

# NTFactor® Healthy Aging

## Mitochondrial Fuel\*

**NTFactor® Healthy Aging** combines NTFactor® with B vitamins,  $\alpha$ -ketoglutarate, L-carnitine, and creatine pyruvate. NTFactor® supports the structural vitality of the body's cellular and mitochondrial membranes, thereby supporting healthy energy, and the other nutrients synergize well with NTFactor® cellular and mitochondrial membrane nutrition.\*



#76700  
120 tablets

### Key Features

- Combines NTFactor® membrane food with  $\alpha$ -ketoglutarate, L-carnitine, and creatine\*
- NTFactor® supports the structural vitality of the membranes in the body's cells and mitochondria, including normal membrane potential and ATP energy production\*
- Best value for NTFactor® in tablet form (650 mg per tablet)
- No Ephedra, caffeine, sugar, or other stimulants

The foundation of NTFactor® Healthy Aging is patented NTFactor®, a 3-part nutrient complex. The heart of NTFactor® is a proprietary blend of polyunsaturated phosphoglycolipids called NTFactor® EnergyLipids, which is extracted and prepared using proprietary processes. NTFactor® also contains freeze-dried Bifido and Lactobacillus friendly bacteria, and foods and nutrient extracts that may provide nutritional support (prebiotic activity) for the probiotics.

The proprietary phosphoglycolipids in NTFactor® are present in scientifically selected ratios of polyunsaturated phosphatidylcholine, glycolipids, and other polyunsaturated phosphatidyl nutrients, researched and blended to optimize cellular uptake and membrane utilization.\* They have been validated in clinical studies to support healthy cell membrane and mitochondrial membrane structure and function, including normal membrane potential and enhancement of ATP energy production.\* For those wishing to get the most NTFactor® in a tablet form, NTFactor® Healthy Aging contains a high amount (650 mg per pill) at the best value. (For the highest amount of the proprietary polyunsaturated phosphoglycolipid blend, see NTFactor® Energy Lipids Powder #76710.)

NTFactor® Healthy Aging contains **Alpha-ketoglutaric acid (AKG)**, a compound in the Krebs cycle which is crucial for energy production in the inner mitochondrial membrane.\* AKG plays a role in the detoxification of ammonia to glutamine, and in reducing H<sub>2</sub>O<sub>2</sub> to succinate, another compound of the Krebs cycle.\* AKG also has antioxidative effects on reactive oxygen and nitrogen species.\*

**L-carnitine** is synthesized in the liver, kidney, and brain, and utilized throughout the body, with high concentrations in skeletal and cardiac muscles. L-carnitine helps transport long-chain fatty acids across the inner mitochondrial membrane before beta-oxidation.\*

**Creatine pyruvate** is more soluble and bioavailable than either creatine or pyruvate taken separately.\* Creatine is a non-protein amino acid synthesized in the body and largely found in the skeletal muscles. Creatine was researched in the 1970s by Soviet scientists for its energy-generating action during anaerobic exercise.\* Creatine and its related metabolites, creatine kinase and phosphocreatine, are key components of a cellular energy buffering and transport system that connects mitochondrial energy production with energy consumption. Oxidative phosphorylation is the major pathway of mitochondrial ATP production, but during intense exercise the body starts to use anaerobic glycolysis, at which point phosphocreatine becomes the fuel that regenerates ATP.\* Supplemental creatine may increase phosphocreatine levels in skeletal muscle and potentially enhance ATP turnover during maximal exercise.\* Creatine may also have neuroprotective and cardioprotective actions.\*

**Pyruvate** is an important intermediate in the Krebs cycle ATP production, and has antioxidant activity.\* NTFactor® Healthy Aging is rounded out with a **balanced B complex**, ideal for those who want modest doses of the B-vitamins. Patent #8,877,239.

