**Sports Nutrition for Juvenile Athletics**

Glycogen

Carbohydrates from the foods we eat are broken down into glucose and stored for short-term use as glycogen in the liver and muscles. Muscle glycogen generally fuels physical activity. After an overnight fast, muscle glycogen and blood glucose levels are low, so must be restocked each day. This is important if exercising first thing in the morning, as your muscles may burn more protein for fuel, so you could end up losing muscle.

Hydration

Dehydration will directly contribute to loss of energy and impact on performance as blood volume reduces meaning less blood and oxygen circulating to all parts of the body. Everyone should drink a minimum of 2L of water a day, more if you exercise regularly. Don’t underestimate the impact dehydration can have on performance.

Pre-Competition Diet

What you eat and drink during the week before a competition can make a significant difference to your performance. The aim should be to maximise muscle glycogen stores and ensure proper hydration.

A diet rich in wholegrain foods such as bread, rice, pasta, porridge oats, beans, lentils and potatoes (white and sweet) maintains high glycogen levels needed to fuel hard training and performance. Processed white breads, pastas and rice should ideally be avoided.

It is wise to reduce high fat foods (cheese, butter, cream, oils, mincemeat, nuts etc.) and eliminate protein foods such as beef, pork and lamb the day before competition as these foods take a considerable time to digest. The digestion process itself uses up a significant amount of energy. So, the popular spaghetti bolognaise with its high fat and protein content is a very poor choice the day before a race or during multi-day events. Unfamiliar and spicy foods should also be avoided as they can cause digestive upset and impair on performance. It is advisable to have eaten before 6pm the night before an event so food digestion is complete prior to bed. Digesting food while asleep will impair on quality of sleep and likely negatively impact on performance.

Pre-exercise Meal

The pre-exercise meal should be consumed between 2 and 4 hours before exercise. As it is an individual thing, the quantity of food and exact timing of eating needs to be determined through experimentation for each individual. In general, low *glycaemic index* (GI) foods are considered best as they produce a sustained source of glucose throughout exercise and recovery. Low GI foods suitable before a race include whole grains, whole fruits, vegetables, steamed/boiled sweet potato, chicken, fish and eggs.

Suggested pre-work out meals (2-4hrs before exercise):

* Sandwich/roll/bagel/wrap with easily digestible protein such as chicken, fish or eggs with salad
* Jacket potato with beans, tuna, coleslaw or chicken
* Wholemeal Pasta with tomato-based sauce, fish or chicken and veg
* Organic/Free-Range Chicken with brown rice and salad
* Mixed bean hot pot with potatoes
* Porridge with milk (if tolerated) and scrambled eggs – superb breakfast choice
* Sweet potatoes and fish

Suggested pre-work out snacks (1-2hrs before exercise) – maybe required for late events:

* Fresh fruit with cinnamon to slow sugar release
* Dried fruit and a few nuts
* Smoothie
* Homemade shake
* Toast with honey
* Ripe banana and a few nuts

Post-exercise Recovery

* Glycogen replenishment is at an optimum during the 2hr post-exercise window, as the muscle cell membranes are more permeable to glucose and insulin release increases the amount of glucose taken up by muscle cells.
* If training or competing again within 8hrs, it is important to begin refuelling ASAP after exercise. Moderate to high GI carbs (sports drinks, energy gels and bars, ripe bananas, dried fruit and cereal bars) will promote faster recovery during this period. For recovery periods of 24hrs or longer, low GI meals are a better option. Note, when consuming energy gels, it is critical to also take in water as recommended on the pack. Otherwise water will be taken from the body to process the gel, potentially leading to dehydration.
* Milk is a near-perfect recovery drink, in terms of glycogen and muscle replenishment and for rehydration. 500ml of milk is sufficient for recovery. Milk is a good option immediately after competition. Ideally a more substantial meal should be then eaten within 2hrs. Note, dairy can cause problems for many, so only consume if tolerated.
* Other post-exercise snack options include;
	+ Wholemeal tuna sandwich and 1 pot (150g) natural yogurt
	+ Wholemeal cheese sandwich and dried fruit
	+ Baked beans on 2 slices wholemeal toast
	+ A jacket potato with baked beans and cheese
	+ Cooked wholemeal pasta with chicken breast (Organic/Free-Range preferable)
	+ Oatcakes with hummus
	+ Recovery milkshake – 300ml milk, 1 pot (150g) natural yogurt, 1 ripe banana, 100g strawberries and 2 heaped teaspoons of honey.