

# Nonablative Radiofrequency Treatment for Periorbital Rhytides and Midface Laxity

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20mm Dome electrode on hand



20mm Dome electrode on face



Before radiofrequency treatment



After radiofrequency treatment



Before radiofrequency treatment



After radiofrequency treatment

## ABSTRACT

**Objective:** To describe the effect of non ablative radiofrequency treatment using the Ellman Surgitron® Radiofrequency IEC unit on periorbital rhytides and midface laxity using pre and post-application photographs.

**Methods:** 8 subjects underwent 5 sessions of non ablative radiofrequency treatment on the periorbital, frontal and midface regions of the face using the Ellman Surgitron® IEC unit at an energy range of 12-25J/cm<sup>2</sup>. Photographs were taken of each subject pre and post-application of the treatment using the same photographer and settings. 3-blinded observers using the Fitzpatrick Wrinkle Classification System (FFWCS) on unlabeled pre-application and post-application photographs independently assessed the degree of clinical improvement of treated areas. Self-evaluation by each subject was also carried out using a quartile-grading scheme.

**Results:** 7 females and 1 male ranging from 29-63 years of age (mean age of 46 years old) with skin types varying from Class I-III using the Fitzpatrick wrinkle classification system underwent 5 sessions of non ablative radiofrequency therapy over 4 weeks. Self-evaluation by the subjects showed that 4 (50%) of the 8 patients noted minimal (1-25%) improvement post therapy and that 4 (50%) of the 8 patients showed mild (26-50%) improvement. In addition, results showed that 25% of patients were moderately satisfied (2 of 8 subjects) and 62.5% were minimally satisfied (5 of 8 subjects). Using the ANOVA single factor test, an objective analysis carried out by 3-blinded physicians revealed significant differences (F crit 3.50), between the pre-radiofrequency treatment photographs.

**Conclusion:** The application of radiofrequency using the Ellman Surgitron® IEC apparatus produces a reduction in periorbital and midface rhytides. Subjective and objective analysis revealed minimal to mild improvement in all patients.

## INTRODUCTION

Radiofrequency serves as the primary principle employed in the Ellman Surgitron® IEC device, which has been utilized in oculo-facial and plastic surgery to date. However very few clinical trials on skin rhytides and laxity have been performed using the said unit. The exact mechanism of action of radiofrequency on skin has not been fully understood. Zelickson et al have postulated 2 hypotheses:

1. The light energy generated is absorbed by water, and perhaps by collagen, to cause a direct thermal effect on the dermal ground substance.
2. The light energy is absorbed by hemoglobin and/or melanin, triggering the adnexal structures to produce cellular mediators and growth factors that may stimulate a wound-healing response which may give rise to indirect healing of the dermis. Similarly, the natural tissue resistance to electron flow, or impedance, generates heat within the dermis causing remodeling, which perhaps, then accounts for the tissue tightening effect. This study aims to describe the effect of non ablative radiofrequency treatment using the Ellman Surgitron® radiofrequency IEC unit on periorbital rhytides and midface laxity using pre and post-application photographs.

## RESULTS

The study population included 7 females and 1 male ranging from 29-63 years of age (mean age of 46 years old) with skin types varying from Class I-III using the Fitzpatrick wrinkle classification system. All 8 patients received 5 radiofrequency treatments for duration of 4 weeks. The Ellman Surgitron® IEC device utilized energy in the range of 12-25J/cm<sup>2</sup> (average of 18.5J/cm<sup>2</sup>).

- 4 of the 8 patients (50%) noted minimal (1-25%) improvement
- 4 of the 8 patients (50%) showed mild (26%-50%) improvement
- 25% of patients were moderately satisfied (2 of 8 subjects)
- 62.5% were minimally satisfied (5 of 8 subjects)

Using the Anova single factor test on unlabeled pictures, all 3-blinded observers noted significant differences (F crit 3.50), between the pre-radiofrequency treatment and post-radiofrequency treatment photographs.

## CONCLUSION

The application of radiofrequency using the Ellman Surgitron® IEC unit produces a reduction in periorbital and midface rhytides. Subjective and objective analysis revealed minimal to mild improvement in all patients.

