

Nutrition for Optimal Athletic Performance Nourishing the Growing Athlete (U13-21)

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Statistics on Kids/Teen Health

- In Canada, over 26% of children and young people are considered overweight or obese. If this trend continues, more than 46% of school-aged children will be overweight or obese by next year. In the past 25 years, obesity rates have tripled for kids aged 12-17 and similarly for children aged 2-12.
- The number of young children taking anti-psychotic prescription drugs has nearly tripled in the past 15 years!
- Cholesterol lowering drugs are being given to children as young as 8 years old.
- High cholesterol has been found in children as young as age 3.
- Type 2 Diabetes is one of the fastest growing diseases of this decade.



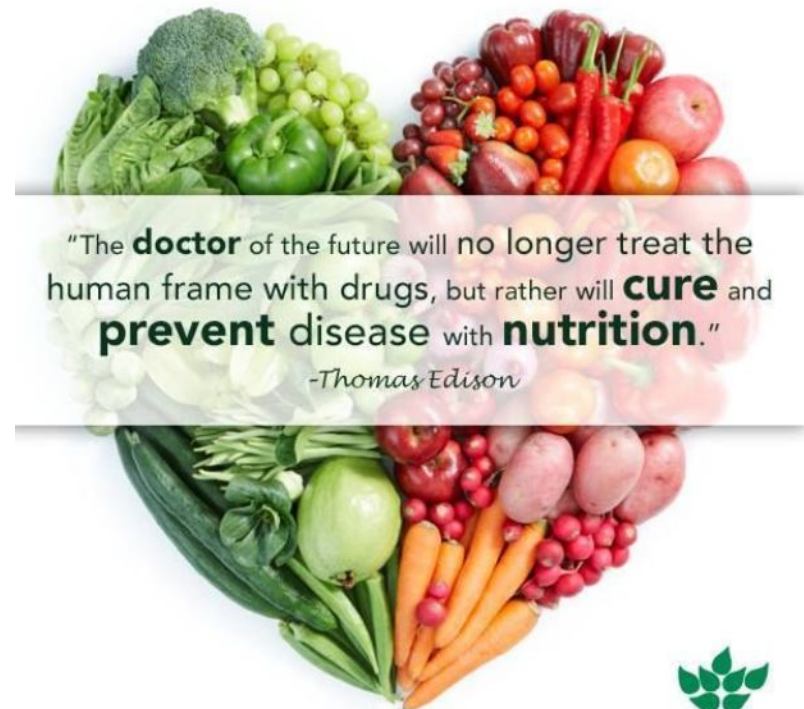
Why Nutrition?



