
- **Cereal bars.** Some cereal bars are no better for you than a chocolate bar! Don't be fooled into thinking these are always a great option. Some of the better choices are 9 Bars®, Eat Natural® bars, Nakd® bars, Raw® bars and Tracker® bars.

BRONZE snack choices

If you are after a treat or you can't quite make the leap straight to the GOLD snack choices, these are better choices than your typical chocolate bars, cakes, biscuits, pastries and crisps. Avoid eating more than one portion a day from this list.

- **Oatmeal cookies.**
- **Savoury popcorn (Tyrrells®)**
- **Tortilla chips**
- **Snack a Jacks®**
- **Dark Chocolate**
- **Fruit Bread**
- **Chocolate milk**
- **Instant porridge sachets**

Tips for constipation

There are numerous causes of constipation, poor nutrition being just one of them. Identifying possible causes will contribute to addressing and solving the problems however, nutrition can be a very effective strategy in relieving the symptoms of constipation.

Dietary factors influencing constipation include a lack of dietary fibre, poor hydration, or a lack of foods containing a high percentage of water in the diet. Additional causes include the side effects of some medications, stress, and/or a lack of exercise

Strategies:

Drink plenty of fluids

- Start the day by drinking 300 ml or a pint of water.
- Drink fruit teas, squash or water at every meal.
- Aim to drink 2-3 litres of fluid a day (this can include tea and coffee).
- Include fruit, soups, smoothies and juices in your diet.

Eat foods high in fibre

- Fibre cannot be digested but helps food pass through the intestine more easily.
- Focus on foods containing insoluble fibre although many contain a mixture of soluble and insoluble.
- Gradually increase the fibre in your diet over the course of several weeks (bloating and gas can occur if you increase the fibre in your diet too quickly).
- Maintain the natural fibre content of your vegetables by eating them raw or cooking them for only a couple of minutes, leaving their skin on.
- In general, if a plant food (no animal products contain fiber) seems rough, stringy, has a tough skin, peel, pod, or seeds, it's likely to be very high in insoluble fiber.

Foods high in insoluble fibre (add these to your diet SLOWLY)

Beans	Seeds	Green leafy vegetables
Wholegrain cereals (>8 g of fibre per serve)	Nuts	Wholegrain bread
	Raw fruit with peel	Brown rice
	Flaxseed	

Foods to limit in your diet

Fruit juice	White bread and pasta
Overcooked vegetables	Sugary treats
Peeled fruits	White rice
Whole milk	Ice cream
Full fat cheese	Fatty meats (cut all visible fat off)

Find out about the latest Information on Supplements you need to know about.

Friend of Foe? In our opinion, friend... **but it is about making the right choice** for the right situation. Food is what you build your foundations on, with products and supplements used to help refine.

This section is where you will find all the practical information you need to make your own informed decision as Ballymena Runners cannot accept responsibility for any decisions on nutrition or supplements you may choose.

Coconut Oil

Many of us have been taught to avoid saturated fats in our diet as much as possible. Implicated in the clogging up of arteries, the development of bad cholesterol and the general promotion of disease. That all sounds rather bad news but are we missing a trick here? The debate is lengthy and complicated but the bottom line is – YES we are. As the latest research starts to unravel the cause and effect relationship between saturated fat and disease emerging research suggests that some saturated fats are actually beneficial. One saturated fat that may actually contribute to a healthy diet is coconut oil.

Coconut oil contains in high percentage of Medium Chain Triglycerides (MCT), which means they have the advantage of being very easy to digest. This reduces the likelihood of them getting stored as fat. Coconut oil also contains a high concentration of Lauric acid that has antibacterial properties that may help to support the immune system during heavy periods of physical and psychological stress.

Ways to use coconut oil:

- Use it in replace of cooking oil for frying – it's great in stir-frys
- Use it in replace of butter in baking
- Add a spoonful to smoothies after heavy endurance exercise

Cautionary points:

- Coconut oil is still a fat that contains calories. Use it to replace existing saturated fats in your diet – not in addition to them
- Coconut oil has a distinct flavour that can be an acquired taste!
- Select an organic extra virgin coconut oil – some brands contain added trans-fats

At this stage, research into the health claims of coconut oil is positive but limited. Whilst it won't cause any harm, coconut oil should be used as a replacement for less healthy saturated and trans fats in the diet but not in addition to these.

Beta-Glucans

Prolonged exercise or heavy training causes numerous changes in immunity and can increase the risk of infections. Nutritional supplements designed to reduce the occurrence of these infections have become increasingly popular over the last few years. One of the most promising nutritional supplements is β -glucan.

