

“Clinical Evaluation of Positive Pressure Salt Exfoliation Used Alone and in Combination with Low Energy Ultrasound and Glycolic Acid Gel Peel”

David H. McDaniel, MD, Jeff Lord, MD, and John Newman, MD

Twelve photo-aged female subjects were chosen for this randomized clinical trial with blinded analysis. Split face treatment was performed with both sides receiving identical treatment with a new positive pressure salt exfoliation device (The SaltFacial L'avantage™, Med-Aesthetic Solutions, Inc.). One side also received treatment with 3 MHz ultrasound. The purpose of the ultrasound was to use low energy and parameters that are known to increase the intercellular spaces via cavitation, thus increasing temporarily passive skin permeability to topical agents. The ultrasound can also function actively to propel topical agents through the stratum corneum. The purpose of the cleanser and salt exfoliation were to remove skin debris and stratum corneum.

Immediately post the salt exfoliation there was application of a 30% glycolic acid gel peel (Dermaphoresis Masque™, by Med-Aesthetic Solutions) which was immediately treated with low energy ultrasound using pulsed delivery. A new barrier repair topical product was then applied followed by a zinc oxide based UVA/UVB sunscreen (MD Formulations). Six treatments were performed at weekly intervals and final data collection was one week after the final treatment.

Blinded analysis was performed with expert grader, profilometry, elasticity, TEWL, moisture, color-meter, digital photography, and other data.

Results were still being analyzed as this paper was being written, but preliminary evaluation indicates improvement of skin smoothness, roughness and fine lines and wrinkles with both treatments. Global improvement by digital profilometry appeared to be significantly superior with the combined treatment, but the skin smoothness measurements appeared better with the salt exfoliation alone (possibly due to the “skin polishing effects” of skin exfoliation). Very significant differences in skin elasticity were noted with the combined procedure relative to the microdermabrasion alone, although the device alone also improved elasticity. Previous studies have demonstrated increased permeability after partial removal of the stratum corneum by microdermabrasion alone. Significant transient increases in epidermal water loss, immediately post treatment with the ultrasound, support the concept of transient increased skin permeability after ultrasound, while the return to baseline at the end of the study supports the hypothesis that barrier restoration occurs. No significant adverse effects were observed, with either treatment. Patient satisfaction rating was very high.

“Clinical Comparison of Glycolic Acid Gel Peel with and without Use of Low Energy Ultrasound to Enhance Skin Permeability and Transport”

David H. McDaniel, MD, John Newman, MD, and Jeff Lord, MD

Twelve subjects with photo-aged facial skin were selected for this study. Randomized assignment of protocols and blinded analysis were utilized. A split face clinical trial was performed using 30% glycolic acid gel peel (Dermaphoresis Masque™, by Med-Aesthetic Solutions) to treat both sides and a new skin treatment process using low energy 3 MHz ultrasound for one side only. Six treatments at weekly intervals were performed. Pre and post digital imaging, profilometry, skin elasticity, moisture, epidermal water loss, colorimeter and other data were collected including patient diaries.

Study results showed greater global improvement for subjects who received the combination treatment. For some parameters of epidermal elasticity, very large improvements in viscoelastic characteristics were observed. No significant adverse effects were observed and patient satisfaction was rated at greater than 90% with the combination procedure. A very dramatic transient increase in skin permeability was observed on the ultrasound treated side, but no such change was noted on the side receiving the peel alone.