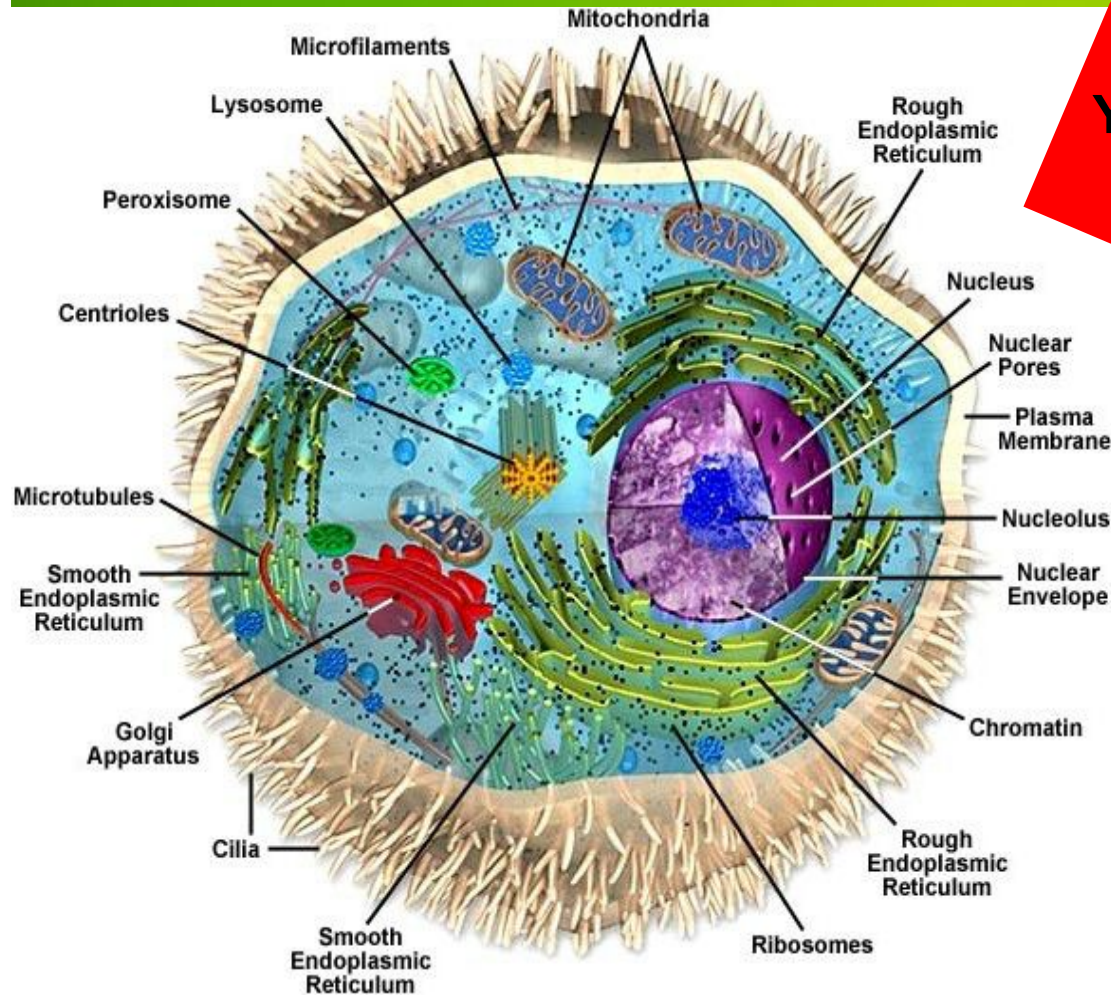
Despite being the main form of energy for humans...

Nutrition is still poorly understood!

The mass marketing and media hype of “diets” provides more confusion and sets up the platform for “nutritional failure” usually resulting in malnutrition. We are not underfed, we are undernourished.