β -glucan is a polysaccharide that is found in foods such as oats, barley, mushrooms and yeasts. β -glucans vary in structure, biological activity and ability to prevent or reduce incidence of illness or infection. The majority of research over the last decade has been carried out in animal models however, emerging research has found that β -glucans are effective at modulating the immune response in adults and athletes. The origin and properties of the β -glucan is a key factor in its effectiveness however, oral ingestion of β -glucans in a supplement form has proven to be effective.

It is proposed that β -glucans activate and strengthen the immune system by influencing the white blood cells called macrophages that literally devour bacteria, foreign cells, dead and dying cells, and other invaders in our bloodstream. These are the most important cells in our immune system. β -glucan supplementation activates these cells, making them more powerful and effective in attacking and consuming any foreign invader.

A study in the *Journal of Sports Science and Medicine* by Talbott (2009) investigated the effects of 4 weeks of supplementation of β -glucans from the yeast *Saccharomyces cerevisiae* on mood and upper respiratory tract infection in 75 runners, 4 weeks following a marathon. Overall, the incidence of upper respiratory tract infection and mood was significantly better in the supplement group compared to the placebo group.

A study in the *European Journal of Applied Physiology* by Bergendiova and colleagues (2011) investigated the effects of β -glucan from *Pleurotus ostreatus* on immune response in athletes. In this double blind, placebo controlled study, 50 athletes took the supplement for 3 months whilst incidence of upper respiratory tract infection and cellular immune function were monitored. The research showed that supplementation reduced the number of infections and increased the number of circulating Natural Killer cells. The authors suggested that daily supplementation of β -glucan may be beneficial for athletes undertaking heavy training phases. Unfortunately, more research is required to understand the mechanisms involved.

There is no doubt more research is required to uncover the exact mechanisms involved in the modulation of the immune system following supplementation however, the growing body of research demonstrating the health benefits are promising. This is an emerging supplement worth keeping an eye on!

A Word on Gels

Sports Gels are very popular amongst endurance athletes. Many recreational and professional athletes find that they prefer gels over bars or sports drinks because they are convenient to carry, easily digested and do not cause gastrointestinal problems during exercise. There is research to demonstrate that energy gels help to increase endurance performance. However, there is still debate as to the beneficial effects of additional ingredients such as B vitamins and caffeine on endurance performance.

What are Gels?

Energy gels are a concentrated form of carbohydrate in a gel-like consistency. They are designed to provide a quick source of fuel in a convenient form. They typically contain 25-30g carbohydrate and come in a variety of flavours.

What do they contain?

All gels contain carbohydrates with no fat, protein or fibre. Some brands choose to add electrolyte, caffeine and vitamins to their ingredients.

Who uses Gels?

Many athletes, but in particular, endurance athletes such as runners and cyclists use energy gels as a convenient method to replenish depleted carbohydrate stores. Any athlete taking part in moderate to high-intensity exercise for longer than 90 minutes would benefit from using gels as a source of carbohydrate.

Gels are popular amongst athletes because they are easy to carry, quick to take and easy to digest. Unlike bars, they are light and cause very few gastrointestinal problems.

When should you take them?

Your body has limited energy stores. To delay the onset of fatigue, you need to think about topping up your energy stores as they start to deplete. For endurance exercise, you should aim to consume between 30-60 g of carbohydrate per hour. Depending on the brand, this equates to 1-2 Gels consumed with some water every hour during exercise.

Should I use Gels for the first time on race day?

With any form of exercise you should always practice new strategies in training and refine accordingly. Changing the amount of water you use to wash down the gel will change the concentration of the solution so play around with what works best for you.

Vitamin D

Background: Vitamin D is a fat-soluble vitamin and plays an important role in bone health, muscle function and cell growth. Vitamin D receptors have recently been found in most body tissues, which indicates it may have an important role in many aspects of health and performance.

There is growing evidence that athletes are susceptible to vitamin D deficiency due to numerous factors. These include training indoors, training early morning or late at night, wearing protective clothing that covers their body, regular use of sunscreen or have a family history of bone injury. However, there is limited evidence of the effect of supplementation on performance. Prolonged deficiency could result in an increase risk of bone fractures, impaired immune function and upper respiratory tract infection.

Benefits of supplement: It is very difficult to obtain sufficient doses of vitamin D through food sources alone. Therefore, sensible sun exposure is required. When sun exposure is insufficient, supplementation may be necessary.

