



## NUTRITIONAL STRATEGIES FOR HIGH SCHOOL TENNIS PLAYERS

### 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
<b>Adequate energy</b>	<ul style="list-style-type: none"> <li>- Ensure adequate calorie intake</li> <li>- Adequate amounts of slow to intermediate carbohydrates 2-3hours before the events AND both slow/ intermediate and fast releasing carbohydrates 30min before the event.</li> </ul>
<b>Stabilized blood glucose level</b>	<ul style="list-style-type: none"> <li>- Include slow and/ or intermediate carbohydrates</li> <li>- Include moderate amounts of protein</li> <li>- Include small amounts of fat</li> </ul>
<b>Optimal hydration status</b>	<ul style="list-style-type: none"> <li>- 200-600ml water/ fluid</li> </ul>
<b>Prevent gastro-intestinal discomfort</b>	<ul style="list-style-type: none"> <li>- Avoid large quantities of fat and fibre</li> <li>- Avoid foods known to upset your stomach</li> <li>- Avoid food that you are allergic or intolerant to.</li> <li>- Avoid gas-forming food such as e.g., legumes, cabbage, broccoli, cauliflower, Brussel sprouts, cucumber, onions and artificial sweeteners e.g., sorbitol and mannitol.</li> </ul>

#### SAMPLE MEAL PLAN (2-3 hours before):

1-1½ cup **PVM MEALIE MEAL MIX** + 200 ml Fruit juice  
**OR**  
 1 cup **PVM ENERGY BAR CEREAL** + 200 ml Fruit juice  
**OR**  
 1-1½cup muesli + 250 ml low fat yoghurt + 1-2 tsp sugar/honey/syrup+ 200 ml fruit juice  
**OR**  
 3-6 slices rye/wholegrain 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** 200ml 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**  
 + 1 **PVM ENERGY BAR**  
 + 1 large fruit (e.g., apple/pear/peach) **OR** 200ml 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 4.0** (take a few sips every 10-15 minutes)OR 1 **OCTANE GEL** + 250-300 ml waterOR 1 **PVM ENERGY BAR**

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
<b>Sustained energy</b>	- Include slow and fast releasing carbohydrates - Take 30-60g carbohydrates per hour
<b>Stabilized blood glucose level</b>	- Include slow and/ or intermediate carbohydrates - Include 1-2% protein per solution (peptides are easily absorbed, which ensures that this amount of protein could be added to <b>OCTANE 4.0</b> )
<b>Replenish fluid and electrolytes lost</b>	- 400-900ml water/ fluid per hour - Include the electrolytes sodium, potassium, chloride, calcium, phosphorus and magnesium - Include 6-10% carbohydrates
<b>Prevent gastro-intestinal discomfort</b>	- Ensure a hypo- or isotonic solution* - Avoid excessive carbohydrate intake (no more than 30-60 g/h)
<b>Support the immune system</b>	- Take vitamins and minerals - Include anti-oxidants such as vitamins A, C and E - Include glutamine - Proteins also supports the immune system
<b>Creates buffers against lactic acid build-up</b>	- Protein peptides may reduce lactate and ammonia levels.
<b>Increase concentration/ mental alertness</b>	- Ensure optimal blood glucose levels - Include choline
<b>Improve performance</b>	- 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**± 500ml **OCTANE 4.0** per hour, take a few sips every 15-20 minutes or whenever possible.OR 1 **PVM ENERGY BAR** with ± 500ml water

OR a combination of the above

**AFTER THE EVENT/ TRAINING**

The intake of carbohydrates and protein within the first **30 minutes** after exercise is crucial for the recovery of glycogen stores and the repair of muscle tissue. These first few minutes after exercise is called the window period during which the uptake of nutrients is fast.

GOALS	GUIDELINES
<b>Accelerate glycogen re-synthesis/ replenishment</b>	- Include fast releasing carbohydrates for immediate recovery. The addition of slower releasing carbohydrates will prevent blood glucose fluctuations.
<b>Increase protein synthesis/ building and cell repair</b>	- Include 10-20 g protein
<b>Replenish fluid and electrolytes lost</b>	- Include water/ fluid. One litre of water is required to replace 1kg of body weight lost during training.

	<ul style="list-style-type: none"> <li>- Include the electrolytes sodium, potassium, chloride, calcium, phosphorus and magnesium</li> <li>- Include 6-10% carbohydrates</li> </ul>
<b>Reduce lactate and ammonia levels</b>	<ul style="list-style-type: none"> <li>- Include protein</li> <li>- Include electrolytes</li> </ul>
<b>Support the immune system</b>	<ul style="list-style-type: none"> <li>- Include vitamins and minerals, especially the anti-oxidants (Vitamin A, C and E)</li> <li>- Include 5g glutamine per serving</li> <li>- Proteins e.g., peptides also support the immune system</li> </ul>

#### **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) + 200ml fruit juice

**OR** 2 Muffins with cheese + 200ml 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

*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.*