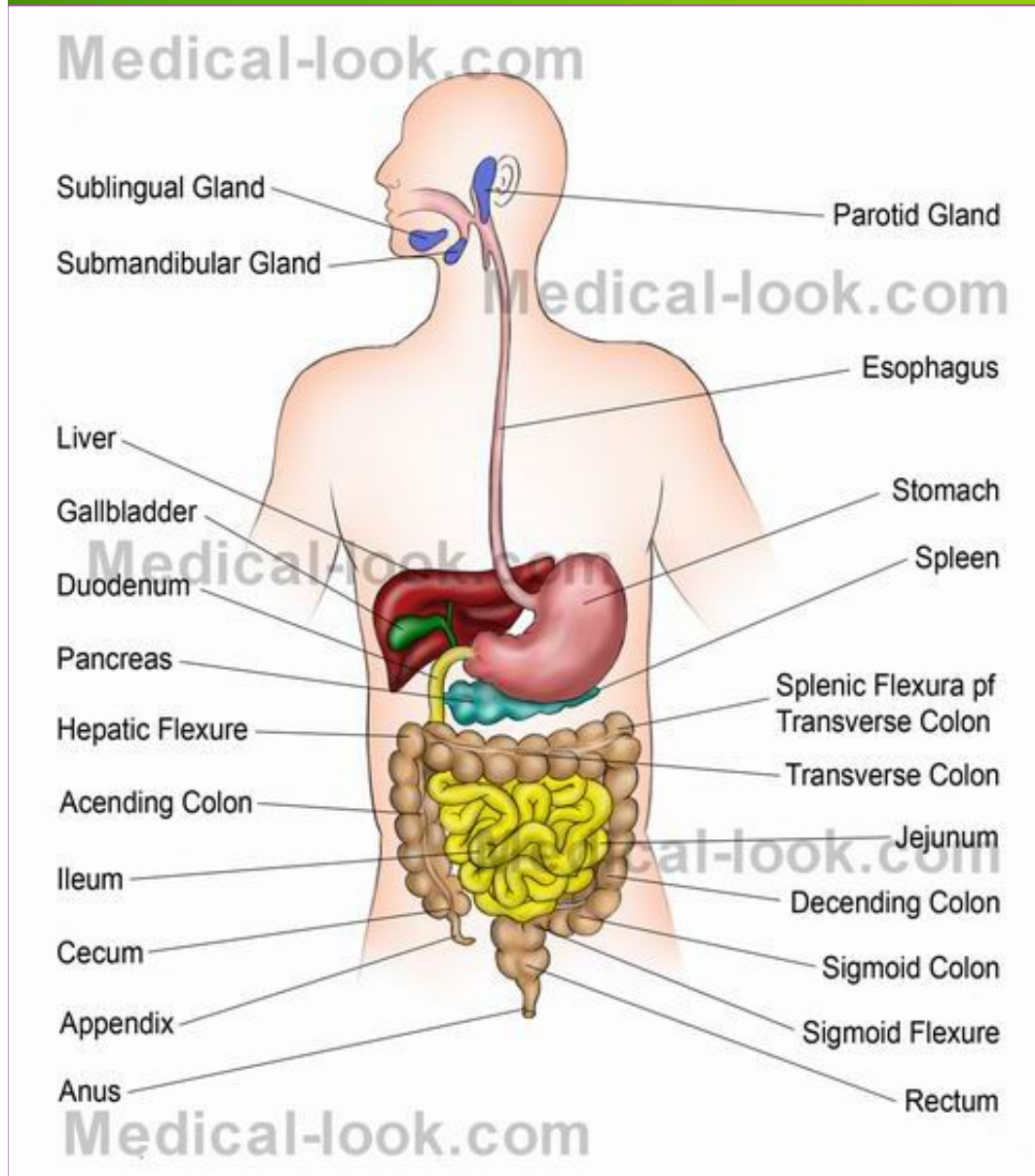
*You are not what you eat, you are what you ASSIMILATE...
what you ABSORB!*



**You are
Here!**

**Essential nutrients -
proteins, carbohydrates,
fats and oils, minerals,
vitamins, and water.
Diet is what we eat, but
nutrition is what our cells
and tissues actually require
to function properly.**

Digestion: Beginning to End



The digestive system's main function is to convert food into **ENERGY** useful for the body and to provide for waste removal.

This energy is used at the **CELLULAR** level to provide nutrients used for the chemical reactions the body requires to **maintain life**.

The digestive system houses the largest part of the IMMUNE System!

Garbage In, Garbage Out!



Individual Development



- It is important to remember that children of all ages develop in these areas at different rates:

- Physical
- Emotional
- Cognitive
- Motor skills
- Perception



Chronological Age (actual years) can differ significantly from Biological Age (development).

Linear Growth



- Linear growth during the first 2 years of life remains relatively constant, then there is a pubertal growth spurt.
- Typically this happens between the ages of 11-13, however can vary among individuals.
- Testosterone drives this development in males and estrogen develops this growth pattern in females.
- Nutritional state and level of exercise/activity have major influences on the linear growth of children.
- Children of both sexes grow at approximately the same rate until the adolescent growth spurt.
- Hormonal balance is directly connected to nutrient intake, therefore nutrition plays a major role in adolescent development.

Dynamic Growth



- Puberty is a dynamic period of growth and development marked by rapid changes in body size, shape, and composition, all of which are male/female specific.
- On average, females enter and complete each stage of puberty earlier than do males.
- The momentum of puberty varies widely, even among healthy teens.
- In determining the rate of a particular growth velocity, the child's degree of biological maturity must be considered.

