

Acetyl-L-Carnitine (ALC) VS L-Carnitine?

ALC is generally claimed to be superior in terms of its therapeutic effects compared to its unacetylated sister compound, L-Carnitine:

- Some scientists claim that there may perhaps be no advantage to taking the (more expensive) ALC form of Carnitine over the more economical unacetylated form of Carnitine (L-Carnitine).
- Dr. Brian Leibovitz (who authored the book "Carnitine, Vitamin B12") claims that because the Sigma Tau corporation owns the patents on ALC for pharmaceutical purposes, they have promoted a myth that only ALC is clinically effective in many situations.
- Some acknowledged leaders of the life extension movement are presently taking half of their daily ALC dose in the form of L-Carnitine and the other half of their dose in the form of ALC until this debate is settled.
- A recent clinical study compared both forms of Carnitine and found that both increased Brain Carnitine levels by the same amount, both stimulated Brain function by the same extent. However, ALC exerted Antioxidant effects in the Brain, while L-Carnitine did not exert Antioxidant effects.

Forms of ALC

Free-Base ALC is 100% ALC. ALC HCl (ALC Hydrochloride) consists of 83% ALC bound to 17% Hydrochloric Acid. Acetyl-L-Carnitine Arginate Dihydrochloride (ALC Arginate DHCl) consists of ALC bound to Arginine. This patented form of ALC is claimed to be more effective than regular ALC for stimulating the growth of Axons.

Bioavailability references

When ingested orally, ALC dissolves in the Stomach and is then absorbed by the Jejunum and enters blood circulation. ALC readily permeates the Blood-Brain Barrier. The bioavailability of ALC is not affected by the Aging Process, i.e. the degree to which it is assimilated does not decline in older persons.

Acetyl-L-Carnitine is the acetylated form of Carnitine that is regarded by some (but not all) experts as particularly beneficial for Brain and Mental Function enhancement. Carnitine Fumarate consists of 60% Carnitine bound to 40% Fumaric Acid. It is absorbed slightly more effectively than Carnitine Tartrate.

Carnitine Lactate consists of Carnitine bound to Lactic Acid. Carnitine Magnesium Citrate is a recently-introduced supplemental form of Carnitine that is claimed to be superior to L-Carnitine in terms of bioavailability. It consists of 40% Carnitine bound to Magnesium and Citric Acid. Carnitine Orate consists of 60% L-Carnitine bound to 40% Orotic Acid.

Carnitine Tartrate consists of 67% L-Carnitine bound to 33% Tartaric Acid (Tartrate). It is claimed to be one of the better forms of Carnitine supplementation in terms of stability and bioavailability. references. D-Carnitine is an isomer of Carnitine that is unusable by the human body. It possesses toxicity and should never be used as a supplement.

DL-Carnitine is a mixture of D-Carnitine and L-Carnitine. It should not be used as a supplement (due to concerns about the toxicity of D-Carnitine). L-Carnitine is the main form of Carnitine synthesized within the human body. It is 100% pure Carnitine and is a common form of Carnitine supplementation.

Propionyl-L-Carnitine is a form of Carnitine that is an ester of Carnitine with propionic acid. Propionyl-L-Carnitine is especially valuable for the treatment and enhancement of the Cardiovascular System.

FORMS		Benefits
Acetyl-L-Carnitine	Superior form of L-Carnitine	Increases brain carnitine levels Exerts anti-oxidant effects in brain Helps prevent age-related memory decline Assists with chronic fatigue
L-Carnitine	Main form of carnitine synthesized in body	Increases brain carnitine levels Does not exert anti-oxidant effects in brain Assists with muscle growth, weight loss and enhances exercise ability Improves sperm motility and function in men
Acetyl-L-Carnitine arginate	ALC bound to arginine More effective than ALC & L-Carnitine	High brain infiltration Stimulates nerve regeneration Increases GABA More effective than ALC for stimulating growth of axons
Propionyl-L-Carnitine	Ester of carnitine with propionic acid More effective than ALC & L-Carnitine	High affinity for heart muscle Increases energy stores in muscle Assists with chronic fatigue Increases exercise performance Treats and enhances cardiovascular system

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