Dietary recommendations: It is not known exactly how much vitamin D is required however, regular exposure to the sun through the summer months can be sufficient to see you through the year. If you are concerned about any of the factors listed above, consult a nutritionist as you may benefit from supplementation through the winter months. Current guidelines for British athletes recommend supplementation of 1,000 IU per day. Although vitamin D intoxication is extremely rare it can occur with the ingestion of excessively high doses (>5,000 IU per day).

Food sources: Small amounts of vitamin D can be found in oily fish such as wild salmon, cod, egg yolk and fortified milk, yoghurt, cereal and orange juice. However, food sources are insufficient to meet overall requirements

Multi-Vitamin

Background: A wide range of vitamins and minerals (micronutrients) are required to support reactions that occur in the body. These include processes relating to muscle contraction, energy expenditure and immune function. Vitamins and minerals cannot be synthesised within the body and must be obtained from our diet. Micronutrients are essential for health and performance. Endurance athletes commonly use Vitamin C, the B-complex vitamins, vitamin E and iron in an attempt to enhance recovery and improve performance. Generally, if you follow a healthy, balanced diet, you are unlikely to suffer significant deficiencies. There is no evidence to show that supplementation is beneficial unless a deficiency exists.

Benefits of supplementation: A number of factors may increase the requirement for additional vitamins and minerals. These include a lack of dietary variety, high energy expenditure, high sweat losses, energy restriction and high training loads. Supplementation should only be considered if:

- You are restricting food intake to reduce body fat
- Your diet is rich in processed foods and high in fat and sugar
- You eat less than 5-7 portions of fruit and vegetables each day
- You cut out large food groups from your diet (meat, dairy, wheat)
- You are travelling for a prolonged period of time
- You have been diagnosed with a vitamin or mineral deficiency by your doctor

Dietary recommendations: Supplementation with a multivitamin every day or every other day can be a strategy used to correct deficiencies. The supplement should not contain micronutrients in excess of twice the Recommended Dietary Allowance (RDA) (this is displayed on the packaging). Multivitamin supplements should not be used to compensate for poor dietary habits.

Food sources: The preferred strategy is to obtain your vitamins and minerals from natural foods because they contain many additional nutrients. For example, fruit and vegetables contain phytochemicals that are important for health and cannot be obtained from supplements. If your diet is the problem, then the solution should also come from your diet!

Good sources of micronutrients include all fruit and vegetables. Try and vary your selection and choose vegetables that are dark and colourful. Examples include: Kale, spinach, pepper, broccoli, tomatoes, berries, citrus fruit, pineapple and bananas.

Fish Oils

For years we've been obsessed with choosing a low fat diet to optimize health. However, it's more than just the total amount of fat in your diet that makes the difference. The detail is in the type of fat consumed. Good fats such as Omega-3 fatty acids are essential for a number of very important physical and mental health benefits.

Omega-3 fatty acids play a vital role in reducing symptoms of depression, reducing fatigue, protecting against mental disorders, reducing the risks of heart disease, stroke and cancer and easing joint pain and inflammatory disorders.

There are several different types of Omega-3 fatty acids. EPA and DHA have the most research to back up their health benefits and should both be feature in the supplement you chose to take. ALA has been shown to be less potent than other forms of Omega-3's and tends to already feature more prominently in our diets.

Omega-3 fatty acids are difficult to consume through diet alone due to the limited number of food sources available. Therefore supplementation is often recommended. **Choosing the best Fish Oil supplement:**

- Be wary of supplements that do not list the source of Omega-3 fatty acids. If this is the case it's usually ALA which Westerners already consume in abundance.

- Look out for the total amount of EPA and DHA on the label. It's not the amount of fish oil that counts but the amount of Omega-3 fatty acids.
- If the label reads 1000 mg of fish oil but only 300 mg of EPA and DHA, you need 3 capsules to get 1000 mg of Omega-3.
- Chose a capsule that contains both EPA and DHA.

*Values per capsule **Guidelines for use:**

- Take 1000 mg of Omega-3 fatty acids per day
- To reduce the side effects of belching, take with food or after food in the evening.
- To help stabilize mood and for the treatment of mental health issues, take 1-3 g of Omega-3 fatty acids per day and chose a supplement high in EPA.

Iron

Iron is an essential mineral that has many important roles in the human body. It plays an integral role in the formation of red blood cells to help carry oxygen around the body. There are 2 types of dietary iron: haem and non-haem. Haem iron is found in animal sources such as red meat, fish and poultry and is better absorbed than non-haem. Non-haem is the most common dietary iron and is found in plant foods such as lentils and beans and is often added to foods that are 'iron-enriched' or 'iron-fortified' such as breakfast cereals.