Peak Performance



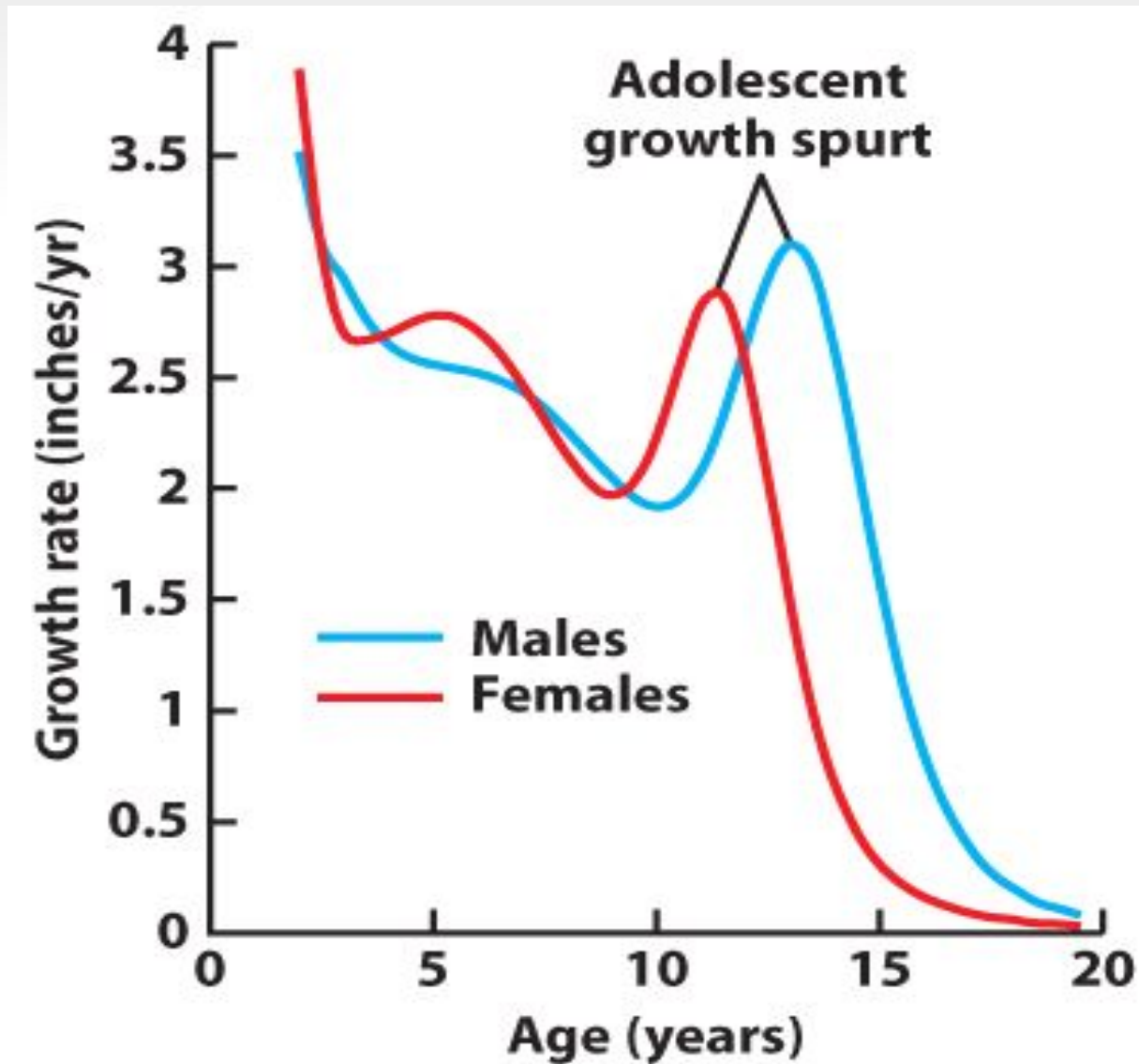
There are specific ages in both males and females where specific athletic abilities will adapt or respond to a training catalyst (stimulus):

- Strength: Females ages 11-13 Males ages 11-13
- Speed: Females ages 11-13 Males ages 13-16
- Skill: Females ages 8-11 Males ages 9-12
- Endurance: Females age 12 (PHV*) Males ages (12) 14
- Flexability: Typically around ages 6-10 for both groups.

