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

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The LifeWave patch is a nontransdermal patent pending patch intended to enhance athletic performance. For the athlete to perform sport-specific tasks, ATP is required for energy production. To sustain these tasks over a long period of time, it is necessary that the body utilize fatty acid metabolism to ward off the effects of fatigue. According to Schmidt (2003), the LifeWave patch acts as a device to increase the rate of fatty acid beta-oxidation with the ingredients found within the patches. "The patches contain orthomolecular compounds in water based solutions designed to passively interact with the human thermomagnetic field with the purpose of creating a system of frequency modulation, much in the same way a radio wave is modulated to communicate audio information" (5). In layman's terms, the patch acts as an antenna to fine tune the cells to work to their best potential.

Biological research has demonstrated that activities at the cellular level generate electrical fields, however because theses fields were too tiny to detect, biologists assumed they could have no physiological significance (1). There has been a change in this belief since Baule and McFee (1963) discovered the magnetic field of the heart, which was only one millionth of the strength of the earth field (6). This finding allowed Cohen (1970) using a new invention - the Superconducting Quantum Interference Device, or SQUID, which is capable of detecting minute energy fields around the human body – confirmed the heart measurements (1).

In his paper, *Science Measures the Human Energy Field,* Schmidt (2003) notes brain waves are not confined to the brain, but spread throughout the body via the perineural system (1). This system is responsible for the injury repair procedure in the body and would indicate that the nervous system acts as a transmitter for projecting the biomagnetic pulsations that begin in the brain and communicate to the remainder of the body (1).

The patch acts as an antenna because the ingredients are not capable of absorption into the body. Brown (2004) verified in his study that the water-soluble components of the brown and white patch were not able to migrate across the polyethylene film (3). This would indicate that the patch does not enhance performance by transporting a stimulant or other performance-enhancing product through the skin.

This study examined the affect of the LifeWave patch on the aerobic and muscular endurance activities.

METHODS

Subjects. 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.

Experimental Protocol

Baseline Test. 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.

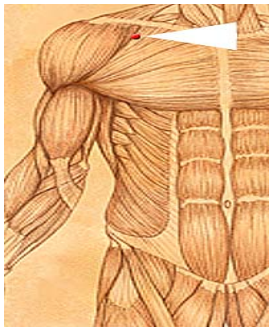

Fig. 1 – Lung Point – L1 (7)

Experimental Test. Following a quiet recovery period of 10 minutes the subjects were then asked to repeat the three-minute step test and 1-minute recovery HR was recorded. After a similar recovery period of the baseline test, the subjects were again instructed to perform push-ups to exhaustion and the repetitions were documented.

Data Collection and Analysis. The heart rate of each subject was observed and measured utilizing a Polar™ HR monitor for both the baseline and experimental tests. A test team member determined the correct form and the calculated repetitions for the push-up test. The same test team member measured both the baseline and experimental repetitions for each subject.

RESULTS

The dependent t-test between the control heart rates of the experimental and placebo groups for the 3-minute aerobic step test demonstrated no significant differences ($t = .329$) at an alpha level of .05. This result is expected because the ability level of the subjects in both groups is equally distributed. The independent t-test conducted between the experimental and placebo aerobic groups demonstrated no significant differences ($t = 1.156$) at the .05 level. When observing the descriptive data, it is important to indicate there was a 13-bpm difference (exp. Mean = 97-bpm, plbo Mean = 110-bpm) in the experimental v. control groups.

The results for the dependent t-test between the control repetitions and the experimental and placebo group repetitions for the push up test exhibited no significant differences ($t = .325$) at an alpha level of .05. This demonstrates the

ability level of the subjects in both groups is equally distributed. The independent t-test performed between the experimental and placebo push-up group did not show a significant finding (t = .784) at the .05 level.

DISCUSSION AND CONCLUSIONS

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.

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