

**METHODS:** Twenty women who previously underwent cosmetic procedures and 20 women without a prior history of cosmetic procedures were shown 8 pairs of pre- and post-abdominoplasty images in both AP and lateral views (32 images total). Image pairs were randomized to whether pre- or postprocedural images came first. Participants viewed each image until they decided upon an esthetic rating (scored 1–10), whereas an eye-tracking device (Tobii X2-60, estimated accuracy: 6 mm; Tobii Inc.) recorded participants' gaze. Groups were compared using 2-tailed, independent *t* tests.

**RESULTS:** The average improvement in rating between pre- and postprocedural images was 30.4% higher in the patient group than in the lay group ( $P < 0.05$ ). The patient group spent 22.6% less time evaluating the images on average ( $P < 0.05$ ); however, the patient group spent proportionally more time fixated on features of interest (20.4% of their time spent viewing images on average versus 10.0%;  $P < 0.001$ ). Specifically, the patient group spent proportionally more time fixated on the umbilicus (25.6% versus 11.6%;  $P < 0.001$ ) and scar line for AP views (13.2% versus 5.1%;  $P < 0.001$ ) and more time fixated on the abdominal curvature for lateral views (7.6% versus 3.6%;  $P < 0.001$ ). There was no significant difference between the groups in terms of fixation on the flanks or back curvature. Both groups tended to fixate on the umbilicus first for AP views (63.0% of all samples) and the abdominal curvature for lateral views (35.5% of all samples). Overall, each group had similar viewing patterns in terms of the time it took to first fixate on a particular feature and number of times they fixated on each feature. There was no correlation between the time a participant spent viewing an image and the esthetic rating the participant gave it.

**CONCLUSIONS:** Eye tracking enables determination of features which draw gaze and attention and may be used to help assess surgical outcomes. With this technology, we found that women who previously underwent cosmetic procedures view postprocedural images more favorably and require less time to assess images. However, these women were more targeted viewers, spending proportionally more time fixated on key features, such as the umbilicus, scar line, and abdominal curvature, than women who have not undergone cosmetic plastic surgery. Finally, the umbilicus was the most heavily fixated upon feature for both groups in our study, suggesting that it strongly draws focus and therefore is a structure surgeons should dedicate increased care and attention on during abdominoplasty procedures.

## Microneedling of Immature Scars Is Safe and Improves Scar Esthetics

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### PURPOSE:

1. Dispelling previous myths that immature scars could not be treated with microneedling.
2. Microneedling scars as early as 6 weeks following wound closure is safe.
3. Microneedling improves scars esthetics. Scar formation involves the remodeling of extracellular matrix proteins.

Wound contraction and hyperproliferation can result in hypertrophic or keloid scars with features linked to poor cosmetic results. Currently early intervention with microneedling in immature scars is not the standard of care and some recommend waiting upward of 1 year before microneedling treatment. Our hypothesis is that mechanical stimulation of the myofibroblasts at the early tissue formation stage can positively influence the extracellular matrix to influence cell activity to produce collagen, matrix metalloproteinases, and cytokines which lead to flat scars with minimal discoloration as a result of small parallel collagen bundles

**METHODS AND MATERIALS:** Subjects were enrolled between 6 weeks and 4 months following closure of their wounds. Once enrolled, the patients were treated with 3 microneedling treatments 1 month apart and a final evaluation at 2 months following the last treatment. The treatment areas included facelift, breast mastopexy, and tummy tuck scars. The patients consented to participate in the Institutional Review Board–approved study. Twenty-five patients were enrolled, and data were analyzed using analysis of variance and post hoc testing.

**RESULTS:** The Vancouver Scar Scale demonstrated a statistically significant improvement when compared from the initial evaluation to the final evaluation at the 2-month follow-up following the 3 treatments (7.00 versus 3.08;  $P < 0.001$ ). The Patient and Observer Scar Assessment Scale showed statistically significant improvement when initial evaluation was compared to the 2-month follow-up (23.72 versus 11.76;  $P < 0.001$ ).

**CONCLUSIONS:** Early microneedling on immature scars is safe and has demonstrated improvement in both Vancouver Scar Scale and Patient and Observer Scar Assessment Scale scores when initial evaluation is compared to 2-month follow-up.

**Lipoabdominoplasty and Oblique Flankplasty: An Alternative to Fleur De Lys Abdominoplasty and Lower Body Lift**