LifeViz®
BY QUARTIER LATIN









SCIENTIFIC COMPENDIUM

ABOUT THIS COMPENDIUM

MEASURED OUTCOMES, **NOT IMPRESSIONS.**

For more than a decade, clinicians and researchers have used 3D stereophotogrammetry to replace subjective assessment with measured outcomes: volume, surface, wrinkle depth, roughness or lesion size, captured in a standardized way and compared over time. This compendium gathers 54 published studies, many of which used LifeViz® 3D imaging to quantify their results.

54	3	2011–2026	31
published studies	clinical fields: aesthetics, dermatology, wounds	publication span	journals and conference proceedings

Clinical Imaging Intelligence

Quartier Latin develops LifeViz to turn clinical photography into measurable, comparable data, from the first consultation to every follow-up. These studies show how independent investigators use objective imaging to document outcomes and validate methods.

How to read each summary

Each page opens with three key facts (design, follow-up, measured endpoint), then background, objective, methods and results, a highlighted key finding and the authors' conclusion. The blue line under the authors links to the original publication; the bottom line names the LifeViz solution for that application.

Device names in older studies

Earlier publications use the names of the time: QuantifiCare, 3D LifeViz Mini, LifeViz Micro or DermaPix. Quartier Latin S.A.S. is the former aesthetics division of QuantifiCare, and these products belong to today's LifeViz range.

Using this compendium

Use the contents pages to find studies by field, lead author or journal; every entry links to its summary. Always refer to the full publication before citing a result in a clinical or commercial context.

IMPORTANT INFORMATION

These summaries are provided for scientific information only. They report the methods, findings and conclusions of the original authors and are not claims made by Quartier Latin. Several studies evaluate third-party treatments; their inclusion does not imply endorsement of those products. Please refer to the full publications for complete methods, results and limitations.

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01

AESTHETICS

35 studies · 2012–2026

Sustained Efficacy and High Patient Satisfaction After Cheek Enhancement With a New Hyaluronic Acid Dermal Filler

Philippe Kestemont, Hugues Cartier, Patrick Trevidic et al.

Journal of Drugs in Dermatology · 2012;11(1 Suppl):S9–S16

STUDY DESIGN	FOLLOW-UP	3D ENDPOINT
Multicenter clinical trial	6 months	Cheek volume (3D) and caliper thickness

BACKGROUND

Increasing volume is an important part of facial rejuvenation since volume loss is common and typically age-related. HAE Volume is a moderately firm gel designed to be injected into the subcutaneous tissue for volume enhancement.

OBJECTIVE

To assess the efficacy, patient satisfaction, and safety of HAE Volume in patients with bilateral volume loss of the cheeks.

RESULTS

Investigators evaluated the great majority of subjects as much or very much improved in terms of aesthetic improvement of their cheeks at week 3 and at months 3 and 6 (89.3%, 90.9%, and 76.4%, respectively). After six months, 65.8 percent of the correction achieved at week 3 (optimal correction) was maintained in terms of cheek thickness (caliper assessments), confirmed by 67.7 percent of the volume maintained based on 3-D volume analyses. The majority of subjects (92.1%) were satisfied or very satisfied with their aesthetic outcome. A good tolerability profile was observed.

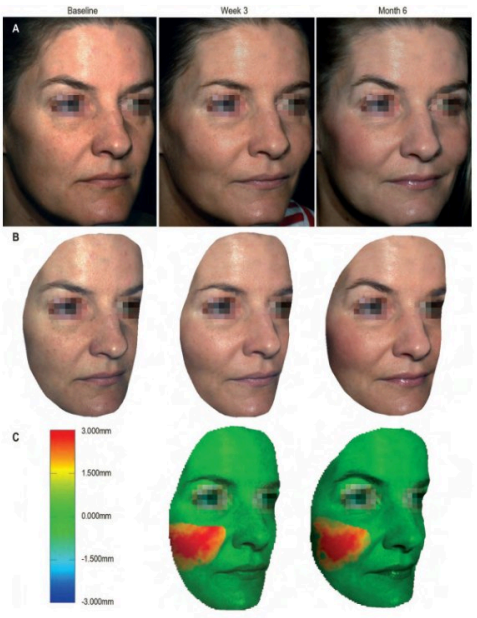


Figure from the publication.

