

Responsiveness of Subjects to the LifeWave Patch during Aerobic and Muscular Endurance Activity.

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Twenty-six subjects were recruited from the institution to participate in a double blind, placebo controlled study of the Lifewave Patch. None of the subjects had ever heard of or worn the Lifewave Patch prior to this study. Each of the subjects randomly selected an envelope, labeled with an X or an O, containing either the placebo or experimental patch before beginning the tests. Prior to the study, the placebo and experimental patches were divided and labeled without the test team's knowledge to ensure the integrity of the study. Neither the test team nor the subjects had any indication of which patch the subject had received.

Each subject participated in an aerobic step test and muscular endurance push-up test. The step test followed the procedures for the YMCA three-minute step test (4). The subjects were provided a heart rate (HR) monitor to measure HR variances during each test. All subjects began the step test wearing no patch and followed the test protocol – stepping the height of 12-in. at a rate of 96 bpm - for three minutes, then immediately sat quietly on the bench to recover. One minute following the completion of the test, the HR was documented. Following a recovery period of at least 10 minutes, the group of subjects then performed an untimed push-up test to exhaustion and repetitions were recorded. The test team then positioned the pre-selected patches on the L1 meridian point (fig. 1) of each subject (7). The white patch was positioned on the right and the tan patch was positioned on the left side of the body.

Although the findings of the aerobic portion of this study are not significant, it is notable that the experimental group saw an average increase of 3% in average aerobic performance, while the placebo group observed an average decrease of 6.7% in performance. The difference in performance between the experimental and placebo groups was 11.8%. Practically speaking, it is significant that although the patches only helped to enhance the performance of the experimental group by 3%, it illustrated an almost 12% increase over the placebo group due to the decline in performance. In aerobic sports, a decrease in heart rate will allow the athlete to perform at a given workload longer. A decrease of 13 bpm, although might not reveal a *statistically* significant change, will positively affect the aerobic athlete allowing them to fight the effects of fatigue longer.

As with the aerobic portion of this study, the push-up segment also demonstrated insignificant statistical data. However, the experimental group displayed a 9% increase in performance over the control repetitions, while the placebo group showed a 10% decrease in performance. The difference in performance between the experimental and placebo groups was 9%. As with the aerobic group, this data represents practical significance in performance enhancement.

It is important to note that the statistical findings may be minor due to the small subject sample size. The practical findings in this study certainly warrant further research of the LifeWave patch on both aerobic and muscular endurance performance. Possibly with a larger subject pool significant statistical data would support the practical findings.

Note from Dr. Steve Haltiwanger- This is an early study on the LifeWave patches. We have since determined that at least 20 minutes of aerobic activity is needed to demonstrate the increased production of ATP from fat. This study did not have the participants exercise long enough. We are repeating a study with 100 people with 20 minutes of exercise on an exercise cycle.