

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)

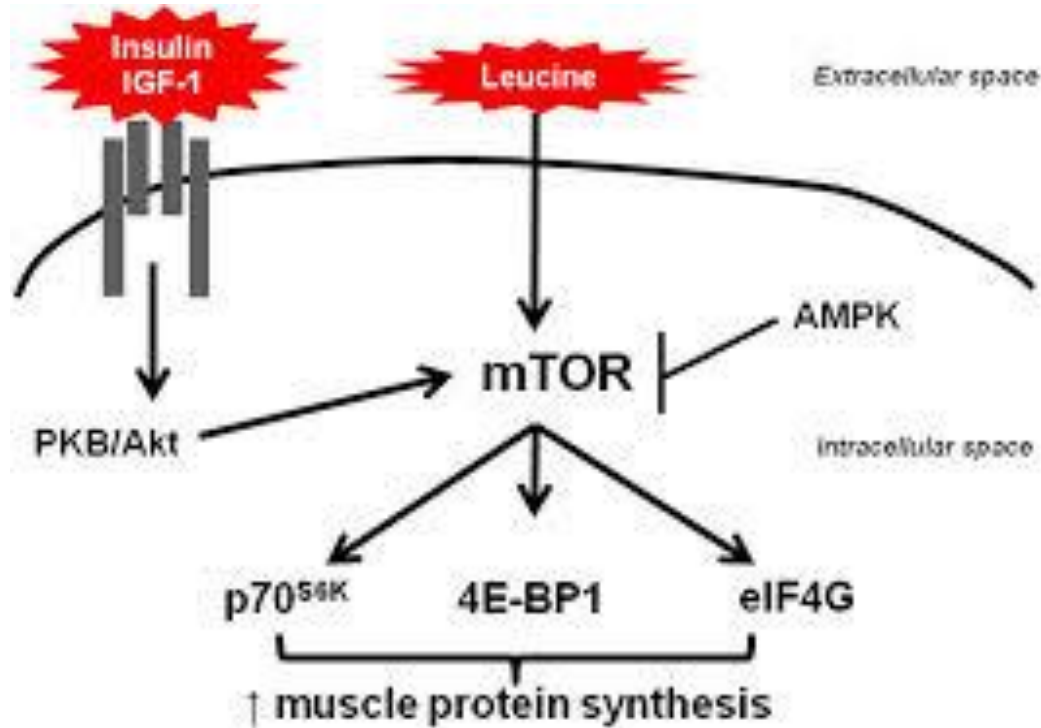
- **Whey Protein 20 grams (10g EAAs)**
 - **2 Grams Leucine**

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 → PLD → PCh
→ PA → mTORC1 → P70S6 Kinase
→ Muscle Growth**

- **750 mgs Daily**
- **Mediator® 50% PA**

Mineral Orotates Mg, K, Ca

- **↑ PPAR α Fatty Acid Utilization**
- **Orotic Acid → Uracil Metabolism
UMP → RNA and DNA Synthesis →
Enhanced Muscle Growth**

