EATING RIGHT

Food is the source of nutrients, and to get the nutrients we need, we require a varied and well-balanced diet. There are six classes of nutrients that include water, vitamins, minerals, proteins, fats, and carbohydrates.

Each nutrient is equally important, and to eliminate any class of nutrient from the foods we eat will have detrimental effects on performance (and health!). Energy can be obtained from foods that contain carbohydrates, proteins, and fats.

Vitamins and minerals do not provide a source of energy but are needed to derive energy from carbohydrates, proteins, and fats that are consumed. In addition, water circulates the other nutrients to the tissues where they are used and then removed as by-products of this tissue utilisation.

Water is also critical for maintaining body temperature during intense play. For most players, a minimum of approximately 2,500 calories a day is recommended, although some players may require in excess of 3,000 calories.

Pro players are predicted to need between 3500 to 5000 calories/day. Beyond attempting to regularly consume a healthy, varied and well-balanced diet, players should particularly focus their efforts on adequate and appropriate consumption of four primary nutrient categories – fluids, electrolytes, carbohydrates and protein.

Water

These nutrients have an immediate effect on performance, delay feelings of fatigue, and reduce a player's proneness to injury and illness. At some point, we have all heard, "Drink lots of water!" Yes, water is good for us, but too much actually flushes nutrients from our system. What we need is 8 to 10 cups daily either of water or equivalent hydrating beverages.

And what about other beverages? Beverages and foods that count toward daily water intake:

- **BEST:** water, seltzer, club soda, mineral water, flavoured water.
- **Very Good:** 100% fruit juices, lemonade, tomato and vegetable juices, low-fat/skimmed milk.
- **Good:** raw fruits and vegetables.
- **So-so:** soft drinks (diet soft drinks in moderation), decaffeinated coffee, yogurt.
- **Bad:** caffeinated beverages and alcohol are diuretics and do not count toward water intake.

Top ten ways to increase your fluid intake & decrease caffeine:

1. Drink 8 to 16 ounces water-based beverage (water, juice, milk) with every meal and snack.
2. Alternate non-caffeinated beverages between caffeinated beverages throughout the day.
3. Limit caffeinated beverage intake after a certain time of day (for example, 1 pm).
4. Set a reasonable limit on coffee intake (for instance, 1 to 2 cups per day).
5. Substitute decaffeinated tea, soda, or coffee for some of your caffeinated drinks.
6. Increase your vegetable juice and milk consumption (2 cups of vegetable juice = minimum 4 vegetable servings per day; 2 cups milk = minimum dairy intake per day).
7. Try carbonated calorie-free fruit flavoured waters.
8. Dilute juices with water.
9. Alternate plain club soda with alcoholic beverages.
10. Keep a water bottle with you at all times (freeze overnight so it stays cool during the day).

Carbohydrates

- The best source of energy, providing fuel for your muscles, brain, and organs.
- Carbohydrate is stored in the body in the form of glycogen.
- Too few carbohydrates lead to glycogen depletion, which may lead to early on fatigue on court.
- Carbohydrates should represent about 60% of the calories in your diet.
- Found in cereal, bread, pasta, potatoes, rice, legumes, fruits, vegetables, and sports products (energy bars or sport beverages).

There are two types of carbohydrates – simple (sugars) and complex (starches). Sugars are simple carbohydrates. They are called this because the body digests them quickly and easily.

Starchy carbohydrates are referred to as complex carbohydrates. These carbohydrates take longer to digest than simple carbohydrates. It is generally recommended that complex carbohydrates be consumed, especially those with a low glycemic index (GI) because they have high fibre and vitamin contents and give a sustained energy release over a long period of time.

However, liquid carbohydrate sources and foods containing simple carbohydrates may be used when it is necessary to raise the glucose level quickly during training or a match.

For tennis players, the glycemic effect can be very important, and it is critical that players understand which carbohydrates they should consume and when.

Both pre-and post-match, choosing higher glycemic index foods can provide quicker energy and quicker recovery, but in the general training diet, it is recommended that players choose lower glycemic index foods to maintain a consistent blood sugar and energy level.

- The GI rating, which ranges from 1 to 100, lets you know how quickly foods are changed into glucose. The faster the food is converted to blood sugar (glucose), the higher the rating.

  Glucose is taken as the standard, with a value of 100. Values of 70 or higher are considered high, 56 to 69 medium and 55 or less low. The scale (right) shows the GI values for some popular foods.

  However, keep in mind if you consume a food in combination with other nutrient categories, such as protein and fat, the glycemic index will change and be less of an issue.

- Carbohydrates are stored as glycogen in the liver, which helps to maintain normal blood glucose, and in skeletal muscle, where it is used as a source of fuel for muscular activity.

Muscle glycogen is the main source of fuel used by the muscles to enable you to undertake both aerobic (with oxygen) and anaerobic (without oxygen) exercise, and may become a performance limiting factor during tennis, especially during long matches.