KEY FINDING

67.7%

of the week-3 volume correction was still maintained at month 6 on 3D volume analysis.

CONCLUSION

Treatment with HAE Volume in cheeks led to good aesthetic improvement, sustained results confirmed by caliper and 3-D volume assessments, and high subject satisfaction.

LifeViz solution for this application: LifeViz Mini · 3D facial imaging

Inter- and Intra-Operator Reliability of Facial and Dental Measurements Using 3D-Stereophotogrammetry

Romain Ceinos DDS, Delphine Tardivo DDS, PhD, Marie-France Bertrand DDS, PhD & Laurence Lupi-Pegurier DDS, PhD

Journal of Esthetic and Restorative Dentistry · 2016;28(3):178–189 · doi:10.1111/jerd.12194

STUDY DESIGN
Intra- and inter-examiner reproducibility study

MEASUREMENTS
Facial and dental distances

3D METHOD
Stereophotogrammetry (LifeViz)

OBJECTIVE

The aim of this study was to assess the reproducibility of an innovative facial analysis method using three-dimensional stereophotogrammetry (3D-spg).

RESULTS

The study demonstrated reproducible intra- and inter-examiner results for facial measurements (ICCs between 0.732 and 0.976), except for measurements involving the inner part of the dental corridor (ICCs between 0.598 and 0.914).

KEY FINDING

0.732–0.976

intraclass correlation range for facial measurements between and within examiners.

CONCLUSION

The measurements recorded by the 3D-LifeViz® system are accurate and reliable for both research and clinical use. Additionally, it is simple and cost-effective compared to other 3D methods (laser scanner, 3D CT, and 3D Cone Beam CT).

LifeViz solution for this application: LifeViz Mini · 3D facial imaging

A 1-Year Follow-Up of Post-operative Scars After the Use of a 1210-nm Laser-Assisted Skin Healing (LASH) Technology: A Randomized Controlled Trial

D. Casanova, A. Alliez, C. Baptista, D. Gonelli, Z. Lemdjadi & S. Bohbot

Aesthetic Plastic Surgery · 2017;41(4):938–948 · doi:10.1007/s00266-017-0820-4

STUDY DESIGN
Randomized controlled trial

FOLLOW-UP
1 year

3D ENDPOINT
Scar volume, surface and roughness

BACKGROUND

Laser therapies are used to prevent excessive scar formation. The Laser-Assisted Skin Healing treatment induces controlled heat stress to promote tissue regeneration. This trial evaluates a new automated 1210-nm laser system, suitable for all Fitzpatrick scale phototypes.

RESULTS

Six weeks after surgery, laser-treated scars showed better appearance and modified OSAS scores compared to controls ($p = 0.024$ and $p = 0.079$), indicating early effects during the inflammatory phase. After 6 months, laser-treated scars continued to show improvement in subjective scores and scar volume ($p = 0.038$). At 1 year, laser-treated scars had significantly better volume ($p = 0.004$), surface ($p = 0.017$), and roughness ($p = 0.002$), with patients preferring their laser-treated scar ($p = 0.025$).

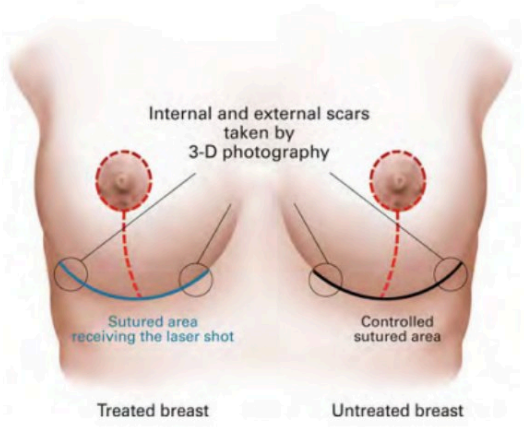


Figure from the publication.

KEY FINDING

p = 0.002

for scar roughness at 1 year, with better volume ($p = 0.004$) and surface ($p = 0.017$) on the laser-treated side.

