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Mitochondrial Formula – Helps Increase Cellular Energy (ATP) Production and Reduce Symptoms of Fatigue

About Mitochondrial Formula

- Mitochondrial Formula provides key nutrients that help provide antioxidant protection and enhance energy (ATP) production in the cell's mitochondria.
- Mitochondria are found in nearly every cell in the body and are critical to a cell's energy production. They convert fuels such as glucose and fat into ATP. ATP has a central role in cellular metabolism, providing an efficient way to store energy. It is used for nearly all enzymatic reactions that require energy.[1]
- Nearly every cell relies on mitochondrial activity. For example, roughly one-third of the volume of heart cells is comprised of mitochondria.[2]
- Dysfunction of mitochondrial activity underlies many cardiovascular, metabolic, and neurological conditions, as well as the aging process itself.[3]
- Supporting mitochondrial health provides support for muscular, cardiovascular, and brain health. For example, Mitochondrial Formula provides acetyl-L-carnitine (ALC), an amino acid derivative that helps transport fats into the mitochondria. Supplementation of ALC in older adults has been associated with less mental fatigue, physical fatigue, fatigue after exercise, muscle pain, and inflammation, as well as improved sleep and cognitive function, and may slow progression to frailty.[4,5]
- Clinical trials have shown that ALC also helps support energy levels, as well as cardiovascular and neurological health.[6–9]
- The formula also provides CoQ10, an antioxidant that is essential to the "electron transport chain," the metabolic steps needed to generate ATP. Declining levels have been observed in many cardiovascular and neurological conditions.[10,11]
- ElevATP® is a blend of plant bio-inorganic trace minerals and an apple extract rich in plant polyphenols. It has been shown to increase whole blood ATP levels as well as exercise performance and body composition, without an increase in reactive oxygen species. Supplementation in resistance-trained men was associated with improvements in power output and total strength when combined with resistance training, as well as reduced loss of power during overreaching.[12,13]
- Mitochondria produce more free radicals than any other organelle of the cell. Mitochondrial Formula provides two key antioxidants, glutathione and superoxide dismutase, to help reduce oxidative stress within cells. Supplementation with superoxide dismutase (from Extramel®) has been associated with reduced physical and mental fatigue, perceived stress, and improved quality of life over a three-month clinical trial.[14,15]

How to Use Mitochondrial Formula

- *Powder:* Take 1 heaping scoop (2.7 g) per day dissolved in 250 mL of water or as directed by a health care practitioner. Ensure you drink enough fluid before, during, and after exercise. Use for a minimum of 4 weeks to see beneficial effects.
- *Vegetarian Capsules:* Take 2 capsules 2 times per day or as directed by a health care practitioner. Use for a minimum of 4 weeks to see beneficial effects. For use beyond 12 weeks, consult a health care practitioner.

Cautions and Contraindications

- Consult a health care practitioner prior to use if you are pregnant or breastfeeding, are taking blood pressure medication or blood thinners, or have a liver disease, kidney disease, and/or a seizure disorder. May cause digestive problems. Keep out of reach of children.

Drug Interactions

- Although very little evidence supports this interaction, a potential interaction is possible for individuals taking the anticoagulant warfarin and both CoQ10 and acetyl-L-carnitine.[16] Close monitoring of the INR is recommended in these patients. No other negative drug interactions are known for CoQ10, though several medications inhibit CoQ10 synthesis or function in the body, including statin or blood pressure medications, tricyclic antidepressants, and oral hypoglycemic agents, suggesting a potential benefit of combined use.[17,18]

PATIENT NAME: _____

PRACTITIONER NOTES:

PRACTITIONER CONTACT INFORMATION:

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Quick Tips for Optimal Health

- ☐ Physical activity is closely tied to mitochondrial function and helps promote mitogenesis (the formation of new mitochondria).[19] Regular exercise, including both aerobic and resistance exercise, can help support mitochondrial health.[20]
- ☐ One form of exercise, high-intensity interval training (HIIT), has been shown to improve mitochondrial quality.[21]
- ☐ The Mediterranean diet is rich in antioxidants and anti-inflammatory foods associated with improved mitochondrial health.[22] It emphasizes whole grains, fruits and vegetables, nuts, legumes, and olive oil, while eliminating or reducing foods such as juices and sweetened beverages, refined grains, starchy vegetables such as potatoes, and sweets.
- ☐ The Mediterranean diet has been linked to better cognitive function and a slower decline in cognitive health in some studies, at least in part via its effect on mitochondrial function.[23]
- ☐ Avoiding environmental toxins may also help restore mitochondrial health, as many common environmental pollutants appear to directly target mitochondria.[24,25]
- ☐ Bisphenols (such as bisphenol A) have been found to directly target mitochondria by increasing oxidative stress and promoting apoptosis (programmed cell death). Bisphenols are used in a wide range of plastic products.[26]

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