HYDRATION

- Drink plenty of water before training to ensure adequate hydration. Water is perfectly adequate to hydrate.

- **Energy Drinks**: It is not advised to have energy drinks before training. They generally have sugar contents that are too highly concentrated for the body to adequately absorb fast enough for use during training. The high carbohydrate contents of energy drinks and soft drinks can delay gastric emptying (part of the digestion process) and slow the absorption of nutrients through the digestive tract. This means that food you have eaten can sit in your stomach for longer, and result in discomfort while training. Many energy drinks also contain caffeine, which can have a number of negative side effects on young people if it is over consumed, including dehydration, dizziness, headaches and high blood pressure.

CARBOHYDRATES

- Carbohydrates are broken down in the body into glucose, which is the primary energy source for the body. Glucose that is not used is converted into glycogen, and is stored in the muscles and liver to be used at a later time for energy.

- **Glycaemic Index (GI)**: The glycaemic index of a carbohydrate containing food is the effect that it has on blood sugar levels with a certain time period. Carbohydrates with a high GI (such as white bread, white rice, jam, soft drinks and potatoes) are converted into glucose quickly, and do not last very long. Low GI carbohydrates (such as pasta, most vegetables, most fruit, nuts, milk, multigrain bread, lentils and beans) are broken down more slowly, and release a more sustained blood glucose response. It is for this reason that low GI carbohydrates can make you feel fuller for longer, and can assist with more sustained energy levels.

- It is recommended that you eat a high carbohydrate, low GI meal 2-4 hours before training, and a small/light, high carbohydrate, low GI snack 1-2 hours before training. Eating too much fat and protein can cause digestive discomfort during training.

PROTEIN

- Inadequate carbohydrate intake generally results in inadequate glycogen stores, meaning that there is not enough fuel for the body to use during training. This can compromise your muscle tissue, as muscle protein is broken down to meet the energy needs of your body during training. By including protein in your pre-training meal, the overall GI of the meal is reduced, and has been shown to increase performance and reduce the breakdown of muscle tissue during exercise.

FAT

- Fat is a great source of energy, as well as a storage tool of important vitamins like vitamins A, D, E and K. Fat has also been shown to be used by the body to produce brain tissue, body cell membranes, bone marrow and important connective tissue throughout the body. It is healthy to get some fat in your diet, though it is important that it is the right type, and only consumed in moderation.

- Before training however, it is recommended that your meal or snack is low in fat, as fat slows down digestion, and can make you feel uncomfortable or unwell during your training.
Sources of healthy fats include:

- Avocados
- Salmon
- Nuts and seeds
- Tuna
- Eggs
- Sardines
- Plant oils (canola, soy, safflower)

**PRE-TRAINING MEAL IDEAS**

2-4 Hours before Training

- Plain breakfast cereal with low-fat milk and fruit
- Baked potato with cheese, tuna or baked beans, plus salad
- Baked potato with cottage cheese and a glass of milk
- Baked beans on toast
- Fruit salad with fruit-flavoured yoghurt
- Pasta with tomato-based sauce or pesto, a little cheese, plus vegetables
- Rice, pasta or noodles with chicken, fish or beans, plus vegetables
- Porridge or oatmeal with milk, honey and raisins or sultanas
- Wholemeal sandwich/roll/ wrap with tuna/ cheese/ chicken/ peanut butter, and salad
- Lentil/vegetable or chicken soup with wholemeal bread
- Toast or crumpets with jam or honey and flavoured milk

1-2 Hours before Training (Recommended for early morning training)

- One or two bananas (or other fresh fruit)
- A handful of dried fruit and a few nuts
- One or two cereal or granola bars (oat-based)
- A pot of low-fat fruit yoghurt and some fresh fruit
- One or two slices of wholemeal bread or toast with honey
- Milk shake or fruit smoothie with low-fat milk/yoghurt/soy milk
- Rice cakes with peanut butter or cheese
- Low-fat breakfast bar or muesli bar and a banana

**DURING TRAINING**

**CARBOHYDRATES**

- Carbohydrates are not generally needed during training, unless the exercise lasts for more than 60 minutes, or is very intensive for 30-60 minutes or more. Isotonic sports drinks provide both hydration and carbohydrates required to fuel the body.

