



Athletes focus on increasing stamina, reducing muscle fatigue and injuries, and maximizing performance. While they recognize the role of macronutrients such as proteins, carbohydrates, fats, and other healthy food components, the importance of micronutrients is often neglected. Insufficiency of micronutrients frequently leads to easy fatigue, muscle or bone injury, and other ailments such as arthritis. An intense exercise routine and increased metabolic turnover makes micronutrient supplementation essential for athletes.

The Importance of Micronutrients for Athletic Performance

Our health is determined at the level of the cells that build our organs and the entire body. Each cell works as a miniature factory responsible for generating bioenergy (mitochondria), producing cellular proteins (ribosomes), and coordinating all life functions (the nucleus). These functions require a constant supply of vitamins, minerals and other micronutrients.

Increased heart rate during any exercise requires a tremendous amount of energy. A strong heart muscle and intact blood vessels are critical for the continuous pumping of blood at a faster rate. Micronutrients such as carnitine, coenzyme Q-10, vitamin C and the B group vitamins are essential for the energy production in the heart muscle cells that is required for sustained physical endurance. Similarly, healthy blood vessels are also critical for maintaining optimum blood supply to the heart and other muscles in order to avoid fatigue. Magnesium regulates the levels of other minerals within the cells such as sodium, potassium, and calcium. Excessive loss of these minerals through perspiration is one of the main reasons for exercise-induced muscle cramps and injuries. Alpha lipoic acid also supports the muscles during training to avoid fatigue and build endurance.



People who engage in regular physical exercise are dependent on an optimal supply of essential micronutrients. Studies conducted by the Dr. Rath Research Institute prove that certain micronutrient combinations can support the performance and well-being of sportspeople.

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Moreover, increased metabolic rate during exercise increases oxygen consumption and exposes the cells to near-constant oxidative stress and associated cell damage. Therefore, antioxidants such as vitamins A, C, and E, carotenoids, and selenium need to be supplemented. Our research has shown that supplementing these antioxidant micronutrients along with specific plant extracts such as quercetin, green tea extract, resveratrol, and curcumin improves the health benefits of antioxidants by reducing muscle damage, inflammation, and pain, while increasing muscle repair after injury.

Bone and joint health is also important for athletes for sustained training and decreasing the risk of osteoporosis and arthritis. Athletic training imparts an incredible amount of stress on the joints. In addition to calcium, magnesium, boron, and vitamins D and A, strong bones require strong collagen. Flexibility and optimum function of the joints depends upon cells that produce joint lubricating (synovial) fluid. Glucosamine and chondroitin help in cartilage formation, joint lubrication, and repair. We have tested a specific

combination of micronutrients in clinical trials and they have proven to accelerate the process of repair of tibial fractures.¹

Some athletes take haphazard combinations of supplements that can create or aggravate other imbalances. Our research shows that specific micronutrients provide the maximum support to the cells of the heart, blood vessels, muscles, bones, joints, and all other organs that keep athletes going strong and healthy for life.

While the majority of supplements use random combinations of nutrients, our research has proven that the unique nutrient synergy approach works at the cellular level to support and strengthen the body.

Ref:

1. J. Jamdar, et al., *Journal of Alternative and Complementary Medicine* 2004, 10 (6): 915-916.

Important Health Information for All

This information is provided to you courtesy of the Dr. Rath Research Institute. Led by two former colleagues of two-time Nobel Laureate Linus Pauling († 1994) this Institute has become a leader in the breakthrough of natural health research in the field of cancer, cardiovascular disease and other common diseases. The Institute is a 100% subsidiary of the non-profit Dr. Rath Foundation.

The groundbreaking nature of this research poses a threat to the multi-billion dollar pharmaceutical "business with disease." It is no surprise that over the years the drug lobby has attacked Dr. Rath and his research team in an attempt to silence this message. To no avail. During this battle, Dr. Rath has become an internationally renowned advocate for natural health saying, "Never in the history of medicine have researchers been so ferociously attacked for their discoveries. It reminds us that health is not given to us voluntarily, but we need to fight for it."

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