CONCLUSION

The 1210-nm laser treatment, applied immediately after surgery in a single session, significantly improves scar appearance both objectively and subjectively, providing useful information for pre-surgical planning.

LifeViz solution for this application: LifeViz Micro · skin micro-topography

Effectiveness evaluation of two volumizing hyaluronic acid dermal fillers in a controlled, randomized, double-blind, split-face clinical study

Martina Kerscher, Karla Agsten, Maria Kravtsov & Welf Prager

Clinical, Cosmetic and Investigational Dermatology · 2017;10:239–247 · doi:10.2147/CCID.S135441

STUDY DESIGN
Randomized, split-face, evaluator-blinded

FOLLOW-UP
18 months

3D ENDPOINT
Midface volume change at M3, M6, M12, M18

BACKGROUND

Midface enhancement can be achieved using volumizing hyaluronic acid (HA) fillers.

OBJECTIVE

This study aimed to compare the safety and effectiveness of Cohesive Polydensified Matrix® 26 mg/mL HA gel (CPM-26) and Vycross® 20 mg/mL HA gel (VYC-20) in a randomized, evaluator-blind, split-face clinical trial.

METHODS

Subjects with moderate-to-severe malar volume loss received CPM-26 on one side of the face and VYC-20 on the other. Blinded evaluators rated photographs and live assessments on the Merz Aesthetics Scale (MAS) and the Global Aesthetic Improvement Scale (GAIS). Volume change was calculated at months 3, 6, 12 and 18.

RESULTS

CPM-26 was non-inferior to VYC-20 at month 3 based on MAS ratings. GAIS ratings showed more significant improvement with CPM-26 at months 1, 3, 12, and 18 (p-values: 0.0032, 0.0074, 0.0384, 0.0110). Volume augmentation with CPM-26 was greater at all time points, with a significant difference at month 3.

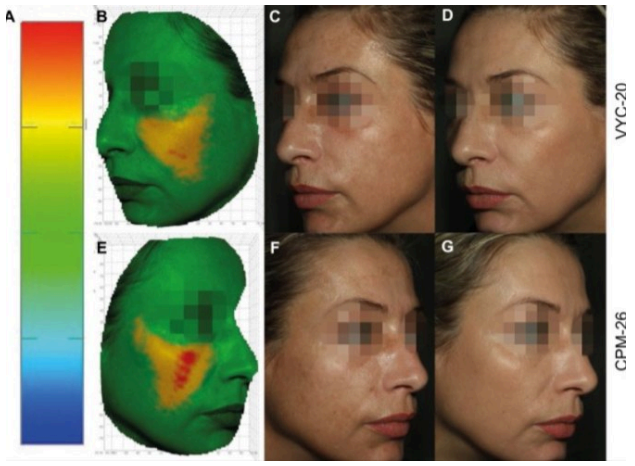


Figure from the publication.

KEY FINDING

18 months

Midfacial volume enhancement maintained up to 18 months, with greater volume gain for CPM-26 at every time point.

CONCLUSION

CPM-26 was non-inferior to VYC-20 at month 3 and demonstrated a favorable safety and effectiveness profile for midfacial volume enhancement, with results lasting up to 18 months.

LifeViz solution for this application: LifeViz Mini · 3D facial imaging

Three-Dimensional Evaluation of Static and Dynamic Effects of Botulinum Toxin A on Glabellar Frown Lines

Thomas Rappl, Paul Wurzer, Simone May, Alexandru Cristian Tuca, Janos Cambiaso-Daniel, Daryousch Parvizi, Lars-P. Kamolz & David B. Lumenta

Aesthetic Plastic Surgery · 2019;43(1):206–212 · doi:10.1007/s00266-018-1230-y

ASSESSMENT	FOLLOW-UP	3D ENDPOINT
Static and dynamic (frown) lines	90 days	Line reduction and surface irregularity

BACKGROUND

The use of injectable solutions, such as botulinum toxin A (BoNTA), for aesthetic purposes has increased, but objective measures are lacking. This study aimed to assess the static and dynamic effects of BoNTA on glabellar lines using a three-dimensional methodology.

