

Y-AGE GLUTATHIONE®

Blake-Greenberg S, Nazeran H. "Nanoscale Glutathione Patches Improve Organ Function." Published in *International Federation for Medical & Biological Engineering Proceedings Series (2010)*.

Safety:

- 30 healthy subjects participated in this 4 week open-label study of LifeWave Glutathione patches.
- **There were no negative reports or adverse reactions reported in the group.**

Patch instructions and study procedures:

- Bioelectrical impedance data indicative of cellular physiologic organ function (status), using an Electro Interstitial Scanning (EIS) system, were acquired from two cohort volunteers after giving informed consent. Cohort 1 comprised of 10 subjects: 1 male and 9 females, 18-86 years of age while Cohort 2 were 20 subjects: 4 males and 16 females, 18-86 years of age. All subjects served as their own control.
- Cellular physiologic function in subjects were evaluated in 8 organs (pancreas, liver, gall bladder, intestines, left and right adrenal glands, hypothalamus and pituitary gland) while wearing the glutathione patch for a period of 4 weeks. Physiologic function testing was repeated each week. Cohort 1 wore the glutathione patch for 12 hours/day daily, while Cohort 2 wore the glutathione patch for 12 hours/day on weekdays. Cellular physiologic function baseline data were acquired from all subjects at the beginning of the study period before the glutathione patch was worn.
- Acupoints tested:
 - A. Acupoint CV6.

Efficacy of patches in this study:

- Statistical analyses were carried out in both cohorts comparing the cumulative averages of the net changes in cellular physiologic functional status of each organ at the end of the study period with corresponding baseline data. The results in Cohort 1 showed a *highly significant* ($p < 0.001$) improvement in physiologic functional status of all organs tested except in pancreas that showed a *very significant* improvement ($p < 0.01$). Average statistical power considering the effect size (% improvement in physiologic function, sample number, and level of significance) was at least 72% in Cohort 1.
- The results in Cohort 2 showed a *significant* ($p < 0.05$) improvement in physiologic functional status of four organs (adrenal glands, hypothalamus and pituitary gland). Average statistical power considering the effect size (% improvement in physiologic function, sample number, and level of significance) for these organs was at least 76% in these tests. No significance improvement in cellular physiologic status was observed in pancreas, liver, gall bladder and intestines in Cohort 2. This could be attributed to the fact that by not using the patches for 2 days in a week (about 30% less exposure to glutathione), the subjects in Cohort 2 did not achieve adequate stimulated detoxification in all organs by glutathione over the study period.
- In summary, the overall data in Cohort 1 demonstrated that the glutathione patch worn 12 hours daily over a period of 4 weeks produced a highly significant improvement in physiologic functional status of liver, gall bladder, intestines, adrenals, hypothalamus and pituitary gland and a very significant improvement in pancreas with a statistical power of at least 72%. Stated differently, it could be concluded that the glutathione patch caused a significant improvement in cellular physiologic functional status of pancreas, liver, gall bladder, intestines, adrenals, hypothalamus and pituitary gland with a statistical power $> 91\%$. Therefore, the hypothesis that:

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The glutathione patch worn 12 hours daily for 4 weeks significantly improves cellular physiologic functional status in different organs was accepted as true.

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Miller TF, Erienne JA, Hollenback AE, DeNisco N. Clinical Evaluation of an Anti-Acne Test System of Glutathione Patches and LifeWave Homeopathic Spray. Essex Testing Clinic, Inc. April 2010.

Safety:

- 40 subjects 12-35 years of age with acne qualified according to the Cook's acne scale used the LifeWave Glutathione patch for 6 weeks. Subjects were assessed for changes in acne after 1, 2, 3, 4 and 6 weeks of use.
- There was no skin irritation observed on any subject during the course of the study.
- 3 subjects complained of mild itchiness under the patch, but not to the point where they had to remove the patches.
- Open-label study

Patch instructions and study procedures:

- Acupoints tested:
 - A. Conception Vessel 6 (CV 6)
 - B. Conception Vessel 17 (CV 17)
- To be included all subjects had to have mild to moderate acne, as graded by a trained technician according to the Cook's acne scale.
- Subjects who met the screening criteria based on medical history were evaluated by a Board-Certified Dermatologist to determine the grade of acne based on the Cook's scale. Acne lesions on the cheeks, chin and forehead were counted and graded at baseline. Photos were taken with a Visual Digital Imaging system. Subjects were given instructions on use of the Glutathione patches and they were given test products to take home.
- Follow-up digital photos and evaluations were performed by a trained technician after 1, 2, 3, 4, and 6 weeks of use. After 6 weeks of use a Board-Certified Dermatologist performed all the final evaluations.