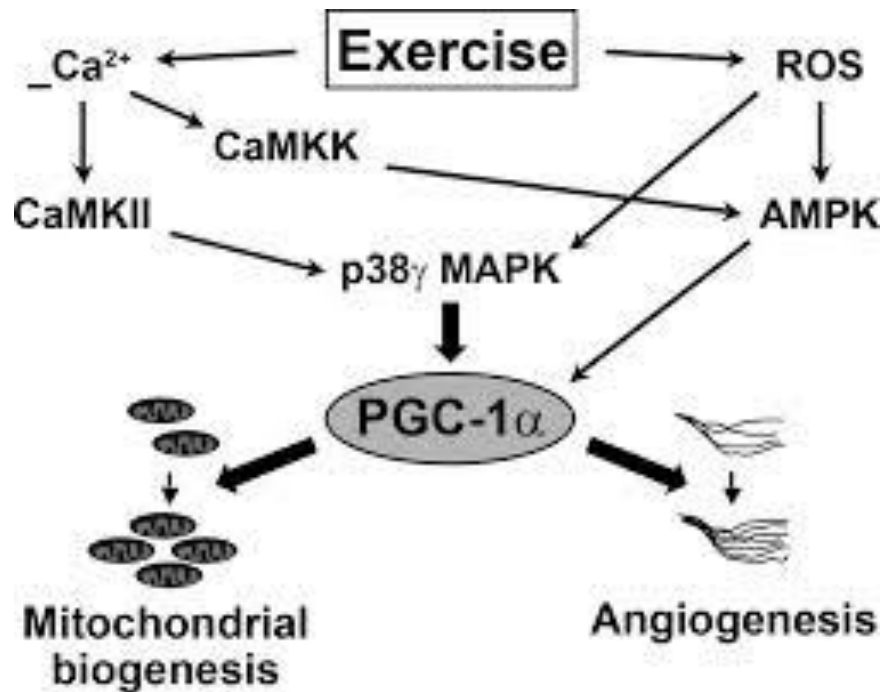
Creatine Monohydrate

- 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



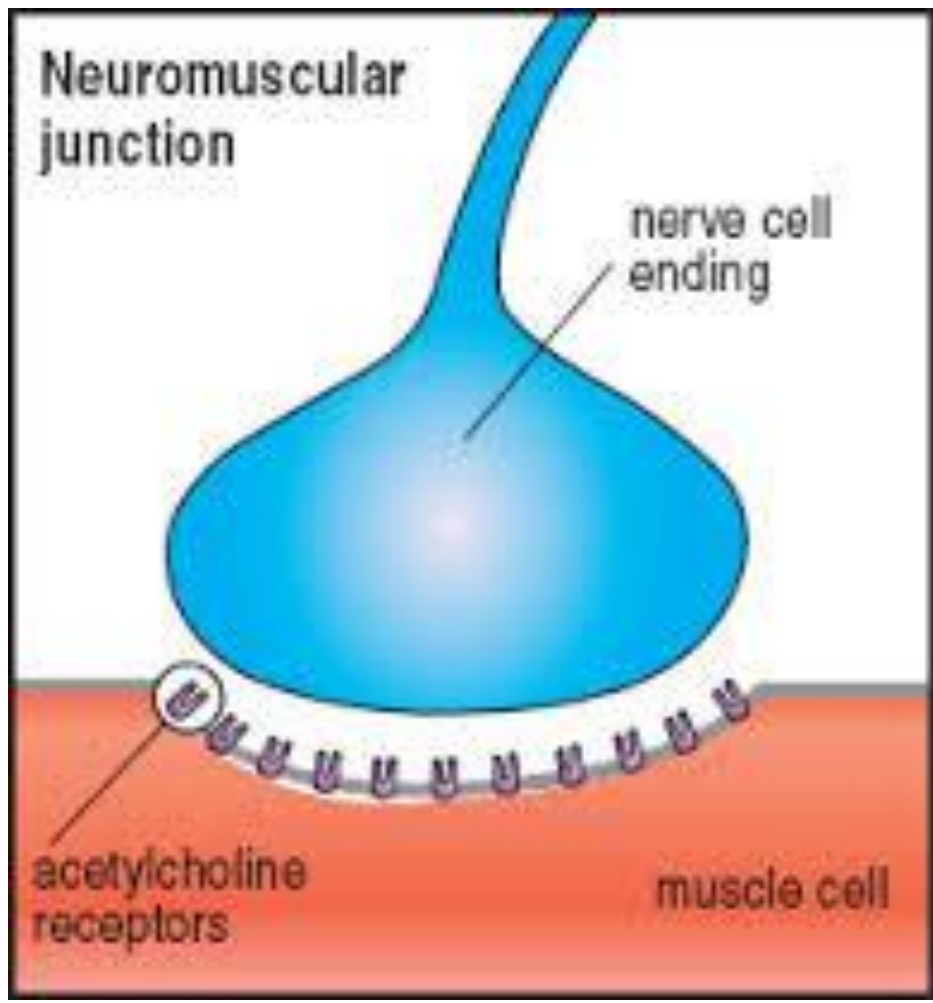
AMPK SIRT1 PGC-1 α

- **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



Acetylcholinesterase Inhibitors (AChEI)

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

Acetylcholine Boosters

- **Lecithin**
- **Choline**
- **Citicoline (CDP Choline)**
- **Alpha-glycerolphosphorylcholine (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**