

Pilot Study of a Low Level Laser Therapy for the Treatment of Androgenetic Alopecia: Use of the Revage 670 nm Diode Laser Array as a Primary Treatment

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This objective of this study was to evaluate the effectiveness of a Low Level Laser Therapy through a non-blinded, single center, prospective format, for use as a primary therapy for the treatment of Androgenetic Alopecia.

The study enrollment was comprised of five patients, three female and two male subjects of Fitzpatrick Skin Types I – VI, ages ranging from 35 – 56 years (average age of 39 years) with Hamilton classifications of II – V. Treatments were performed on the frontal, temporal and vertex areas of the scalp. This case report is a preliminary finding of the results of the first twelve weeks of therapy. The total treatment regime has been projected to be twenty-two weeks. The male and female subjects were selected for this therapy because they had either rejected alternate topical therapies (females) or had experienced poor success with minoxidil or propecia.

Prior to commencement of the first therapy session, a complete history was taken and all medications were discontinued for four weeks. Each subject followed a standardized hair care regime, which included daily shampooing with Laser Hair Care daily shampoo and a clean water rinse the day of therapy. The subjects received 2, 20-minute treatments per week for 6 weeks and 1 treatment per week for 6 weeks. Microphotography was used to perform manual hair counts by a trained technician. A baseline photograph was taken prior to the 1st treatment and a second photograph was taken after the 18th and final treatment. Hair counts were performed prior to the first treatment and on the day of the final treatment.

The Treatment Technique

The Low Level Laser Therapy device being evaluated in this study is the Revage 670 laser. This is a red light, diode laser array, comprised of 30, 4-milliwatt lasers affixed in a rotating helmet. The subject is placed in a chair and the motorized helmet is lowered over the head. Treatment begins when the head is properly placed within the designated field, which triggers a photodiode that emits an audible tone. If the subject adjusts his position in any manner that moves the head out of alignment, the laser will cease irradiation until the head is repositioned to the correct orientation. This function serves to maximize treatment effect. Each treatment session delivers 14.4 J/cm² during the 20-minute session. There is no discernable sensation throughout the therapy, which serves to increase compliancy by subjects.

Primary Response

By the 12th therapy session, darkly colored terminal hairs had begun to perforate the epidermis. This growth was determined to be anagen phase hair shafts, in the vertex, temporal and frontal areas. Therapy sessions continued until the 18th treatment when the final hair counts were performed. The following chart provides the results of the quantitative analysis performed.

Data Analysis:

| Subject | Frontal Counts | | | | Vertex Counts | | | | Temporal Counts | | | | Composite AVG. % |
|---------|----------------------------|--------------------|--------------------|---------------|---------------------------|--------------------|--------------------|---------------|-----------------------------|--------------------|--------------------|---------------|---------------------|
| | Baseline | 12 wks | Change | %Change | Baseline | 12 wks | Change | %Change | Baseline | 12 wks | Change | %Change | |
| 1. DB | 36/cm ² | 60/cm ² | 24/cm ² | 66.66% | 24/cm ² | 44/cm ² | 20/cm ² | 83.33% | 28/cm ² | 48/cm ² | 20/cm ² | 71.42% | 73.80% |
| 2. MS | 24/cm ² | 36/cm ² | 12/cm ² | 50.00% | 28/cm ² | 44/cm ² | 16/cm ² | 57.14% | 22/cm ² | 32/cm ² | 10/cm ² | 45.45% | 50.86% |
| 3. MG | 80/cm ² | 84/cm ² | 4/cm ² | 05.00% | 44/cm ² | 56/cm ² | 12/cm ² | 27.27% | 72/cm ² | 80/cm ² | 8/cm ² | 11.11% | 14.46% |
| 4. MG | 20/cm ² | 24/cm ² | 4/cm ² | 20.00% | 16/cm ² | 20/cm ² | 4/cm ² | 25.00% | 16/cm ² | 24/cm ² | 8/cm ² | 50.00% | 31.66% |
| 5. BC | 60/cm ² | 72/cm ² | 12/cm ² | 20.00% | 36/cm ² | 52/cm ² | 14/cm ² | 38.88% | 48/cm ² | 60/cm ² | 12/cm ² | 25.00% | 27.96% |
| | Avg. Frontal change 32.33% | | | | Avg. Vertex change 46.32% | | | | Avg. Temporal change 40.59% | | | | 39.74% |

★ Rates reflect the average change in hair counts from baseline data for subjects as measured in 3 scalp locations.

CONCLUSION

An overall 39.74% increase in terminal, darkly colored hairs was achieved with this therapy. Objective analysis of the data reveals the vertex as the area with the greatest increase and the least variance between male and female subjects. These data suggest that the Revage 670 Low Level Laser Therapy device may provide the physician with the first primary therapy for Androgenetic Alopecia that is not pharmacological or surgical.

A subjective response was reported by all subjects and not assessed by this office. Each subject indicated that his or her hair loss had stopped after the 10th treatment and prior to the 12th treatment, as manifested by a lack of hair in a shower drain or hairbrush. Such impressions on the part of the hair loss patient can only serve to increase treatment compliance.