



Leela Quantum Study Overview

Study Highlights

- 1. Non-Mitochondrial Respiration decreases over time, leak decreases and normalizes, ATP linked consumption decreases and normalizes by 3 months.**

Glycolytic ATP Production

Mitochondria can create energy from glucose through a process known as glycolysis or non-mitochondrial respiration (energy production). One molecule of glucose is consumed, and 2 ATP molecules are netted from the process. This process is less efficient than mitochondrial produced energy however, is important for your body to make energy this way in balance with mitochondrial produced energy. The body calls upon this process of glycolysis in situations where there is less oxygen to consume to make energy like during exercise and stress or disease.

Leak

Leak or leakiness refers to the amount of oxygen that moves across the mitochondrial membrane. During energy demand mitochondria produce water and energy. When leak occurs during the non-energy demand and production times, oxygen escapes which indicates the energy system is not working efficiently. This leak helps contribute to things like free-radical production which stresses the body systems and cells.

Mitochondrial ATP Production

Mitochondria can produce energy by consuming oxygen. This is a highly efficient way to produce energy with an excess of 30 ATP molecules being produced per molecule of oxygen vs 2 ATP produced by glycolysis. Energy production is typically balanced in a healthy system and modulates (fluctuates) between glycolysis and mitochondrial ATP production depending on stress and work load imposed.

Study Results—Glycolytic and Mitochondrial ATP production

Glycolytic ATP production initially showed a compensatory increase, followed by a normalization phase where mitochondrial ATP generation improved, indicating an overall shift towards oxidative energy metabolism or mitochondrial produced energy. During the study there was a decrease in leak when the mitochondria with a return to normal during the study period which is generally positive.

This pattern of energy production indicates physiological effect occurring during the early and middle phase. There appears to be phase of induction or adaptation of mitochondrial energy systems and an overall normalization at the 3 month mark with slight improvements in efficiency.

