



Vitamin B5-Aides in Energy Production

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Calcium D-Pantothenate, better known as vitamin B5, is a component of Reven's RJX™. Vitamin B5 ensures nutritional utilization and is essential for heme production—the iron containing compound of hemoglobin. Dietary sources of vitamin B5 include animal organs, egg yolks, milk, avocados, legumes, lentils, and leafy greens. Symptoms of vitamin B5 deficiency include fatigue, insomnia, depression, irritability, and anemia.¹ Fortunately, since it is available in such a wide variety of foods, it is rare to experience a diet induced deficiency of this important vitamin.

Vitamin B5 is a precursor of coenzyme A and acyl carrier proteins that are located in 3 parts of the cell: the mitochondrion, peroxisomes, and cytosol.² In the mitochondria it functions as a prosthetic group in the tricarboxylic acid cycle for energy production. In the peroxisomes, a cell organelle, it participates in the oxidation of fatty acids, the breakdown of fats to produce energy. In the cytosol it is required for the first steps of cholesterol formation and fatty acid. Finally, heme synthesis occurs in both the mitochondria and the cytosol, while coenzyme A is utilized in the mitochondria for this process. Low heme production can lead to anemia, which is a common problem that occurs in almost 25% of people worldwide.³ The prevalence of anemia appears to increase dramatically with age, reaching as high as near 50% in elderly men.⁴

Vitamin B5 is also essential for proper function of the adrenal gland, which is responsible for the body to respond to stress properly.⁵ Acetyl CoA is required for cholesterol formation, which then is used to form all the hormones secreted by the adrenal gland: cortisol, norepinephrine, adrenaline, testosterone, progesterone, and more. When looking at other forms of cholesterol in the body, several small studies examined if vitamin B5 helps reduce triglycerides or fats in patients with a high cholesterol blood count. A Princeton Longevity Center study found that vitamin B5 helps to regulate the balance between the good (HDL) and the bad (LDL-C) cholesterol. In a clinical trial, patients with high cholesterol took vitamin B5 and found their levels were significantly reduced at eight and sixteen weeks of treatment, further suggesting vitamin B5 can lower the risk of cardiovascular disease as well.⁶

Vitamin B5 helps with skin care and may aid in wound healing because it helps create red blood cells and maintain the integrity of skin. Coenzyme A also has anti-lipid peroxidation effects. It scavenges free radicals to protect the cell membrane as well as promoting phospholipid synthesis, which are used



in forming the cell membrane and therefore utilized in membrane repair.⁷ In a clinical trial involving a topical form of vitamin B5, markers for proliferation, inflammation, and tissue repair showed improvements in comparison to wounds that did not receive vitamin B5.⁸

In conjuncture with the other active ingredients of RJX, vitamin B5 appears to promote energy production, aid in hormone production and ameliorate cell membrane damage. It seems to be an important aspect of the healing process.

References

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About Rejuveinix (RJX)

RJX™ is an intravenous (IV) formulation of known physiologically compatible compounds that is being developed for more effective supportive therapy of patients with sepsis, including COVID-19 patients with viral sepsis and acute respiratory distress syndrome (ARDS). The RJX formulation is a solution of buffered acid products, electrolyte components, and vitamins, including ascorbic acid, cyanocobalamin, thiamine hydrochloride, riboflavin 5' phosphate, niacinamide, pyridoxine hydrochloride, and calcium



d-pantothenate, and magnesium sulfate heptahydrate, a mineral with a negative oxidation-reduction potential. The components of RJX exhibited promising activity in clinical studies involving ARDS patients and/or non-clinical studies in animal models of ARDS. The published data from these clinical and non-clinical studies provided the medical-scientific rationale for Reven's clinical development strategy for RJX and a clinical study in COVID-19 patients. The clinical tolerability of RJX was confirmed in a recently completed double blind, placebo-controlled Phase 1 dose-escalation study in healthy volunteers (ClinicalTrials.gov Identifier: NCT03680105).

About Reven Holdings, Inc.

Reven Holdings, Inc., a Delaware corporation, through its Golden, Colorado based operating company Reven, LLC, is a biopharmaceutical company. Reven's vision is to make a difference in the world by making its products accessible to everyone suffering the effects of vascular and metabolic related diseases. Reven is committed to being the premier, research-intensive biopharmaceutical company that advances the health and well-being of people around the world. Its primary product, Rejuveinix (RJX), targets patients suffering from COVID-19, sepsis, vascular and metabolic related diseases as well as specific patient populations suffering PAD and other cardiovascular related medical conditions.