**Peak Height Velocity: maximum rate of growth in stature during a growth spurt.*

Optimum Nutrition is required for peak performance and recovery.

Typical Growth Patterns



And Growing...



- ✓ Puberty is also a time of significant weight gain; 50% of adult body weight is gained during adolescence.
- ✓ Adolescence can begin as young as ages 8 in both males and females.
- ✓ In boys, peak weight increase occurs at about the same time as peak height velocity at around the ages of 12-14.
- ✓ In girls, peak weight gain usually falls a little behind peak height growth just slightly before boys at around ages 12-13.
- ✓ As pubertal maturity is achieved, there is obvious differences in body composition and proportions of muscle, fat, water and bone that are marked as typical male-female differences.
- ✓ Under the influence of testosterone, boys have a significant increase in growth of bone and muscle and a simultaneous loss of fat in the arms and legs. As growth in height begins to decline, fat accumulation resumes in both sexes but is twice as rapid in girls.
- ✓ Both androgens and estrogens (hormones) promote the deposit of bone mineral, and by age 8, typically most males and females have developed the majority of their bone mass, **although “children” continue to grow til the age of 25.**

Inadequate Energy Intake



- ✓ Teens with nutritional growth impediment may experience growth deceleration due to suboptimal energy intake and nutrient deficiencies.
- ✓ Protein intake may be inadequate and is often the cause of growth delay. This can result in **energy malnutrition**.
- ✓ Insufficient protein intake due to injury or illness, as well as heavy exercise may be temporarily delayed, but can quickly catch up after sufficient dietary protein is consumed.
- ✓ Today's SAD diet (standard American/Western Diet) is carbohydrate heavy and is generally lacking in sufficient protein for optimal growth and development.
- ✓ A child's genetically determined growth potential can be delayed as an adaptive response of the body to procrastinate growth until optimal dietary energy is achieved.
- ✓ This process must be properly distinguished from other causes of growth delays.

Hormones Kick In



Hormonal changes with the onset of puberty have significant impact on the development of bone, body fat and muscle mass as well as emotional and psychological factors and stress management skills. Increased stress causes inflammation and inflammation causes **PAIN!**

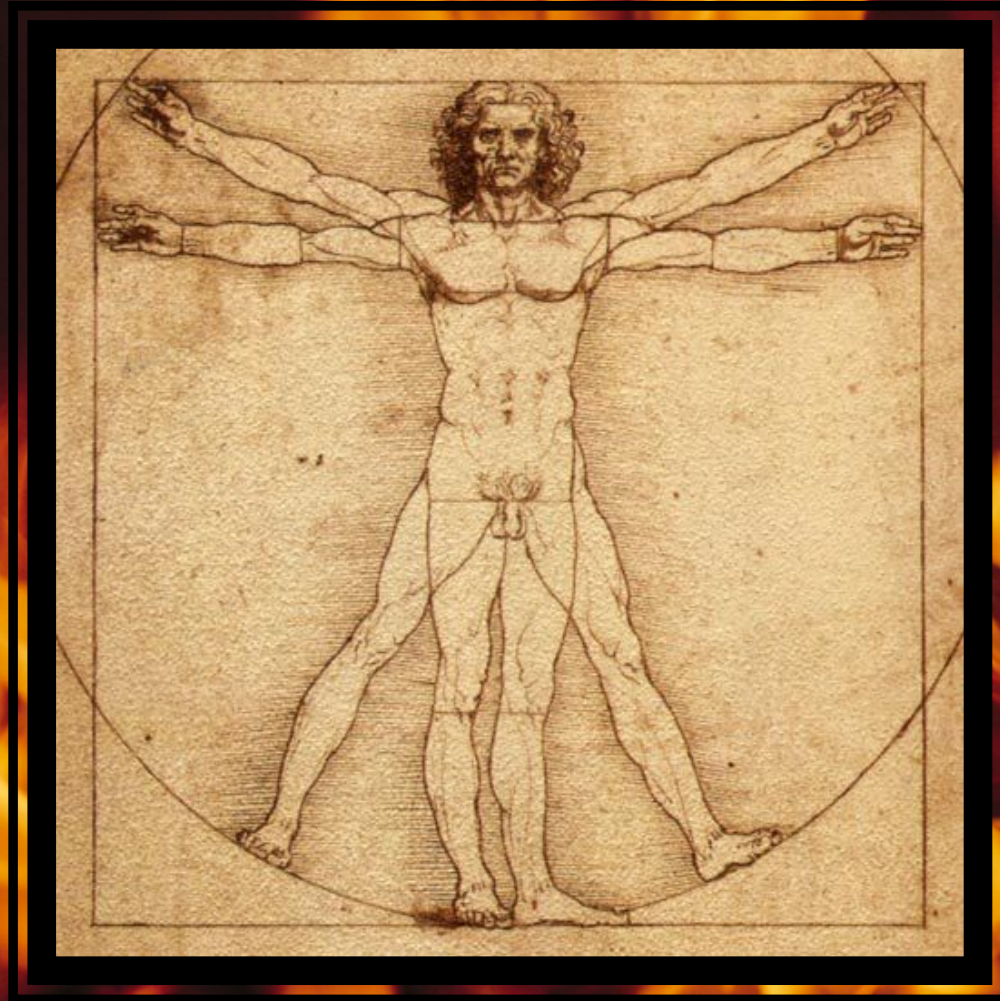
Children and teens are entering a very challenging stage of life. Emotional and psychological issues can be overwhelming, especially when the stages of competition are introduced.

