

Alpha-glycerolphosphorylcholine

The best known cholinergic to increase choline levels in the brain. Alpha GPC is in its optimal form for transport through blood-brain-barrier, and yields the most choline in plasma per gram of supplementation

- Higher thought in pre-frontal Cortex & Motor control in motor cortex
- Increase brain and blood levels simultaneously (easily crosses blood-brain barrier)
- Excessive use of either of these brain pathways can cause depletion of choline (no reuptake) AO to brain
- Alpha GPC: shown to increase endogenous GH levels
- Inhibits what inhibits GH production (somatostatin): effects of GH increase due to balance
- Facilitates growth/repair of different types of body tissues
- (lean mass, fat burning enzymes, bone mineral density)
- 600mg for power/GH upregulation..... 1200mg in 3 divided doses for cognitive enhancement

L-Tyrosine

Amino acid that forms a substrate pool to create catecholamine neurotransmitters



- Converts to L-Dopa as an intermediary to neurotransmission to dopamine formation
- Precursor to catecholamine synthesis: epinephrine/norepinephrine/dopamine
- Upregulates performance for neutrally-intensive activity

Acetyl-Carnitine

- Enhancement of mitochondrial function via beta oxidation
- Reduces exercise fatigue in studies
- Lowers levels of creatine kinase/muscle soreness with ingestion prior to exercise
- Upregulates CPT1 & CPT2 enzymes (Carnitine Palmitoyltransferases)
- Attenuates the decline in energy oxidation in the brain and ATP decline (neuro-protective)

References

- <https://www.ncbi.nlm.nih.gov/pubmed/10608918>
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3099008/>
<https://www.ncbi.nlm.nih.gov/pubmed/17513421ro-protective>