



Method for Increasing Skeletal Muscle Capacity and Treating Muscle Wasting Conditions

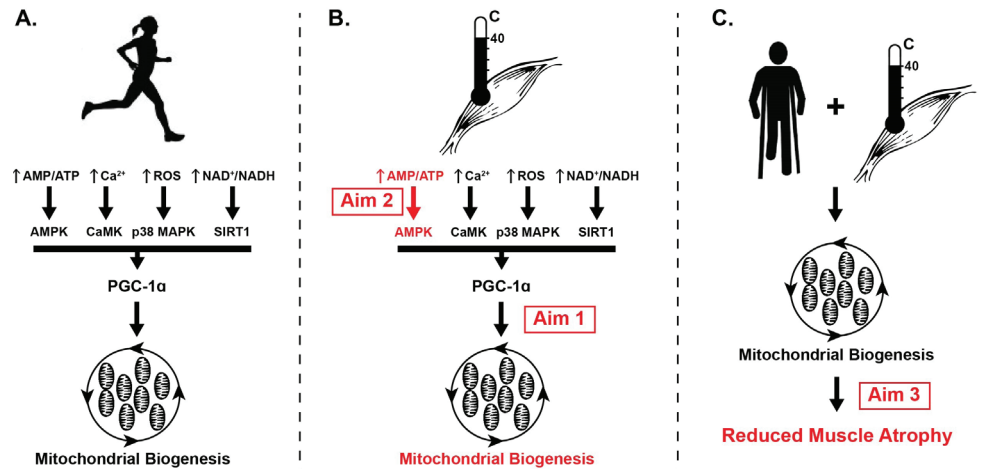
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DESCRIPTION

Researchers at BYU have discovered a treatment (2 hours per day for 1 week) that is capable of increasing muscle mitochondrial capacity, similar to the effects of exercise, sufficient to attenuate muscle atrophy induced by muscle disuse. This invention is an application of shortwave diathermy for deep muscle heating.

PROBLEM SOLVED

Loss of muscle mass directly affects physical and functional work capacity, decreasing quality of life and increasing morbidity and mortality. Currently, there is no specific available treatment for muscle atrophy except physical exercise. Unfortunately, exercise is not a feasible intervention for those who are injured, sick or for aged individuals. Deep muscle heat treatment via short wave diathermy would provide a viable treatment to attenuate muscle wasting under these conditions.



A. Physical activity induces mitochondrial biogenesis by altering the concentration of several metabolites and molecules.

B. Repeated exposure to heat stress (REHS) is likewise capable of inducing mitochondrial biogenesis.

C. REHS attenuates mitochondrial loss and muscle atrophy in response to disuse.

KEY ADVANTAGES

- » This method uses a technology that has been used for other applications since 1940s
- » Attenuates muscle atrophy

APPLICATIONS

Shortwave diathermy may be used to attenuate muscle atrophy in a variety of muscle wasting conditions including: disuse, immobilization, aging, spaceflight and cancer cachexia.

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