Combined Use of Low Level Laser Therapy and Phentermine HCl to Reduce Central Adiposity in Overweight and Obese Individuals

Steven Shanks, Erchonia Corporation, McKinney, TX

BACKGROUND

Low-level laser therapy (LLLT) has become established as an effective method for reducing waist, hip, thigh and upper arm circumference of overweight individuals[1-5] and more recently, those with obesity using a device consisting of ten 17 mW, 532 nm green laser diodes.[6]

The goal of this pilot study was evaluate the effectiveness of LLLT for reducing waist, hips and upper abdomen circumference in overweight and obese individuals when used in conjunction with an oral diet aid

METHODS

Men and women 18 to 70 years old weighing >50 kg (110 pounds) with a body mass index (BMI) between 27 kg/m² and 40 kg/m², inclusive, but who were otherwise healthy were enrolled.

The LLLT device contains six independent diodes, each emitting 17 mW of 532 nm green laser light bent into a spiraling circular pattern (Erchonia® Verju™ Laser, Erchonia Corporation, McKinney, TX).

The study medication is a sympathomimetic anorectic indicated as a short-term adjunct in the management of exogenous obesity (Suprenza™ [phentermine] orally disintegrating tablets, Akrimax Pharmaceuticals, LLC, Cranford, NJ).

Each enrolled subject received two weekly LLLT treatments for 6-weeks. Exposure time to the LLLT was 15 minutes across each anterior and posterior treatment area. Each subject also received one 30 mg phentermine tablet at the same time each morning during the same 6-week period.

The change in body weight, BMI, and hip, thigh, waist and upper abdomen circumference were measured at Week 3, Week 6 and 2-weeks post-treatment. Each subject rated their overall satisfaction with the aesthetic outcome they achieved using a 5-point scale.

RESULTS

Twenty-eight (28) subjects who were primarily female (n=25, 89%) and Causasian (n=22, 79%) were enrolled and completed the study. Their mean (SD) age was 44.2 (12.4) years and their mean baseline BMI was 30.3 (3.3) kg/m².

Their mean combined circumference changed from 116.13 (9.99) inches at baseline to 112.15 (9.77) inches at Week 6, a decrease of 3.97 (3.17) inches (p<0.0001) (**Figure 1**). In addition, 18 subjects (64%) achieved a decrease in combined circumference measures ≥3 inches.

RESULTS (CONT)

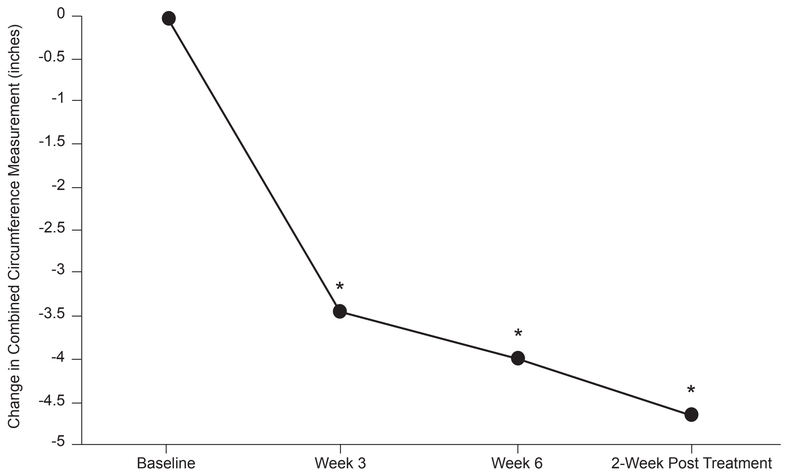
There was a significant decrease in baseline hip circumference at Week 6 and 2 weeks post-treatment and a significant decrease in baseline waist circumference at Week 3, Week 6 and 2 weeks post-treatment (for each, p<0.01) (**Table 1**).

The mean decrease in baseline body weight was 6.04 pounds and the mean decrease in BMI was 1.01 kg/m² (for each, p<0.01).

Most subjects (75%) were Very Satisfied or Somewhat Satisfied with the aesthetic results they achieved at Week 6 and most (78.5%) remained Satisfied at the 2-week post-treatment evaluation (**Table 2**).

Similar to previous studies, there were no reports of adverse events or skin changes in the treatment areas.

FIGURE 1. Change in mean combined circumference measurements. * denotes p<0.05.



CONCLUSIONS

The results of this pilot study indicate low-level therapy is a safe and effective method of reducing hip, thigh, waist and upper abdomen circumference in subjects with obesity when combined with a sympathomimetic anorectic agent. Further research on the use of this technology in this patient population is warranted.

ACKNOWLEDGEMENTS

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TABLE 1. Mean Change in Individual Treatment Area Circumference Measurements

Hips	Mean (SD)
Baseline	42.77 (3.42)
Week 3	41.96 (3.18)
Week 6	41.28 (3.23)*
2 Weeks Post-Treatment	40.80 (2.90)*
Waist	
Baseline	37.38 (3.97)
Week 3	35.88 (3.84)*
Week 6	35.81 (4.07)*
2 Weeks Post-Procedure	35.57 (3.67)*
Upper Abdomen	
Baseline	35.99 (3.84)
Week 3	34.89 (3.54)
Week 6	35.06 (3.46)
2 Weeks Post-Procedure	35.09 (3.57)

*p<0.01 *vs*. Baseline

TABLE 2. Overall Subject Satisfaction

	Week 6	2 Weeks Post-Treatment
Satisfaction Level	**n (%)**	**n (%)**
Very satisfied	7 (25.0)	6 (21.5)
Somewhat satisfied	14 (50.0)	16 (57.0)
Neither satisfied nor dissatisfied	7 (25.0)	6 (21.5)
Not very satisfied	--	--
Not at all satisfied	--	--

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