NUTRITIONAL ERGOGENICS FOR EXPLOSIVE ATHLETES

Reaction • Starting Strength • Maximal Speed • Striking Force • Power Endurance
Wisdom & Practical Application

- **Science Based (Current) & Applied**
  - Since 1960 Nutrition & Athletes 57% (1,513) in just the last 10 years.
  - Nutrition & Elite Athletes 62% in last 10 years.
  - Real-world training programs with nutrigenomic biologically active substances.

- **Minimalist View!**
Nutrigenomic BAS Categories

• Anabolic
• Lipolytic
• Energetic
• Adaptogenic
• Neurologic
• Dis-Adaptive Nutrients
ANABOLIC mTORC1

- Resistance Exercise / Muscle Contractions

IGF-1 → PI3K → AKT → TORC1

Amino Acids (EAA / BCAA)
Creatine Monohydrate
Tri-Methyl Glycine (TMG)
Omega-3 (EPA/DHA)
Phosphatidic Acid (PA)
Mineral Orotates
Taurine
AMINO ACIDS (EAA / BCAA)

• Whey Protein 20 grams (10g EAAs)
  • 2 Grams Leucine

Muscle Full
20 Grams / 3 Hours

Post-Workout Restoration / Anabolism
L-Leucine and HMB
Tri-Methyl Glycine (TMG, Glycine Betaine)

- Power, Strength, and Endurance

  - IGF-1 → AKT → mTORC1

- 1.25 grams Twice Daily
Phosphatidic Acid (PA)

- Muscle Contractions $\rightarrow$ PLD $\rightarrow$ PCh $\rightarrow$ PA $\rightarrow$ mTORC1 $\rightarrow$ P70S6 Kinase $\rightarrow$ Muscle Growth

- 750 mgs Daily
- Mediator® 50% PA
Mineral Orotates Mg, K, Ca

- ↑ PPARα Fatty Acid Utilization

- Orotic Acid → Uracil Metabolism
  UMP → RNA and DNA Synthesis → Enhanced Muscle Growth
Creatine Monohydrate

- Before Hultman, Harris and Greenhaff there was Volkov and Viru.
- Increased peak torque and reduced deceleration
- Energetic, Anabolic, and Neurologic
- 20g/day top end and 5g daily over time
- 10% or more users are non-responders. May require high glycemic carbs in complex.
Other Anabolics

- Ecdysterones $\uparrow$Ca(2+) $\rightarrow$ PI3K $\rightarrow$ AKT $\rightarrow$ mTORC1

- Ursolic Acid $\rightarrow$ Insulin & IGF-1 Receptor Activation $\rightarrow$ IRS1 $\rightarrow$ PI3K $\rightarrow$ AKT $\rightarrow$ mTORC1

- Taurine $\rightarrow$ IGF-1 $\rightarrow$ PI3K $\rightarrow$ AKT $\rightarrow$ mTORC1 $\rightarrow$ p70S6K and 4E-BP $\rightarrow$ Skeletal Muscle Growth
LIPOLYTICS
AMPK  SIRT1  PGC-1α

- Polyphenols from Plants
  - EGCG from Green Tea
  - Fucoxanthin from Brown Seaweed
  - Proanthocyanidins from Grape Seed
- Chlorogenic Acid from Green Coffee Bean
- Resveratrol from Grapes and Polygonum
  - Acetic Acid from Vinegar
- Cyanidin-3-glucoside from Purple Corn
Adaptogenics (Anti-Distress)

- Eleutherococcus
- Rhodiola rosea
- Withania (Ashwagandha)
- Ocimum sanctum (Tulsi, Holy Basil)
- 20-Hydroxyecdysone (Leuzea, Ajuga)
- Ginseng (American, Chinese, Korean)
- Pfaffia paniculata (Brazil Ginseng, SUMA)
- Aralia manshurica (Araliaceae)
Neurologics

Neuromuscular junction

nerve cell ending

acetylcholine receptors

muscle cell
Acetylcholinesterase Inhibitors (AChEI)

- Alkaloids, terpenoids, glycosides, coumarins
  - Bacopa
  - Ginko
  - Rosemary
  - *Galanthus nivalis*
  - *Huperzia serrata*
Acetylcholine Boosters

- Lecithin
- Choline
- Citicoline (CDP Choline)
- Alpha-glycerylphosphorylcholine (α-GPC)
Energetics

• ATP
  • Reduce fatigue and maintain high force output at the end of
    • exhaustive exercise.
  • elevATP®
  • Peak ATP®
Dis-Adaptive Nutrients

• Dietary supplements that have the potential to destroy your adaptive response to high intensity exercise:

  • Vitamin C
  • Vitamin E
  • NAC
  • Lipoic Acid
ALWAYS REMEMBER!

- The best nutritional ergogenics are only as good as the training plan.

- Rick Brunner