Performance anxiety is common at this stage.

Nutrient deficiencies, specifically in **B Vitamins, Magnesium and Essential Fatty Acids** have been scientifically proven in conditions of depression, ADD/ADHD, OCD, Autism, delayed growth, behavioral and social disorders, mood swings, hypoglycemia (low blood sugar), early or late sexual maturation, hyperactivity, lethargy and learning disabilities.



Inflammation: The Body On FIRE!



Performance Killers



- **SUGAR!** 1 teaspoon of sugar can suppress the immune system for up to 6 hours as well as High Fructose Corn Syrup (HFCS) used as a sweetener!
- **WHITE foods and Bad Fats:** White bread, white pasta, baked goods, fried foods.
- **Artificial Colors** Chemical compounds made from coal-tar derivatives to enhance color. Linked to allergic reactions, fatigue, asthma, skin rashes, hyperactivity and headaches. These are the colorants in sports drinks.
- **Artificial Flavorings** Cheap chemical mixtures that mimic natural flavors to allergic reactions, dermatitis, eczema, hyperactivity and asthma.
- **Artificial Sweeteners** (Acesulfame-K, Aspartame, Equal®, NutraSweet®, Saccharin, Sweet'n Low®, Sucralose, Splenda® & Sorbitol) Highly-processed, chemically-derived, zero-calorie sweeteners found in diet foods and diet products to reduce calories per serving. Have direct negative impact on metabolism. Some have been linked to cancer, headaches, dizziness and hallucinations. **SPORTS DRINKS!!!!**

Preservatives (BHT, BHA, TBHQ) Compounds that preserve fats and prevent them from becoming rancid. May result in hyperactivity, angiodema, asthma, rhinitis, dermatitis, tumors and affects hormone activity in the body.



Food Additives and Preservatives



Messing with our Body's Chemistry



One study that measured the visible effects of sugar consumption gave kids the amount of sugar equal to one soda. As a result, their test scores went down. In fact, one hour after consuming the sugar, they made twice as many mistakes. The sugar-loaded students also showed more "inappropriate behavior" during free play.

As Dr. Blaylock explains, sugar has a profound influence on your brain function, and hence your psychological function. When you consume excess amounts of sugar, your body releases excess amounts of insulin, which in turn causes a drop in your blood sugar, also known as *hypoglycemia*.