The absorption of iron from our diet is influenced by a number of different factors. Including foods in the same meal that enhance non-haem iron absorption is very important for people who struggle to meet their daily requirements. Vitamin C improves the absorption of plant sources of iron, however tannin found in tea, calcium, polyphenols and whole-grains can decrease absorption. Avoid drinking tea or coffee with your meal to aid absorption. A diet high in low nutrient dense foods such as ready meals, white bread, crisps, pastry and fizzy drinks is less likely to provide sufficient amounts of iron.

Benefits of supplementation:

Most people should be able to get sufficient amounts of iron from a healthy diet without the need for supplements. The recommended average amount of iron is:

- 8.7mg a day for men
- 14.8mg a day for women

Iron deficiency anaemia is associated with low dietary intake of iron, inadequate absorption or excessive blood loss. Signs of deficiency include feeling tired, decreased performance, decreased immune function and difficulty maintaining body temperature. Iron supplements are only recommended if diet alone cannot restore appropriate levels or laboratory tests have confirmed iron deficiency anaemia. The intake of high doses of iron supplements is dangerous to

health and people should initially seek to boost their intake through a healthy well-balanced diet before seeking medical advice from a doctor.

Populations most at risk of iron deficiency include; endurance runners, vegetarians, pregnant women, children, women with heavy menstrual losses, people undergoing routine dialysis and people with gastrointestinal disorders. If you fall into any of these categories and display symptoms listed above, please seek medical advice.

Dietary recommendations:

- Add spinach to scrambled eggs, ready meals or salads
- Add a variety of beans to your meals
- Add almonds or dried apricots to your breakfast cereal
- Drink 150ml of orange juice with breakfast
- Eat citrus fruits after consuming non-haem iron sources
- Add chick peas to homemade curries, stews and hotpots instead of rice
- Add chopped up apricots to porridge or cottage cheese as your evening snack
- Use whole-grain bread rather than white bread

Sources of iron:

Egg, tuna, chicken, turkey, beef, white fish, liver, fortified breakfast cereals, beans, lentils, whole-meal bread, nuts, green leafy vegetables, dried apricots.

Caffeine

Background: Caffeine has been shown to have many positive effects on performance. These include the increase usage of fat stores during endurance exercise, increased force production from the muscle, reduction in perceived effort during hard exercise, stimulation of adrenaline and improved alertness and reaction time.

It is unclear exactly how caffeine improves performance but it is likely to be due to a reduction in the perception of effort or fatigue, as well as direct effects on the muscle. There does appear to be individual variations in the effect of caffeine on performance.

Sources of caffeine include:

Food or Drink	Caffeine content (mg)
Instant coffee (250 ml cup)	~60
Brewed coffee (250 ml cup)	~80
Tea (250 ml cup)	27
Green tea (250 ml cup)	30-50
Milk chocolate (60 g)	5-15
Coca Cola (375 ml can)	36
Red Bull (250 ml can)	80

Guidelines:

- 1 – 3 mg per kg body weight 45 – 60 min before exercise.
- Some benefits from caffeine appear to occur soon after intake so consider trying a top-up dose during your run as fatigue starts to occur.
- Experiment and practice in training to get the dose and format of delivery correct.
- There is no requirement to withdraw from caffeine prior to use in competition to see the performance benefits.
- Be careful to consider the additional ingredients in the source of caffeine you chose to use. For example, Red Bull contains a lot of sugar that may not meet your nutritional needs at the time.
- Reduce dose if performing in the evening to reduce sleep disturbances.

Concerns Associated with Caffeine Use: There is considerable individual variability in the response to caffeine. Some people will gain an advantage from caffeine use, while others may experience no effect or negative side-effects from the same caffeine dose. It is VERY important you trial the caffeine dose using the guidelines provided during a training session before using it in a race.

If you are caffeine sensitive and you take high doses, there is the potential to cause increases in heart rate, impairments to co-ordination and technique, and sleep disturbances. These concerns add to the importance of finding the lowest effective dose of caffeine that can be used to achieve a performance enhancement. More is not always better!!

Multi-Vitamins

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Food sources: The preferred strategy is to obtain your vitamins and minerals from natural foods because they contain many additional nutrients. For example, fruit and vegetables contain phytochemicals that are important for health and cannot be obtained from supplements. If your diet is the problem, then the solution should also come from your diet!

Good sources of micronutrients include all fruit and vegetables. Try and vary your selection and choose vegetables that are dark and colourful. Examples include: Kale, spinach, pepper, broccoli, tomatoes, berries, citrus fruit, pineapple and bananas.