

NUTRITIONAL STRATEGIES FOR ATHLETES (HIGH SCHOOL)

Athletics consist of a group of events or disciplines involving either running, walking, throwing or jumping of different lengths and distances. This and the fact that the time between heats and finals differ, make it difficult to provide a step-by-step plan. Our aim however, is to provide general guidelines for before, during and after events. You may need to make minor individual adjustments depending upon the situation.

BEFORE THE EVENT

BALANCED MEAL (2-3 hours before the event/ training)

The goal of the pre-exercise meal is to ensure that you start training with adequate energy levels (both ATP and glycogen), without experiencing gastro-intestinal discomfort. There are a few scientifically based guidelines that the pre-event meal should preferably comply to. These are listed below.

GOALS	GUIDELINES
Adequate energy	- Ensure adequate calorie intake - Adequate amounts of slow to intermediate carbohydrates 2-3 hours before the events AND both slow/ intermediate and fast releasing carbohydrates 30 minutes before the event.
Stabilized blood glucose level	- Include slow and/ or intermediate carbohydrates - Include moderate amounts of protein - Include small amounts of fat
Optimal hydration status	- 200-600 ml water/ fluid
Prevention of gastro-intestinal discomfort	- Avoid large quantities of fat and fibre - Avoid foods known to upset your stomach - Avoid food that you are allergic or intolerant to. - Avoid gas-forming food such as e.g. legumes, cabbage, broccoli, cauliflower, Brussel sprouts, cucumber, onions and artificial sweeteners e.g. sorbitol and mannitol.

SAMPLE MEAL PLAN (2-3 hours before):

1-1½ cup **PVM MEALIE MEAL MIX** + 200 ml Fruit juice **OR** 1-1.5 cups All Bran + 250ml Milk

OR

1-1½ cup low GI muesli + 250 ml low fat yoghurt + 1-2 tsp sugar/honey/syrup+ 200 ml fruit juice

OR

3-6 slices rye/wholegrain/brown bread/seed loaf **OR** 2-4 brown rolls

+ 5 slices lean ham **OR** 2 hamburger patties **OR** ¾ cup grated cheese (preferably low fat e.g. Mozzarella, Edam, Ricotta)

+ ½ cup salad/veggies (optional)

+ 1 large fruit (e.g. apple) **OR** 200 ml fruit juice

+ 2 tsp margarine / butter (spread thinly) or oil (e.g. olive oil) for meal preparation

OR

If not able to eat (e.g. due to nerves or unavailability of food):

2 portions **FUSION DRINK with milk**

+ 1 large fruit (e.g. apple/pear/peach) **OR** 200 ml fruit juice

To drink: Mineral water (plain/ flavoured) or plain water or diluted fruit juice (no sugar-containing carbonated

drinks or large quantities of fruit juice, in order to prevent severe blood sugar fluctuation causing sluggishness/fatigue/poor concentration during competition)

SUPPLEMENTS (30-45 minutes before):

200-500ml **OCTANE XTR** (take a few sips every 10-15 minutes)
 OR 1 **OCTANE GEL** + 250-300ml water
 OR 1 **PVM ENERGY BAR**+ 250-300ml water
 OR a combination of above (Keep in mind, no more than 30-60g carbohydrates per hour)

DURING THE EVENT/ TRAINING

Research has indicated that sports drinks containing electrolytes and vitamins are significantly better absorbed than water. Water alone provides fluid replacement but not energy, electrolytes, vitamins and other nutrients essential for performance. Guidelines for choosing the optimal supplement are listed below.

GOALS	GUIDELINES
Sustained energy	- Include slow and fast releasing carbohydrates - Take 30-60 g carbohydrates per hour
Stabilized blood glucose level	- Include slow and/ or intermediate carbohydrates - Include 1-2% protein per solution
Replenishment of fluid and electrolytes lost	- 400-900ml water/ fluid per hour - Include the electrolytes sodium, potassium, chloride, calcium, phosphorus and magnesium - Include 6-10% carbohydrates
Prevention of gastro-intestinal discomfort	- Ensure a hypo- or isotonic solution* - Avoid excessive carbohydrate intake (no more than 30-60g/h)
Support the immune system	- Take vitamins and minerals - Include anti-oxidants such as vitamins A,C and E - Include glutamine - Proteins also support the immune system
Buffering lactic acid build-up	- Protein peptides may reduce lactate and ammonia levels.
Increase concentration/ mental alertness	- Ensure optimal blood glucose levels - Include choline
Improve performance	- Include selected ergogenic aids for the specific sport

*Hypo- or isotonic refers to osmolality. Osmolality can be defined as the number of particles dissolved in water. Optimal absorption of fluids within the body happens when the solution is equal in terms of osmolality in what naturally occurs in the body. Hypertonic solutions attract water into the gastrointestinal tract and may cause diarrhoea.

