

Supplements for Cachexia

- **EPA/Omega 3-Dose 2-4 g/day.** Reduces PIF & ubiquitin-proteasome activity. Suppresses IL-6, TNF- α , direct anti-catabolic effect on muscle.
- **Creatine monohydrate- Dose 3-5g/day.** Replenishes phosphocreatine. →ATP for muscle contraction & protein synthesis. Reduces myofibrillar breakdown.
- **HMB (β -hydroxy β -methylbutyrate) Dose 3g/day.** Leucine metabolite that blocks ubiquitin-proteasome degradation AND activates mTORC1. Preserves lean mass in RCTs.
- **Leucine / BCAAs: Dose 3-4g leucine with meal.** Leucine directly activates mTORC1. Reduces central serotonin accumulation driving anorexia. Enriched formulas outperform standard protein.
- **Vitamin D3: 2,000-4,000 IU** VDR in skeletal muscle drives myogenesis. Deficiency upregulates atrogen-1/MuRF1 (atrophy genes). Correct before other anabolics.
- **Glutamine: Dose 10-30g/ day.** Conditionally essential in catabolism. Fuels enterocytes – maintains gut barrier – reduces endotoxin translocation during systemic inflammation.
- **Zinc: Dose 25-40mg/day.** Corrects dysgeusia. Deficiency causes taste distortion – poor intake. Cofactor for IGF-1 receptor & thymulin (T-cell maturation). Rapid appetite improvement on correction.
- **Magnesium: Dose 300-400mg.** Cofactor for 300+ enzymes including all ATP reactions. Depletion (common with chemo) causes weakness/cramps mimicking wasting. Reduces CRP.
- **Ashwagandha (KSM-66): Dose 300-600mg/day.** Withanolides lower cortisol (key catabolic driver in cachexia), activate mTOR/GF-1, inhibits NF- κ B. RCT evidence for lean mass gain.
- **CBD (Cannabidiol): Dose: 20-150mg day.** Non-psychoactive cannabinoid that reduces nausea, stimulates appetite via CB1/CB2 receptors, and suppresses TNF- α / IL-6. Also reduces cancer-related pain and anxiety that suppress intake. Full-spectrum oils superior to isolate. (CB1 + CB2 anti-inflammatory)
- **Milk Thistle (Silymarin): Dose: 420-600mg/day (70-80% silymarin).** Hepatoprotective/anti-catabolic. Silymarin inhibits NF- κ B and STAT3 signaling – key drivers of cytokine-mediated muscle wasting. Protects liver function critical for albumin synthesis and drug metabolism. Reduces hepatic inflammation that amplifies the cachectic cytokine load.
- **CoQ10 (Ubiquinol): Dose: 200-400mg/day ubiquinol form.** Essential cofactor in the mitochondrial electron transport chain (Complex I-III). Cachexia causes mitochondrial dysfunction and reduced ATP production in muscle. Ubiquinol form has 3-4 x better absorption than ubiquinone. Also a potent lipid-soluble antioxidant reducing oxidative muscle damage.
- **Boswellia (AKBA): Dose 300-500mg AKBA- standardized extract, 3 x day.** 5-LOX & NF- κ B inhibitor. Acetyl-11-keto β -boswellic acid (AKBA) potently inhibits 5-lipoxygenase (5-LOX) and NF- κ B – two key inflammatory cascades driving cachexia. Unlike NSAIDs, does not inhibit COX enzymes so avoids GI side effects. Particularly useful for cancer-related pain and gut inflammation worsening anorexia.
- **Curcumin (bioavailable): Dose 500-1000mg (Meriva form).** Blocks NF- κ B and inhibits 26S proteasome ubiquitin-mediated muscle proteolysis. Suppresses IL-6, TNF- α and COX-2. MUST use Theracurmin, Meriva

(phospholipid), LongVida, or Bio-Perin formulation – plain curcumin has <1% bioavailability. Synergistic with boswelvia (dual LOX/COX blockade).

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