RESULTS

Static glabellar lines (neutral expression) were significantly reduced by 17% and 24% at 30 and 90 days posttreatment, respectively (both $p < 0.0001$). Dynamic glabellar frown lines (with firm bilateral eye closure) showed a 26% and 21% reduction in surface irregularity at 30 and 90 days, respectively (both $p < 0.0001$). The subjective dynamic glabellar line scale improved significantly at 30 days (mean ± SD: 1.5 ± 0.8; $p < 0.05$) compared to pretreatment (2.8 ± 1.0). Patients confirmed subjective improvement in wrinkles at 90 days.

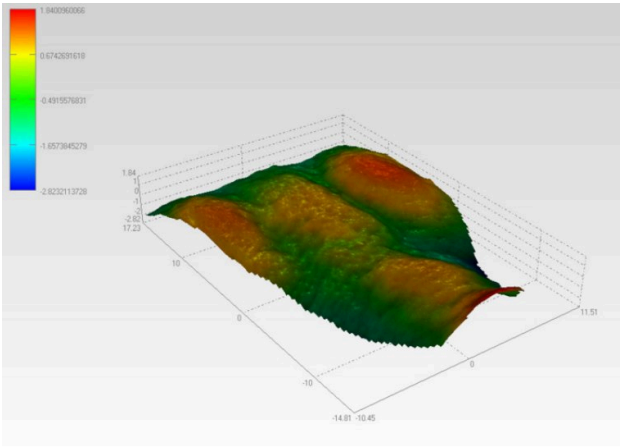


Figure from the publication.

KEY FINDING

−24%

static glabellar lines at 90 days after treatment ($p < 0.0001$).

CONCLUSION

The three-dimensional methodology effectively detected even subtle changes following BoNTA treatment for glabellar wrinkles, making it a valuable tool for scientific evaluation of clinical outcomes in aesthetic studies.

LifeViz solution for this application: LifeViz Micro · skin micro-topography

A randomized double-blind trial evaluating the efficacy and tolerability of topical body treatment with TriHex Technology® combined with abdomen cryolipolysis or radiofrequency procedures

Amir Moradi MD, Jeanette Poehler BA & Michaela Bell BS

Journal of Cosmetic Dermatology · 2020 · doi:10.1111/jocd.13294

STUDY DESIGN
Randomized, double-blind, split-abdomen

FOLLOW-UP
12 weeks

3D ENDPOINT
Abdominal volume

BACKGROUND

Nonsurgical fat reduction methods like cryolipolysis and radiofrequency are highly popular. A previous study found that TransFORM Body Treatment (TFB) with TriHex Technology® improved arm contour and reduced skin laxity following cryolipolysis. TFB contains peptides and active ingredients that promote lipid breakdown and accelerate fat cell apoptosis after fat reduction treatments.

OBJECTIVE

This study aimed to evaluate the changes in abdominal volume after 12 weeks of applying TFB following cryolipolysis and radiofrequency procedures.

METHODS

After abdominal cryolipolysis or radiofrequency, 15 subjects were randomized to apply TFB or placebo to either side of the abdomen for 12 weeks. 3D digital imaging assessed results at 4, 8 and 12 weeks.

RESULTS

TFB application led to greater volume loss compared to placebo at weeks 4 ($P = 0.0511$), 8 ($P = 0.0238$), and 12 ($P = 0.0078$), with statistical significance at weeks 8 and 12. No adverse events were reported.

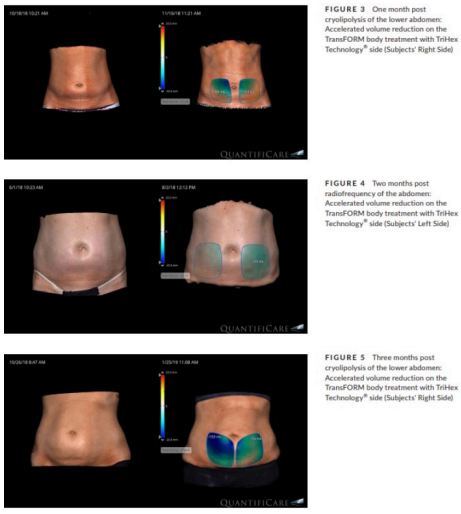


Figure from the publication.