Efficacy of patches in this study:

- When acne scores taken after 1, 2, 3, 4, and 6 weeks of use were compared to baseline, there was no change after 1 week of product use. There was a 7.1%, 21.4%, 28.6% decrease (improvement) in the acne grade after 2, 3 and 4 weeks of product use, respectively.
- The improvements after 2, 3 and 4 weeks of product use were statistically significant when compared to baseline.
- Open Comedones were significantly improved after 2, 3 and 4 weeks of product use. There were 69.2%, 84.6%, 92.3% and 46.2% improvements after 2, 3, 4 and 6 weeks of product use, respectively.
- Closed Comedones were significantly improved after 2, 3, 4 and 6 weeks of product use. There was an 83.3% improvement after 3 and 3 weeks and 93.3% and 66.7% improvements after 4 and 6 weeks of product use, respectively.

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Tully L, Lange A, Shade C. Report for Human Clinical Pilot Study LifeWave Glutathione Patch. Energy Medicine Research Institute. January 2010

Safety:

- 9 subjects used the LifeWave Glutathione patch in an open label clinical study to examine the efficacy of the LifeWave Glutathione Patch to increase blood glutathione.
- There were no negative reports or adverse reactions reported in the study.

Patch instructions and study procedures:

- Acupoints tested:
 - C. Conception Vessel 6 (CV 6)
 - D. Conception Vessel 17 (CV 17)
- Samples of whole blood GSH, GSH enzyme activities and urine mercury levels were collected at Labcorp in Boulder, CO. These samples were collected at days 1, 4 and 7 before patches were applied to establish a baseline. Following baseline measurements, the patches were applied by the subject approximately 2" below the navel and replaced every 24 hours (alternating with the sternum as a placement site). Subsequent identical measurements were repeated on days 9, 11, 14 and 16. Urine samples for mercury determination were collected on days 4, 8 (baseline), 14 and 16. Samples were frozen until assayed.

Efficacy of patches in this study:

- A pilot human clinical study examined the efficacy of the LifeWave Glutathione Patch to increase blood glutathione on nine healthy subjects. This study also measured enzymes of the glutathione pathway (Glutathione S-transferase and Reductase) to determine possible mechanisms of action of the patch. To determine whether the LifeWave patches improve detoxification, urine mercury was measured. Results indicate that Life Wave Patches significantly increased blood glutathione and had no overall effect on GSH enzymes. Urine mercury was elevated in some of the subjects.
- Results show there was a trend toward an increase in blood GSH. When comparing averaged baseline to each day after patch application, all of the measurements after patch placement were higher than baseline.
- Results of this pilot study demonstrate that the LifeWave GSH Patch increases blood GSH significantly in several of the subjects. Although there was variability in baseline GSH measurements, all of the averaged measurements after patch placement for each time point were above 264.6%, and more importantly, above the average baseline measurement benefit of LifeWave GSH patches. Furthermore, when comparing the lowest baseline value to post-patch values, the increase was as high as 454%.
- The GSH increases are substantial in subjects with a lower GSH baseline value, indicating that LifeWave GSH patches are more beneficial for individuals that are deficient in GSH. Another potential benefit for the LifeWave GSH Patches is that they do not over stimulate the GSH system, which could potentially cause harm.
- There were no appreciable changes in either GSH Reductase, or GSH S-Transferase, suggesting that this study did not demonstrate that these enzymes are involved in the actions of LifeWave GSH Patches.
- There were some spikes in urine mercury levels in some of the subjects, indicating that a consequence of increased GSH levels is an enhanced detoxification. However, the changes in

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GSH and mercury were not tightly correlated, which does not demonstrate conclusively that LifeWave GSH Patch induced increases in GSH are related to changes in mercury. Further characterization of the amount of GSH needed to change mercury levels and the timing of increases in GSH and mercury are needed. However, the LifeWave Patches are altering mercury levels, which likely means they are contributing to detoxification of heavy metals. This is another important benefit of LifeWave GSH Patches.

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Quila R. Doctor's Data, Inc. Glutathione blood study 2006

- Open-Label, Human Clinical Pilot Study Using the LifeWave Glutathione Patch.
- 15 healthy subjects were evaluated for 5 days while wearing the Glutathione patch to determine its effect on blood glutathione levels. And the release of heavy metals released in urine samples. The accumulation of heavy metals in the human body poses significant health risks and the Glutathione patch is being investigated for its ability to aid in the detoxification process. Blood glutathione levels increased on average three to four times above baseline.