Hypoglycemia in turn causes your brain to secrete glutamate. Glutamate is a "messenger molecule" that serves an important function in your body. However, when excess amounts of glutamate are excreted it can wreak havoc with your brain and nervous system, causing a variety of side effects such as agitation, depression, anger, anxiety and panic attacks.

MSG! Monosodium Glutamate



MSG is an **excitotoxin**, which means that it acts as a poison that **overexcites your cells** to the point of serious damage. MSG is non-discriminatory in its destructive path and can cause serious side effects throughout your bodily systems, including:

- Cardiac
- Circulatory
- Gastrointestinal
- Muscular
- Neurological
- Visual
- Respiratory
- Urological/genital
- Skin



Other studies have confirmed that early exposure to MSG and other **excitotoxins** can destroy neurons in a crucial part of your brain, which can lead to gross obesity. The second part of the equation is that MSG can be literally hidden in food labels, **under names like broth, casein, hydrolyzed, autolyzed, natural flavors, and more, making it extremely difficult to identify.**

Vitamin and Mineral Deficiencies



- ✓ In addition, there may be deficiencies in minerals such as zinc and iron, and vitamins, as well as essential fatty acids (omega fatty acids).
- ✓ All may lead to a decrease in physical activity, which is the body's attempt to decrease further energetic loss.
- ✓ Nutrition, especially dieting behavior, can be a major factor for growth hindrance, particularly in sports that emphasize strict weight control and particularly with psychological and emotional factors involving self-esteem in relation to physical "appearance" which is common in pubescence.
- ✓ Energy balance is crucial to growth and development. This balance can only be obtained through adequate, quality nutrition.
- ✓ Intake of energy in the form of food, as well as vitally important nutrients such as calcium and magnesium may be suboptimal in athletes who restrict dietary intake during a time of increased metabolic activity or with practicing "dieting" due to the desire to be "thin."

A close-up photograph of several blueberries and a green leaf. The blueberries are dark blue with white bloom and some water droplets. The leaf is bright green. A semi-transparent white text box with a thin black border is centered over the image. The text inside the box is in a bold, sans-serif font.

**EVERY TIME YOU EAT
IS AN OPPORTUNITY
TO NOURISH
YOUR BODY.**

Powerful Protein



- Approximately 20-30% of the diet should consist of high quality, lean, natural sources of protein.
- Protein is absolutely necessary for muscle growth and support as well as wound healing. It is necessary for tissue repair.
- Proteins are like building blocks – they provide the substances the body needs to build muscle.
- Chronic protein deficiency can result in death.



Nuts, seeds and legumes (beans and lentils) are good sources of protein as is lean meats, eggs, poultry, fish, seafood, moderate, organic dairy (when possible) as well as whole grains such as oats, spelt, kamut, barley, brown and wild rice, quinoa and millet.

Carbohydrates - FAST Energy



- ✓ Good quality sources of complex carbohydrates should make up about 30-40% of the daily diet.
- ✓ Oatmeal, whole grains, brown rice, whole grain pasta, and beans are all good sources of complex carbs.
- ✓ Complex carbs are an excellent source of fiber.
- ✓ The difference between good carbs and bad carbs is not based on a simple and complex carbohydrates list. It's based on how much fiber is in the food and how fast the food's sugars are absorbed into your blood stream.
- ✓ Complex carbohydrates are absorbed much slower into the blood stream. Simple carbs are refined, sugary foods and white flour based products. These are absorbed quickly and can spike blood sugar levels.



Carbohydrates are the primary source of GLUCOSE for the body, and used as fuel both for physical energy and used as the primary source of fuel for the brain.

FAT - Not Always a Fight



FAT gets a bad rap most of the time, but not all fat is bad...

- ✓ Many of our organs are actually composed of fatty tissues such as the pancreas and thyroid and adrenal glands
- ✓ Flax seed oil, hemp seed oil, walnut and coconut oil and oily fish are great sources of one of the key essential fatty acids, **ALSO called Omega-3 fatty acids.**
- ✓ For cooking, choose extra virgin olive oil or coconut oil.
- ✓ Fat should only take up about 10-20 % of daily dietary intake.
- ✓ Good fats provide the body with essential fatty acids for brain development, decreased inflammation and used by the liver to provide good cholesterol for the cells.