**HYDRATION**

- Different factors will influence an individual’s need for hydration during exercise, but it is generally accepted that water should be consumed during training to replace fluid lost through sweat. Ideally, 150-200ml every 15-20 minutes of exercise.

- For training lasting more than 1 hour, it may be necessary to have a drink containing carbohydrates, as the muscles may not have enough glycogen stored. This may be an isotonic sports drink, fruit juice diluted with water, or water with a small amount of sugar and salt added.

*Sheree Cull, BSc, MHumNutr*
AFTER TRAINING/RECOVERY

CARBOHYDRATES

- Soon after training, it is recommended that you aim to replenish your blood glucose levels, as well as your glycogen stores. High carbohydrate foods with a moderate to high GI can assist with the rapid replenishment of glucose in the blood. These foods are especially effective within the first 30 minutes after training. Your next main meal should also contain carbohydrates to replenish your glycogen stores.

- It is recommended that you aim to consume 1g of carbohydrates per kg of body mass. For example: a 70g athlete should aim to consume 70g of carbohydrates after training to ensure a fast recovery of their glycogen stores.

PROTEIN

- During training, your muscle tissue can be put under a great deal of stress, and can become damaged. The body requires adequate protein to be consumed for the recovery and repair of your muscle tissue. This promotes muscle growth, as well as restoring your muscles energy stores. It is recommended that athletes aim to consume 15-25g of high-quality protein with 1 hour of exercising, or 0.25g of protein per kg of body weight.

HYDRATION

- After a training session, it is important that the body is adequately rehydrated. A lot of weight, in the form of water, can be lost during training through sweat, and it is recommended that athletes drink 1.2-1.5 litres of water per kg of weight lost 1-2 hours after training. This can be accurately measured by weighing oneself before and after training; however if this is not possible, it is still recommended to drink water after training. If dehydration is suspected, an isotonic sports drink will assist with rehydration, as well as the replenishment of carbohydrates.

- There is evidence that milk can also assist with rehydration, as well as muscle recovery, and has the added benefit of containing extra nutrients that promote good health. Milk is able to provide hydration, along with carbohydrates and protein to promote recovery.

POST-TRAINING MEAL IDEAS

Within 2 Hours after Training

*Each of the following provides 50 – 60g of carbohydrates and 10 – 20g of protein*

- 500 ml flavoured low-fat milk
- One banana plus 500ml of milk
- 2 pots (2 x 150g) of fruit yoghurt
- 60g (1 ½ - 2 cups) breakfast cereal with ½ cup milk
- 2 crumpets or English muffins with peanut butter or 2 slices of cheese
- One cereal or granola (oat-based) bar plus 500 ml low fat milk
- A smoothie – blend 150g yoghurt, 1 banana and 150ml fruit juice in a blender
- A cheese sandwich (2 slices bread; 40g cheese)
- 200g baked beans on 2 slices of toast
- 60g raisins fruit and 50g nuts
- 4 rice cakes with 20g peanut butter plus 200ml orange juice

Sheree Cull, BSc, MHumNutr
Each of the following provides 50g of carbohydrates

- 3 medium pieces of fruit or 2 bananas
- 2 x 35g cereal bars
- 60-70g jelly beans or jube sweets
- 800-1000mL of sports drink
- 500mL fruit juice

Within 4 hours after Training

- Pasta with tomato pasta sauce with grated cheese and vegetables
- Baked potato, chicken breast, broccoli and carrots
- Bean and vegetable casserole with wholegrain rice
- Rice with grilled fish and steamed vegetables
- Lasagne or vegetable lasagne with salad
- Fish pie with vegetables
- Chilli or vegetarian chilli with rice and vegetables
- Dahl (lentils) with rice and vegetables
- Chicken curry with rice and vegetables
- Mashed or baked potato with grilled salmon and salad


