Let's Excel Together

CANADIAN ACADEMY OF SPORTS NUTRITION

Lecture 22:

How to Naturally Increase Growth Hormone

Part 1

Copyright Protection:

- **As mentioned earlier, the best way to combat the abuse of a substance is to offer an alternative to it.**

- **You can raise your growth hormone levels naturally through the following ways:**

- **1) Exercise**
- **2) Supplementation.**

GH Enhancing Supplements:

- Arginine.
- Co – Enzyme Q10.
- Colostrum.
- Ferulic acid/Gamma Oryzanol
- Glutamine
- Glycine.
- Lysine.
- Omega – 3 fatty acids.
- Ornithine.
- Ornithine Alpha – Ketoglutarate (OKG)
- Potassium.
- Tryptophan.
- Vitamin B3.

Arginine:

- **It is a nonessential amino acid and the most significant amino acid in stimulating GH release, although it has several other metabolic roles.**

- **Supplementing with arginine increases blood levels of different hormones, especially GH and insulin.**

- **Arginine, metabolically, is superior to other amino acids, because it is multifunctional.**

Metabolic functions of arginine are:

- Increasing GH level.
- Acting as a precursor for NO (nitric oxide).
- Involving in the formation of creatine by the liver.
- Converting ammonia into urea.

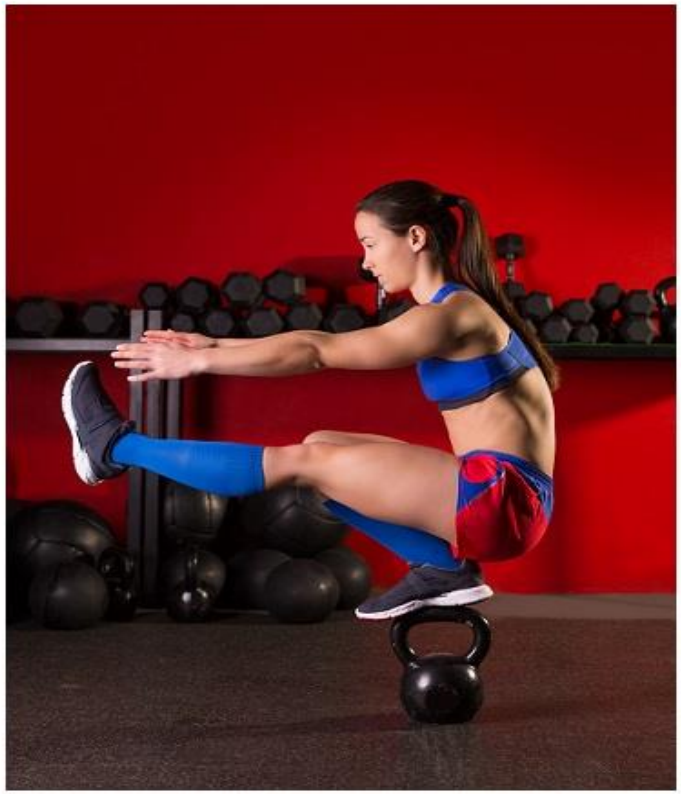
The exact mechanism of arginine in stimulating the release of GH is not known. Possible mechanisms are:

1) Blocking somatostatin, a GH-inhibiting hormone.
2) Intensifying the effect of GHRH, the growth hormone-releasing stimulant secreted from the hypothalamus.

Non – Athletic Benefits of Arginine:

The following condition may benefit from arginine:

- **Erectile dysfunction.**
- **Angina.**
- **Congestive heart failure.**
- **Infertility.**
- **Pulmonary hypertension.**
- **Wound healing.**
- **Gastritis.**
- **Intermittent claudication.**



Dosage:

- **Arginine is available commercially in tablet or powder form either alone or in combination.**

- **Dosage is 2 - 4 grams per day for non-athletes and 4 – 6 grams per day for athletes taken:**

- **Bedtime.**
- **30 – 60 minutes before exercise.**

Side Effects:

- No toxic effects have been reported.
- High doses of arginine may cause stomach distress, bloating, nausea, and a sense of fullness.
- High dosages in the long-term may suppress immunity by removing inhibitory effects on cortisol, a stress hormone.
- High doses of arginine worsens cold sore, because the herpes virus uses arginine for growth.

Co – Enzyme Q10:

- **Co-enzyme Q10, a naturally occurring vitamin-like substance also called Ubiquinone.**
- **A metabolic enhancer, co-enzyme Q10 is present in all cells of the body, with the heart and liver containing the highest concentration.**
- **Co – enzyme Q 10 is a potent antioxidant, has a multiplicity of uses in the body, and is chemically related to vitamin E.**

- **Without co-enzyme Q10, our cells would die.**
- **Humans lose the majority of this enzyme with aging.**
- **This is the reason that experts believe co-enzyme Q10 can increase life span.**

Co-Enzyme Q10.