FOOD SOURCES OF GOOD FATS: nuts, seeds, avocados and the oils listed above.

Anti-Oxidants: Rust Protection



THINK Colour!

- ✓ The colors of fruits and vegetables are there for a reason. They are called antioxidants... basically RUST prevention.
- ✓ Oxidation is a normal part of metabolic function which causes free radical damage in the body.
- ✓ Exercise increases oxidation, however, also increases oxygenation. While oxygen is good, it is also bad if we do not consume enough “anti-oxidants” to combat the negative effects of oxidation.
- ✓ The “colours” of food represents hundreds of antioxidants used to help prevent free radical damage.



Supplements - Additions to Everyday



**It is best to consult
with a
Natural Health
Practitioner for advice
before beginning a
supplement protocol.**

- ✓ Supplements are absolutely essential for every stage of life, however, the word itself means “in addition to”.
- ✓ **Supplements DO NOT substitute for a poor diet.**
- ✓ No amount of supplements are worth it if your nutritional intake is consistently inadequate.
- ✓ Not all supplements are created equal. Think QUALITY over QUANTITY/VALUE.
- ✓ Children of all ages require supplements especially if they are engaging in sports activities to reduce the potential of deficiencies due to increased metabolic activity.

What Best to Eat?



- ✓ Adequate protein and water (much more preferable over sports drinks) are required before and after sports.
- ✓ **Sports drinks are laced with High Fructose Corn Syrup and food dyes, linked to many health problems.**
- ✓ Fruits, vegetables, whole grains, nuts and seeds (if not allergic), ancient grains such as kamut, spelt, whole oats.
- ✓ Lean meats, REAL meat, (not processed), eggs, fish, legumes (beans), brown and wild rices, quinoa, oats
- ✓ **AVOID:** Excess sugar, fried foods, fast food, fatty foods, candy, packaged/highly processed foods.

Before, During and After the Games



During the workout your body used stored energy (**glycogen**) in your muscles to power through. As soon as possible post workout, get carbs and protein into your body to allow your muscles to **replenish the glycogen** that was used and rebuild/ repair any damage done. Post-workout food is especially important if you train hard every day to avoid soreness and injury. Protein helps to repair muscle function after exercise.

Make sure to eat before, during, and after your sport. This helps maintain blood glucose levels, which in turn will help enhance your sports performance.

Hydrate! Drink water 2-3 hours before your sport, during breaks, and especially afterwards to replenish your body. Coconut water and water infused with fruit is much healthier than colored and sugar-laden sports drinks. There is no nutritional value in these - it's just sodium and sugar and toxins.

Eat fat. Sounds crazy but fats are a source of fuel for your body. Healthy fats are strongly advised such as peanut butter or avocado, nuts and seeds and coconut.

Before a game, eat some protein and complex carbohydrates (i.e. whole grain and protein). After you exercise, make sure to replenish some of the calories lost.

Complimentary Therapies:



There are a number of therapies and modalities that athletes will respond well to - with or without the use of prescription medications:

- *Nutrition! (my favorite!)*
- *Homeopathy*
- *Herbs and Essential Oils** (from a qualified person)
- *Bowen Therapy, Massage, Reflexology*
- *Naturopathy*

How a Nutritionist Can Help



What is a Nutritionist?

A nutritionist is a qualified practitioner who has studied nutrition thoroughly and understands that each person has genetically unique nutritional requirements. A nutritionist will consider many factors in counseling an individual that may include age, gender, height / weight, lifestyle, activity level (exercise) and dietary habits, food sensitivities and intolerances as well as food preferences and supplements.

Nutrition is not regulated in Canada, and anyone MAY attempt to call themselves a nutritionist, but **ONLY** those who have studied nutrition thoroughly and passed the testing can use the designation of **RNCP**

(Registered Nutritionist) and register with the **IONC (International Organization of Nutritional Consultants)**.





Thank You
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Coaches
for
attending this presentation
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