## Supplement Facts

Amount Per Serving	% Daily Value*
Serving Size 2 tablets	
Servings Per Container 60	
Vitamin B1 (as Thiamine HCl)	1.5 mg 100%
Vitamin B2 (as Riboflavin)	1.7 mg 100%
Niacin (as Niacinamide)	20 mg 100%
Vitamin B6 (as Pyridoxine HCl)	2 mg 100%
Folate (as Folic Acid)	400 µg 100%
Vitamin B12 (as Methylcobalamin, Cyanocobalamin)	6 µg 100%
Biotin	300 µg 100%
Pantothenic Acid (as d-Calcium Pantothenate)	10 mg 100%
Calcium (as dicalcium phosphate, calcium carbonate, calcium pyruvate, d-calcium pantothenate, calcium ascorbate)	95 mg 10%
Phosphorus (as Dicalcium Phosphate)	70 mg 7%
Potassium (as Potassium Citrate)	8.1 mg <1%
Alpha-Ketoglutaric acid	50 mg †
Carnipure® L-Carnitine (as L-Carnitine L-tartrate)	50 mg †
Creatine Pyruvate	50 mg †
NTFactor® Blend proprietary formula containing:	1.3 g †
Inulin, rice bran extract, NTFactor® EnergyLipids (soy), OptiMSM® methylsulfonylmethane, FOS, bromelain, pantethine, inositol, L-arginine, L-glycine, taurine, alpha lipoic acid, odor-modified garlic, spirulina, leeks stem powder, beet root fiber, <i>B. bifidum</i> , <i>L. acidophilus</i> , blackstrap molasses, sodium borate.	
* Percent Daily Values are based on a 2,000 calorie diet. † Daily value not established.	

Other ingredients: Microcrystalline cellulose, vegetable stearic acid, croscarmellose sodium, vegetable magnesium stearate, silicon dioxide, pharmaceutical glaze (purified water, hydroxypropyl methylcellulose, vegetable glycerin).

**Suggested Use:** As a dietary supplement, 2 tablets two times daily, or as directed by a healthcare practitioner.

### References:

- Agadjanyan M, Vasilevko V, Ghochikyan A, Berns P, Kesslak P, Settineri R, Nicolson GL. Nutritional supplement (NTFactor) restores mitochondrial function and reduces moderately severe fatigue in aged subjects. *J Chronic Fatigue Syndr* 2003;11(3):23-26.
- Nicolson GL, Ellithorpe R, Ayson-Mitchell C, Jacques B, Settineri R. Lipid Replacement Therapy with a Glycophospholipid-Antioxidant-Vitamin Formulation Significantly Reduces Fatigue Within One Week. *J Am Nutraceut Assoc*. 2010;13(1):10-14.
- Nicolson GL, Ellithorpe R. Lipid replacement and antioxidant nutritional therapy for restoring mitochondrial function and reducing fatigue in chronic fatigue syndrome and other fatiguing illnesses. *J. Chronic Fatigue Syndr*. 2006;13(1): 57-68.
- Nicolson GL, Ellithorpe R, Settineri R. Blood homocysteine levels are significantly reduced with a glycophospholipid formulation (NTFactor® plus vitamin B-complex): a retrospective study in older subjects. Paper in Preparation.
- Ellithorpe RA, Settineri R, Mitchell CA, Jacques B, Ellithorpe E, Nicolson GL. Lipid replacement therapy drink containing a glycophospholipid formulation rapidly and significantly reduces fatigue while improving energy and mental clarity. *Funct Food Health Dis*. 2011;1(8): 245-254.
- Alfred Maier, M.D. The Impact of Preoperative Micronutrient Supplementation in Lung Surgery. A Prospective Randomized Trial of Oral Supplementation of Combined Alpha-Ketoglutaric Acid and 5-Hydroxymethylfurfural. *Eur J Cardiothorac Surg*, 2007 Nov;32(5):776-82. Epub 2007 Sep 4. 46255 (07/2008)
- Natural Standard Professional Monograph, accessed 07/11/2012 (<http://www.naturalstandard.com/databases/herbssupplements/acetilcarnitine.asp>).
- Natural Standard Professional Monograph, accessed 07/12/2012 (<http://www.naturalstandard.com/databases/herbssupplements/creatine.asp>)
- PDRHealth archive, accessed 07/12/2012 ([http://web.archive.org/web/20061127015017/http://www.pdrhealth.com/drug\\_info/nmdrugprofiles/nutsupdrugs/cre\\_0086.shtml](http://web.archive.org/web/20061127015017/http://www.pdrhealth.com/drug_info/nmdrugprofiles/nutsupdrugs/cre_0086.shtml))
- ([http://web.archive.org/web/20061127015017/http://www.pdrhealth.com/drug\\_info/nmdrugprofiles/nutsupdrugs/pyr\\_0218.shtml](http://web.archive.org/web/20061127015017/http://www.pdrhealth.com/drug_info/nmdrugprofiles/nutsupdrugs/pyr_0218.shtml))

