

CVAC Whole-Body Adaptive Conditioning

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Traditional aerobic and anaerobic exercise play key roles in the improvement and maintenance of physical and mental health, in part, because they stimulate the key elements of the body's energy production capabilities (mitochondrial biogenesis), and removal of the metabolic waste products (lymphatic system mobilization) produced from this energy production and consumption. Effective lymphatic mobilization decreases the incidence of inflammation and has positive impact on the body's immune system, endocrine balance, delivery of nutrients and improved breathing.

Regular exercise and physical activity are important for people at all stages of life, as they promote cellular, mitochondrial, and metabolic efficiency. However, these benefits are not always attainable by aged, people with obesity and chronic illness who can have difficulty exercising.

As the body ages, there is a decline in the ability to metabolize/utilize nutrients to support the body's energy systems. This decline also involves genetics and environmental factors, and is found in Type 2 diabetes and other chronic illness. Lack of physical activity and calorie-rich diets are important environmental factors.

The pressure cycling of the CVAC Process mimics the pulsatile nature of breathing, muscle contraction and blood flow consistent with those same found in interval, circuit and strength training without the physical exertion of concentric and many types of traditional aerobic exercise. Pilot and published data^{1,2,3} and observations support our hypotheses that the CVAC Process is improving mitochondrial biogenesis (energy production capability), improving oxygen utilization, and also removing metabolic waste products such as Advanced Glycation End Products.

1. Hetzler RK, Stickley CD, Kimura IF, LaBotz M, Nichols AW, Nakasone KT, et al. The effect of dynamic intermittent hypoxic conditioning on arterial oxygen saturation. *Wilderness Environ Med.* 2009;20(1):26-32.
2. Marquez JL, Rubinstein S, Fattor JA, Shah O, Hoffman AR, Friedlander AL. Cyclic hypobaric hypoxia improves markers of glucose metabolism in middle-aged men. *High Alt Med Biol.* 2013;14(3):263-72. doi: 10.1089/ham.2012.1057. Epub 2013 Sep 12. The CVAC Process mimicked the effects of high-intensity exercise on anaerobic metabolic pathways in middle-aged men at risk for Type 2 diabetes.
3. Herbst KL, Rutledge T. Pilot study: rapidly cycling hypobaric pressure improves pain after 5 days in adiposis dolorosa. *Journal of Pain Research* 2010;3:147-53.

The CVAC technology is intended to provide adaptation-based physical conditioning and is deemed as fitness equipment. The U.S. Food and Drug Administration (FDA) does not regulate fitness equipment, therefore, it is not approved by the FDA. The CVAC technology is not intended to be used to diagnose, treat, heal, lessen, manage or prevent any disease or other medical condition. For more information regarding the content of this document, contact: CVACfit@cvacsystems.com. More information on the CVAC technology can be found at www.cvacsystems.com.