Fats

- Fat sources in the diet are an important source of energy during long matches and training sessions but is not meant to be the main energy source for tennis play. Fat also helps maintain the player's appetite over longer so that he/she will not get hungry during play.
- Too little fat may lead to vitamin deficiencies and organ damage and possibly weaken the immune system.
- Too much fat increases the risk for heart problems, high cholesterol, and high blood pressure.
- Fat takes the longest time to digest thus it is not a good source of quick energy during exercise.
- Fat should represent about 20-30% of the calories in your diet (minimum of 30-40 grams/day), but up to 80-100 grams/day for elite player's energy needs.
- Found in butter & oils, dairy products, nuts, olives, avocado, mayonnaise, dressing, meat & fish, fast food, and chocolate.

There are two main types of fats: saturated (normally found in animal fats, except fish), and (mono or poly) unsaturated fats (normally found in vegetable fats, oil, and fat fish).

Fats are a denser calorie source containing nine calories per gram, while carbohydrates and protein contain only four calories per gram. Ideally, on a heart healthy diet, players should choose twice as much vegetable origin fat vs animal origin fats.

Vegetable fats are considered essential - you need small amounts daily to help make hormones and help with regularity and healthy skin and hair as well as a secondary energy source for training.

Protein

- Protein is crucial for meeting muscle and organ building and repair in the tennis player's body. Protein is not meant to be an energy source on the court.
- Protein is becoming increasingly important for recovery needs between matches and after tennis play to help players return to the court in tip top shape. Latest research shows that players should consume an easy to digest form of protein within 30 minutes after tennis play.
- Helps build and repair muscles.
- Protein is the building block for hormones and enzymes that regulate metabolism and other body functions.
- Protein provides a small source of energy for muscles during exercise but are not the ideal fuel.
- Too little protein may lead to tiredness, weakness, poor recovery and injury.
- More protein does not mean you will gain more muscle mass or strength.
- Proteins should represent only 10-15% of the calories in your diet.
- Found in meat, fish, eggs, dairy, poultry, vegetables and nuts.

Protein consists of polymers of amino acids, the building blocks of all proteins. Some of these amino acids are considered essential, meaning that the body cannot synthesize them, and therefore must be obtained from the diet.

Protein is used as an energy source when the glycogen stores are depleted and exercise is continued at a high intensity level. Players are advised to obtain necessary amino acids through consumption of natural, high quality protein foods, such as those mentioned above.
The western diet contains more than enough protein, so protein supplementation may not benefit performance.

In addition, if your diet is very high in protein, you will inevitably eat less carbohydrates, which means fatigue and a decline in performance may occur earlier as a result of glycogen depletion.

Electrolytes/Minerals

Sodium

- Sodium is the key electrolyte and main extracellular mineral lost in sweat and should be increased in most competitive tennis player's diets to help minimize risk of heat illness and muscle cramping.
- Essential mineral for muscle contractions, fluid balance, and nervous system function.
- Too little sodium may lead to fatigue, headache, dizziness, and muscle cramps and heat illness.
- Too little protein may lead to tiredness, weakness, poor recovery and injury.
- Found in table salt, visibly salted foods such as pretzels, crackers and nuts; some natural food such as shrimp/prawns, and many processed foods such as cottage cheese or cured meats, canned vegetables, pickled foods, soups and sport beverages.
- Supplemental salt may be necessary for athletes who sweat a lot and do not eat high-sodium foods or use sport beverages. Heavy sweaters may need to add table salt in small amounts to sport beverages.

Calcium

Calcium is also a mineral lost in sweat as well as the key mineral for strong bone density in tennis players. Particularly for female tennis players, calcium intake should be emphasised. Consuming three dairy products per day is the key to help meet daily calcium needs. Supplementation may be needed if oral intake is low.

- Essential mineral for bone and teeth development (99% of calcium is used for this).
- Critical mineral for muscle contractions.
- Too little calcium will lead to poor bone health, tooth decay, and muscle cramps.
- Recommended daily intake: 1000-1300 mg.
- Found in cheese, milk, yogurt, ice cream, fish bones (sardines), watercress and spinach.

Iron

Iron is another key mineral because of its energy carrying capacity. Low iron levels are an issue in female tennis. Iron in the diet should be emphasized to avoid undue fatigue and anaemia risk.
If blood levels are low, and anaemia (low blood iron) is diagnosed by a medical professional, iron supplementation may be warranted.

- Essential mineral for red blood cells and the cardio-pulmonary system (heart & lungs).
- Found in hemoglobin which carries oxygen from the lungs to your working muscles.
- Essential for the production and release of energy.
- Too little iron may lead to tiredness.
- Recommended daily intake:12-18 mg.
- Found in red meats, poultry, fish, bran, spinach, vegetables, dried fruit (raisins, apricots and figs) and fortified cereal. Animal sources are better absorbed by the body.

Potassium

Potassium is the main intracellular mineral, so is often misunderstood as a key electrolyte to increase to minimize heat illness risk.
This is not the case, but tennis players in general do need more potassium than the average adult as general body fluids decline with water losses.

- Essential mineral for muscle contractions, fluid balance, digestion and nervous system function.
- Too little potassium may lead to tiredness, dizziness, vomiting and muscle cramps associated with hypoglycemia.
- Recommended daily intake: 3,000 mg.
- Found in all fruits and fruit juices (especially bananas and melon), tomatoes and tomato juice, meat and dairy, green vegetables and bran.