Athletic Benefits of Co-Enzyme Q10:

- 1. A vital cofactor in the production of energy.
- 2. Improves aerobic capacity.
- 3. Reduces muscle soreness and fatigue.
- 4. Helps reduce body fat.
- 5. Increases physical performance and exercise endurance.
- 6. Tones muscles.
- 7. Prevents exercise - induced muscle breakdown (rhabodmyolysis)
- 8. Stimulates GH release.

Non – Athletic Benefits of Co-Enzyme Q10:

The following conditions would benefit from Co – enzyme Q 10:

- **a) Heart diseases.**
- **b) Angina pectoris.**
- **c) High blood pressure.**
- **d) Aging.**
- **e) Congestive heart failure.**
- **f) Cardiomyopathy.**
- **g) Diabetes.**
- **h) Insulin resistance syndrome.**
- **i) Periodontal disease.**

- **j) High levels of LDL cholesterol.**
- **k) Migraine.**
- **l) Chronic obstructive pulmonary disease (COPD).**
- **m) Male infertility.**
- **n) HIV support.**
- **o) Dementias.**
- **p) Halitosis.**
- **q) Weight management.**
- **r) Fibromyalgia.**

- **s) Chronic fatigue syndrome (CFS).**
- **t) Cancers: breast, lung, and prostate.**
- **u) Renal failure.**
- **v) Parkinson`s disease**

Food Sources:

Natural sources for co-enzyme Q10 are:

- **Eggs**
- **Rice bran**
- **Wheat germ**
- **Fish**
- **Organ meats**
- **Peanuts**

Dosage and Side Effects:

- **The usual dosage is 50 - 100 mg a day.**
- **Athletes would need 100 – 200 mg a day.**
- **Co – Enzyme Q 10 with dosage of 300 mg a day or more may be needed in the following conditions:**

- Advanced heart disease.

- Migraine headaches.

- Cancers.

- Post – chemotherapy.

- **Virtually no side effects from overdoses of this nutrient, extremely high doses may lead to abdominal cramps and a mild diarrhea.**

Colostrum:

- **Colostrum or primary milk is the special milk secreted by mammals during the first 2 days after giving birth.**

- **Whole milk follows it.**

- **Colostrum, a natural anabolic agent, is rich in protein and tonic compounds and contains everything the human body needs to grow normally, such as growth factors, immune enhancing substances and other nutrients**

- **It is the main natural source of insulin-like growth factor I (IGF-I).**
- **Containing different immune enhancers and growth factors, colostrum is well known for its health benefits.**
- **Its ability to combat disease and promote normal growth had been identified from ancient times.**
- **Immune enhancers found in colostrum fight disease and protect the body, while the growth factors can repair damage resulting from aging, stress, and illness.**

Benefits of Colostrum:

- Promotes nutrient uptake in the cells
- Builds lean body mass
- Maximizes protein synthesis and inhibits protein breakdown
- Boosts the immune system
- Increases memory and elevates mood

- **Increases appetite naturally**
- **Prevents the loss of age-related skin elasticity**
- **Improves physical performance**
- **Burns fat**
- **Intervenes in glucose metabolism and lowers blood sugar level**
- **Fights diseases from the common cold to diabetes and multiple sclerosis (MS)**
- **Reduces allergic reactions**
- **Increases resistance against infections**
- **Improves normal growth and development**

Athletes and Colostrum:

- **Because colostrum is the prime source of IGF-I, its use by athletes has increased.**

- **The healing feature of colostrum is attributed to IGF-I and IGF-II. They can build muscles and repair tissues.**

Why do athletes consume colostrum?

- 1) Colostrum builds lean muscles.
- 2) Increases physical performance.
- 3) Reduces recovery time from high-intensity training sessions.
- 4) By inhibiting protein breakdown and accelerating protein synthesis, colostrum is the most effective natural muscle-building agent.

- Some researchers believe that colostrum is about 3 to 5 times more effective than synthetic growth hormone. During exercise and strenuous workouts, IGF-I triggers muscle cell proliferation and, consequently, increases muscle mass.