PVM RECOMMENDATION

During training:

± 250-500 ml **OCTANE XTR** per hour, take a few sips every 15-20 minutes or whenever possible.
 OR 1 **PVM ENERGY BAR** with ± 500 ml water
 OR a combination of the above (250ml Octane + ½ - 1 Energy Bar)

During competition:

Due to the nature of the sport, track athletes can not consume anything during the actual event. It is therefore recommended to start consuming Octane XTR 30-45 min prior to the event. The athlete can also consume a few sips (+/- 200ml) directly after the event. When competing in more than one event during the day, consult the example plan at the end of this document.

AFTER THE EVENT/ TRAINING

The intake of carbohydrates and protein within the first **30 minutes** after training/competing is crucial for the recovery of glycogen stores and the repair of muscle tissue. These first few minutes after exercise/the event is called the window period during which the uptake of nutrients is at it's fastest.

GOALS	GUIDELINES
Accelerate glycogen re-synthesis/ replenishment	- Include fast releasing carbohydrates for immediate recovery. The addition of slower releasing carbohydrates will prevent blood glucose fluctuations.
Increase protein synthesis/ building and cell repair	- Include 10-20 g protein
Replenish fluid and electrolytes lost	- Include water/ fluid. One litre of water is required to replace 1kg of body weight lost during training. - Include the electrolytes sodium, potassium, chloride, calcium, phosphorus and magnesium - Include 6-10% carbohydrates
Reduce lactate and ammonia levels	- Include protein - Include electrolytes
Support the immune system	- Take vitamins and minerals, especially the anti-oxidants (Vitamin A,C and E) - Include 5 g glutamine per serving - Proteins e.g. peptides also support the immune system

PVM RECOMMENDATION

RECOMMENDED:

Training ≥ 90 minutes: 75 g **REIGNITE** in 600 ml water.

Training < 90 minutes: 50 g **REIGNITE** in 400 ml water.

ALTERNATIVELY:

2 portions **FUSION DRINK**

OR 1 portion **FUSION DRINK** + 1 **PVM ENERGY BAR**

OR Sandwich (2 slices bread) with cheese/ biltong/ tuna/ chicken (30g) + 200 ml fruit juice

OR 2 Muffins with cheese + 200 ml fruit juice

Additional water can also be taken with the above recommendations

Balanced meal 2-3 hours after exercise:

This meal is important for optimal replenishment, but even more so if you are going to exercise again the following day or if an event is more than one day. It should contain both carbohydrates and protein. Also remember to replace fluids lost during exercise.

SAMPLE MENU: Post-exercise meal

1 cup cooked rice (preferably parboiled/Basmati) **OR** 1 cup pasta (preferably durum wheat type) **OR** 1 large potato, slightly cooled
 + 200 g fish / chicken / lean mince / steak
 + 1½ cup mixed veggies **OR** 2 cups salad
 + 1 cup fresh fruit salad **OR** 200 ml fruit juice

WHEN COMPETING IN MORE THAN ONE EVENT THOUGHOUT THE DAY

Athletes often find it difficult to determine what to eat and drink when they compete in more than one event per day. It is recommended that athletes stick to their habitual food and supplement intake, but that the timing thereof is adjusted based on competition times. Meals should be eaten at least 2-3 hours before the event.

EXAMPLE: 3 EVENTS DURING THE DAY

8:00	Balanced pre-event meal (see guidelines and example above)
9:15	OCTANE XTR – 200-500ml - take a few sips every now and again
10:00	First event
	Between events: Take a few sips OCTANE XTR every now and again. Max. intake is 500 ml/ hour
11:30	Second event
12:00	Balanced pre-event meal within 30min after 2nd event + 200ml fruit juice
15:15	OCTANE XTR – 200-500ml - take a few sips every now and again OR 1 PVM Energy Bar
16:00	Third event (last event)
	50g REIGNITE directly after last event OR 2 Portions Fusion Meal Replacement drink with milk
18:30	Balanced post-exercise meal (see guidelines and example above)

The goal is thus to drink BETWEEN events, as drinking DURING event is not always possible.

Please note that this is only approximate guidelines. For a more individualised diet plan or any other nutritional enquiries, please contact our Registered Dietitian for assistance.