

# Supplements and Ergogenic Aids

# Dietary Supplements

- Many Canadians take vitamins, minerals or other dietary supplements daily or occasionally.
- Some people take them because they don't get enough through out the day or believe that it will improve their athletic performance.
- These supplements come in many different forms such as; pills, powder, liquids and energy bars.

- The most popular ones are vitamin D and E, calcium, iron.
- Specialty products such as probiotics and fish oils are purchased and athletes hope for miraculous results.
- Yet there is no solid research that that indicates taking vitamins and minerals increases performance.

# Risks Associated with Dietary Supplements

- Taking vitamins and minerals in large quantities can be harmful to ones health.
- Many athletes and active people consume more than the recommended doses ( doses up to 1,000 times the recommended intake) and will harm themselves.
- Taking vitamins in high doses can cause: illness, organ and tissue damage.

- Consuming an excess amount of fat soluble vitamins can be toxic as they accumulate in the body.
- Excess amounts of water soluble vitamins such as B and C vitamins can also be toxic for the body.
- These vitamin supplements seem to only take affect in those who have deficiencies and take the recommended doses.



# Protein and Amino Acid Supplements

- Protein supplements are for athletes concerned about strength, building muscle and endurance.
- There is a lot of contradictory research in this area. The effectiveness of oral or intravenous infusion has not yet been proven scientifically.
- Any benefits from taking these products can likely be obtained by consuming nutrient rich foods.

# Protein powders

- Taken when the goal is to gain muscle mass.
- When taken in excess it is burned as fuel, stored as fat or excreted during urination.
- The reason why consuming more would be beneficial is because it is used as energy.
- If someone were to consume 300g extra of carbs instead of protein it would be more beneficial for them. And less expensive.





# [Review] The Protein Powder Buyer's Guide — 150 Popular Protein Powders Shaken In And Graded

# Carnitine

- Known to be a fat burner
- Made to decrease lactate production, increase VO<sub>2</sub> max, delays fatigue, spares glycogen stores and induces loss of body fat.
- Carnitine is synthesized in the kidneys and can be found in foods such as: liver, meat, poultry, fish and milk products.



# Creatine

- For athletes that's require short burst of energy.
- Creatine is stored in the muscle tissue and any excess creatine is excreted.
- Creatine has not been tested for safety for teenagers.

**DYMATIZE<sup>®</sup>**  
NUTRITION

# **CREATINE**

## **MICRONIZED**

**100% PURE PHARMACEUTICAL GRADE**

DIETARY SUPPLEMENT

*Clinically Proven<sup>1</sup>*  
*Muscle Hydrator<sup>2</sup>*  
*Cell Volumizer<sup>3</sup>*

Net Wt 1.1 lbs. (500g)

# Caffeine

- Caffeine stimulates the central nervous system.
- It can increase mental alertness, reduce fatigue and spare glycogen stores.
- It may have an effect on calcium transportation and glycogen breakdown.
- An intake of more than 9g/ Kg can result in urinary caffeine levels.



# Pharmacological and physiological aids

- Some athletes use drugs to mask pain, increase muscle mass and increase speed and strength.
- Some use them for recovery from intense exercise.
- The World Anti Doping Agency defines pharmacological aids as a substance or method, potentially harmful to the athlete and capable of enhancing athletic performance.

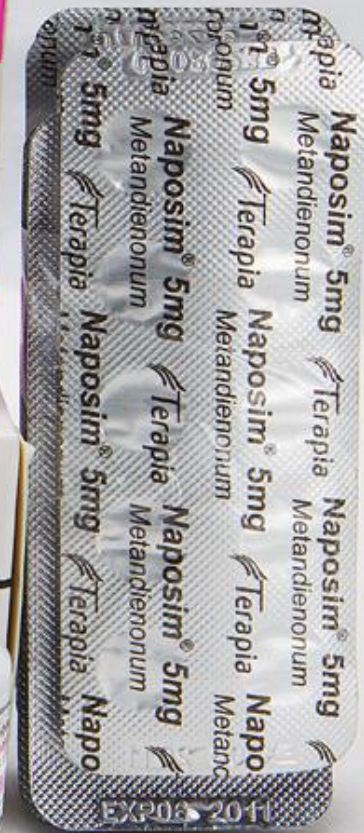


# Pain Masking Drugs

- Drugs include morphine, heroin, pethidine and dextropropoxyphene.
- Interfere with the ability to sense pain and blocking nerve impulses.
- Side effects include addiction and injury because the bodies sense for pain is blocked

# Anabolic steroids

- Are synthesized versions of the male hormone testosterone.
- Non medical use is illegal and banned in most major sports.
- Advantages include an increase in lean body mass.
- Side effects include liver damage, increased aggressive behavior, In women it can lead to the growth of facial hair, deepening voice and menstrual irregularities



# Prohormones

- Are a type of androgenic steroid. They either convert to testosterone or stimulate it.
- Androtestenedione is one of the most popular ones. It increases power and decreases body fat.
- Side effects include stunted growth, increased aggressive behavior,

# Human Growth Hormone (HGH)

- HGH is produced by our body naturally.
- Athletes seek more and inject into themselves.
- Extra amounts are known to : increase muscle mass, , strengthen bones, limit weight gain and improve aerobic endurance.
- High uses can lead to heart, kidney and liver problems

# Erythropoietin (EPO)

- Is a natural protein hormone produced by the kidneys that stimulates red blood cell production.
- It can also be manufactured and injected.
- It will increase hemoglobin levels which increases the oxygen carrying capacity of red blood cells.
- It causes the heart to work harder and increasing the risk of cardiac failure.

# Blood Doping

- Blood doping involves IV injection of red blood cells and blood related products to increase the oxygen carrying capacity.
- Athletes may be using their own blood or someone else's.
- Athletes remove 2 units of blood and store it for 6-8 weeks, the blood is then reinfused into the athlete.

# Drug Masking

- This is the practice of using certain drugs to mask or reduce the presence of banned substances.
- It dilutes the concentration of the banned substances in the blood stream.