- **5) Colostrum is a natural fat burner.**
- **6) Colostrum, as a source of IGF-I, can shift fuel utilization from protein to fat.**
- **7) Colostrum has an anti-catabolic effect.**
- **8) It improves the endurance ability of athletes by making fat available for energy supply and by stimulating the entry of glucose into the muscle cells.**
- **9) By providing immune-enhancing factors, colostrum boosts the immune system and prevents infections, which may occur after a heavy workout.**

- **10) Colostrum has a healing property that is important for athletes:**
- **Strenuous exercise causes damage in muscles, tendons, ligaments, and cartilages.**

- **Colostrum helps muscles and other tissues repair and regenerate quickly.**

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Dosage:

- **Colostrum is available as a supplement either alone or in combination, and in capsule or powder forms.**
- **It is recommended 500 to 2000 mg per day, while others suggest 20 mg per kilogram of body weight.**
- **Colostrum dosage can be increased during stress periods and illnesses.**
- **It is better to divide the daily dose and take it twice a day.**

- **Non-athletes had better take colostrum in the morning one hour before breakfast and at bedtime.**

- **Athletes should take it one hour before exercise and before bedtime.**

Side Effects of Colostrum:

Although there are no side effects from the suggested doses, higher dosages could cause:

- **Headaches.**
- **Agitation.**
- **Fatigue.**
- **Heartburn.**
- **Stomach distress.**

Tips for Athletes about Colostrum:

- **Take colostrum on an empty stomach with plenty of water.**
- **Never do try to swallow capsules or tablets without water. They may dissolve in the esophagus before reaching the stomach.**
- **Do not use colostrum with your meals; take at least one hour before or after meals.**
- **To reach desired results, you may use colostrum over a longer period.**

- **One of the most common problems among athletes who are losing weight to be at the correct weight for the event is getting minor sickness such as common cold or flu. During weight loss, colostrum can be used both for increasing body resistance to illness and for losing weight easily.**

- **During the muscle-building periods, combine colostrum intake with a high protein diet.**

Ferulic Acid & Gamma Oryzanol:

- **Gamma Oryzanol and Ferulic Acid are related to each other.**

- **Chemically, gamma oryzanol is a ferulic acid ester of triterpenyl alcohols and has two parts. The larger part is the sterol and the smaller part is ferulic acid.**

- **Gamma oryzanol is a plant sterol extracted from rice bran oil; as a white powder, it may also exist in grains such as barley and corn.**

How Gamma Oryzanol and Ferulic Acid Work:

- 1) Enhance GH secretion, though some controversial reports.
- In my experience, gamma oryzanol in a dosage of 500 mg per day increased lean body mass, reduced fat, increased stamina, and elevated mood.

- 2) They may also increase levels of testosterone in the blood. It is claimed that bioavailability of ferulic acid is about 30 times more than that of gamma oryzanol.

- 3) They have antioxidative activities.

- 4) Effect on female hormones:
- gamma oryzanol may prevent some symptoms of menopause such as hot flushes, or at least, in doses of 300 mg per day, reduce the severity of symptoms in over 85% of cases.

- 5) Effect on the digestive system:
  - used in gastritis and IBD.

- 6) They boost the immune system.

Athletes and Gamma Oryzanol/Ferulic Acid:

Why are athletes attracted to them?

- **GH and Testosterone boosters.**
- **They increases the growth of lean muscle tissues.**
- **They decreases the catabolic effects of cortisol.**

Dosage and Side Effects:

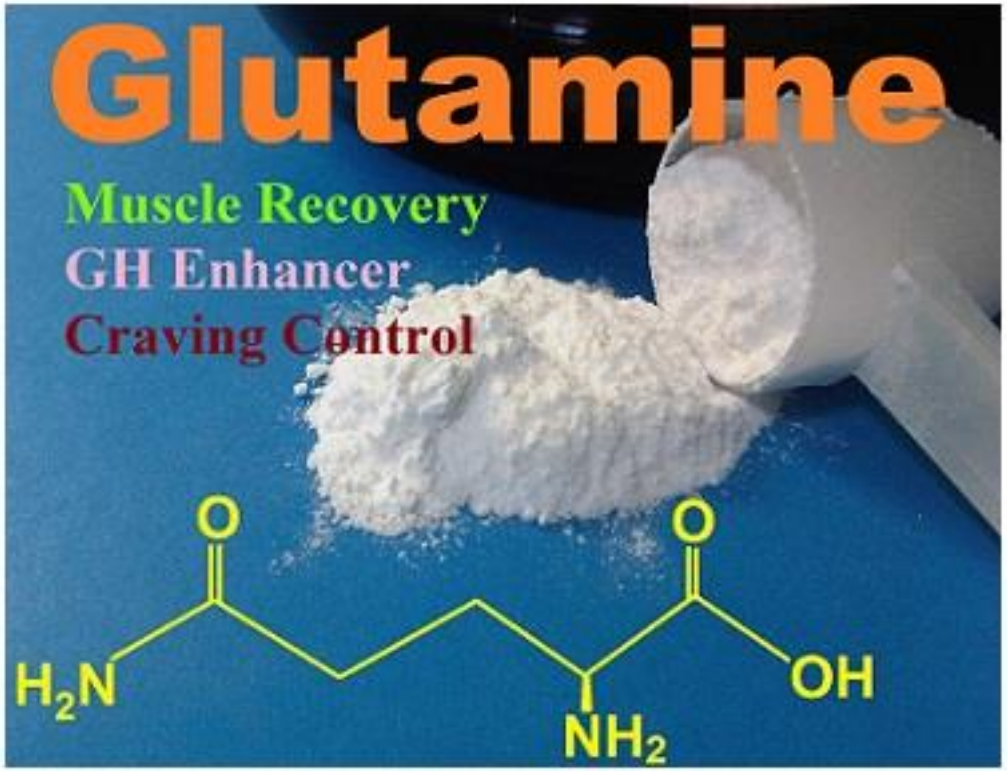
- **Gamma Orizaol:** 300 – 500 mg per day.
- **Ferulic Acid:** 100 mg per day.

