Report for Pilot Clinical Study of LifeWave Y-age Carnosine Patch in Lowering Blood Lactate Levels

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Introduction

LifeWave produces a non-transdermal patch system that utilizes new technology to gently stimulate acupuncture points and one of their products was designed to increase carnosine in the body. Carnosine is found in relatively high concentrations in several body tissues—most notably in skeletal muscle, heart muscle, and brain (1, 2). Clinical research on carnosine has produced some amazing and dramatic results including the knowledge that carnosine may be the principle nutrient for keeping the body young as we grow older.

Lactate values and heart rate are used to determine the correct training intensity, they increase incrementally with exercise intensity. When one achieves a certain intensity when lactate increases exponentially, they are crossing the lactate threshold (LT), which on average occurs at 4.0 mmol.L of lactate. Fatigue onset is rapid above the LT, but efforts just below the LT can be sustained for hours by well-trained athletes. To increase endurance, one must increase their power at LT.

This pilot clinical study was conducted to determine the efficacy of the LifeWave Carnosine Patch in lowering LT by measuring blood lactate at increasing power levels while riding a three mile road course on an ergonometer stationary bicycle. Heart rate at the lactate threshold was also monitored. For this study, athletes who regularly train for endurance events were recruited because they were capable of completing the testing effectively.

Methods

Ten healthy subjects who met inclusion and exclusion criteria (Appendix 1) were given a baseline blood lactate measurement and retested two additional times during weekly visits while wearing the LifeWave Carnosine Patch. Subjects were asked to pedal a pedal on a stationary bike with an ergonometer for three miles. After wiping their finger with an alcohol swab, it was pricked and one drop taken for blood sampling with a monitor strip to collect a baseline measure. The bicycle test will be step test, increasing the work load every 3 minutes by 25 Watt increments and retesting for lactate until the subject reaches 4 mmoles per liter lactate (threshold).

Subjects were instructed to apply the patch one hour before returning one week later (to allow recovery time) for retesting. The active patch was placed on the conception vessel 6 acupuncture point (three fingers below the navel).

At the second testing, subjects were instructed to apply patch at acupuncture point CV17 and asked to wear the patches every day for one week (rotating between the two acupuncture points each day), at which time they were retested.

The subjects were instructed to remain well hydrated when reporting for testing and refrain from strenuous exercise for 2 days prior to testing.

Inclusion Criteria:
1. Subjects who have signed a written informed consent consistent with required guidelines and meet prior to participation in the trial.
2. Subjects 18-65 years of age, either sex.
3. Subjects who are able to follow the protocol as designed by the Energy Medicine Research Institute
4. In generally good health.

Exclusion Criteria:
1. History of serious diseases or illness diagnosed at this time, including cancer, or undergoing chemotherapy.
2. Subjects currently taking Tylenol, haloperidol or any prescribed or non-prescribed medication that may, in the opinion of the researchers, alter testing results.
3. History of alcohol addiction or currently consuming more than four drinks per day.
4. Females who are pregnant, lactating, or nursing or who may become pregnant during the course of the study.
5. Subjects with any condition not previously named that, in the opinion of the investigators or intake staff, would jeopardize the safety of the patient or affect the validity of the data collected in this study.

Results
As seen in Table 1, wearing the carnosine patch for one hour significantly decreased LT from baseline for both the 1 hour length of patch application (significance level .004) and the 1 week time length (.0001). There was also a significant decrease in LT between the two treatment time lengths (p=.037).

There was a significant difference between baseline and both treatment groups for the heart rate at the LT. There was a significant increase between baseline and both treatment groups. As observed in for the LT testing, the treatment group that wore the patch for a longer length of time achieved a higher significance level (p=.01 and p=.005, respectively for the 1 hour and 1 week treatment groups).

Table 1. LifeWave Carnosine Patch Decreases Blood Lactate While Exercising

	Lactate Threshold			
	Mean	**SD**	**Std Error of Mean**	**p value**

Baseline	182.8	30.68	9.7	1
Hour	184.9	31.84	10.1	.004 * a
1 Week	185.7	31.95	10.1	.0001**a
				.037 *b

Heart Rate at Threshold

	Mean	**SD**	**Std Error of Mean**	**p value**
Baseline	152.5	6.8	2.14	
1 Hour	151.8	6.5	2.05	.01 *a
1 Week	152	6.6	2.07	.005 **b
w				.55 ns

p value a-significant difference between baseline and treatment
p value b-significant difference between treatment groups

Discussion

The results demonstrate that the carnosine patch significantly decreases the lactate threshold and heart rate at lactate threshold. This means that the carnosine patch can improve endurance in athletic performance. For this study, participants were recruited that could adequately complete the protocol. The participants were individuals who regularly train for endurance events. If a larger study is to be conducted, it is recommended that the same population be recruited for compliance issues.

Acknowledgements

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References

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