- gamma oryzanol dosages up to 900 mg and ferulic acid up to 100 mg per day have been reported to be safe and create no side effects.

- Some research suggest that gamma oryzanol up to 600 mg daily for several months can cause **stomach upset**, **dizziness**, **sleepiness**, **dry mouth**, **agitation**, and **hot flushes** in some people.

Glutamine:

- The most plentiful amino acid in the body.
- Is a nonessential amino acid.
- Like arginine, glutamine is a multifunctional amino acid.



- **Glutamine is called a conditionally essential amino acid, because the body may not be able to produce the required amounts during stressful conditions.**

- **During the times of stress, the most commonly used amino acid by the body is glutamine. That is why it is called "stress-counteracting" or so-called "anti-stress" amino acid.**

Athletic Benefits of Glutamine:

- **Stimulates the release of GH.**
- **Strenuous exercise and hard training raise the body`s stress levels, depleting glutamine storage of the body.**
- **Improves athletes` concentration by converting to GABA (gamma aminobutyric acid).**
- **Glutamine can give you an edge by promoting growth hormone production and by boosting up immunity.**

- **Glutamine can readily pass through the blood brain barrier into the brain, where it may act as a neurotransmitter, increasing mental alertness.**

- **Glutamine also has an anti-catabolic effect, meaning that it prevents the break down of muscle fibers and proteins following a hard training.**

- **Protects from overtraining syndrome.**

- **Speeds up post – exercise recovery.**

- **Glutamine neutralizes the cortisol through its anti-catabolic effect.**

- **Glutamine can also be used during the post-exercise period or between intervals of the events to recover and rebuild energy sources.**

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Non – Athletic Benefits of Glutamine:

Glutamine may benefit the following conditions:

- **a) Craving for alcohol.**
- **b) Craving for sugar.**
- **c) Diarrhea.**
- **d) Alcohol withdrawal support.**
- **e) Wound healing support before and after a surgery.**
- **f) Gastritis.**
- **g) HIV support.**
- **h) Inflammatory bowel disease (IBD).**
- **i) Gastritis.**

Dosage of Glutamine:

- **The dosage of glutamine varies extensively and ranges from 2 to 20 grams.**
- **As a GH booster: minimum 10 grams a day, 5 grams bedtime and 5 grams about 30 minutes before exercise.**
- **Oversupplementing with glutamine has negative effects. It increases the ammonia and urea load of the body followed by the workload of the kidneys.**

- **At the CAASN, we recommend "*Glutamine Cycling*" as 3 – 1 – 3 – 1.**

Glutamine is not recommended in the following conditions:

- Impaired function of the kidneys.
- Diabetes.
- Liver disease.
- Cancer being treated with chemotherapy.
- A history of hypotension (decreased blood pressure) attacks.
- ALS (amyotrophic lateral sclerosis).
- Crush injuries.
- Severe burns.
- Extreme bleeding.

Glycine:

- **Glycine is a nonessential amino acid.**
- **Glycine is important in the synthesis of hormones responsible for a strong immunity.**
- **The prostate gland needs glycine to remain in a healthy state.**
- **The brain needs glycine to function appropriately, because it acts as an inhibiting neurotransmitter.**

Athletic Benefits of Glycine:

- **Stimulates the release of GH.**
- **Glycine has a key role in creatine formation.**
- **May help with athlete`s jet lag.**
- **Maybe useful in pre – exercise anxiety by acting like GABA.**

Non - Athletic Benefits of Glycine:

The following conditions may benefit from glycine:

- **a) Depression.**
- **b) Benign prostatic hyperplasia (BPH)**
- **c) Schizophrenia.**
- **d) Epilepsy.**
- **E) Muscular spasticity.**

Dosage and Side Effects:

- **The recommended dosage is variable, ranging from 0.5 to 7 grams per day.**
- **As a GH booster: 4 - 7 grams a day.**

- **Prolonged supplementation with glycine may cause headaches.**

- **Tryptophan should not be taken with glycine, because the two amino acids will compete for space on the nerve cells, and they will not be as effective as if taken separately.**

Homework:

- **1) Describe athletic and non – athletic benefits of arginine.**
- **2) List the indications of consuming Co – Enzyme Q10.**