KEY FINDING

$p = 0.0078$

greater abdominal volume loss with TFB than placebo at week 12 (significant from week 8).

CONCLUSION

Topical TFB significantly enhanced adipose volume loss and improved the clinical outcomes of nonsurgical fat reduction procedures.

LifeViz solution for this application: LifeViz Infinity · 3D body imaging

Comparative Study on the Outcome of Periorbital Wrinkles Treated with Laser-Assisted Delivery of Vitamin C or Vitamin C Plus Growth Factors: A Randomized, Double-blind, Clinical Trial

Barbara Helena Barcaro Machado, James Frame, Jufen Zhang & Mohammad Najlah

Aesthetic Plastic Surgery · 2021;45(3) · doi:10.1007/s00266-020-02035-z

STUDY DESIGN
Randomized, double-blind

COMPARISON
Vitamin C vs vitamin C + growth factors

3D ENDPOINT
Skin roughness and wrinkle depth

BACKGROUND

Despite promising results, laser-assisted drug delivery (LADD) is not yet widely accepted as a standard therapy, with most data based on laboratory tests, animal studies, or cadaver skin.

OBJECTIVE

This double-blind, prospective, randomized clinical trial aims to assess the effects of topical vitamin C and a cosmeceutical containing growth factors (GFs) on periorbital wrinkles, primarily treated with laser skin resurfacing.

RESULTS

The group treated with vitamin C and growth factors showed a significant reduction in both skin roughness and wrinkle depth ($p < 0.01$) compared to the group receiving vitamin C alone. No adverse reactions were reported related to LADD with vitamin C and GFs.

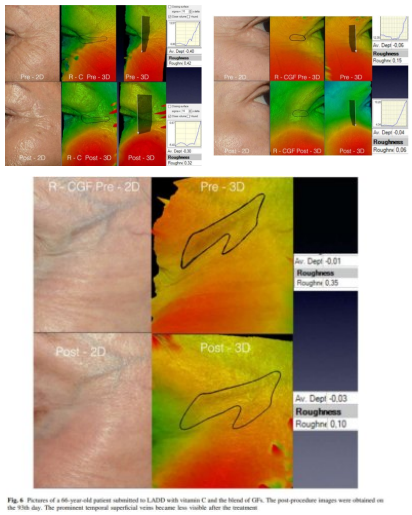


Figure from the publication.

KEY FINDING

p < 0.01

greater reduction in roughness and wrinkle depth when growth factors were added to vitamin C.

CONCLUSION

Controlled laser application may enhance the absorption of exogenous macromolecules, such as vitamin C and growth factors. Both treatments reduced periorbital wrinkles, with the combination of vitamin C and GFs showing more significant improvement.

LifeViz solution for this application: LifeViz Micro · skin micro-topography

Scientific validation of three-dimensional stereophotogrammetry compared to the IGAIS clinical scale for assessing wrinkles and scars after laser treatment

Barbara Helena Barcaro Machado, Ivy Dantas De Melo E. Silva, Walter Marou Pautrat, James Frame & Mohammad Najlah

Scientific Reports · 2021;11:12385 · doi:10.1038/s41598-021-91922-9

STUDY DESIGN
Validation against the IGAIS clinical scale

COMPARISON
3D stereophotogrammetry vs peer raters

3D ENDPOINT
Skin microtopography

BACKGROUND

Assessing skin treatment outcomes typically relies on subjective patient feedback or scale-based peer evaluations. Three-Dimensional stereophotogrammetry (3D SPM) aims to quantify skin microtopography before and after treatments.

OBJECTIVE

This study compares the accuracy of 3D stereophotogrammetry with a scale-based peer evaluation in assessing skin surface changes following laser treatment.

RESULTS

Both 3D SPM measurements and rater assessments showed a trend of skin/scar improvement. Rater evaluations aligned with 3D SPM findings, with the highest agreement occurring when observers analyzed 3D images. However, observers overestimated improvements in the nontreatment control group, whereas 3D SPM accurately detected the absence of intervention.

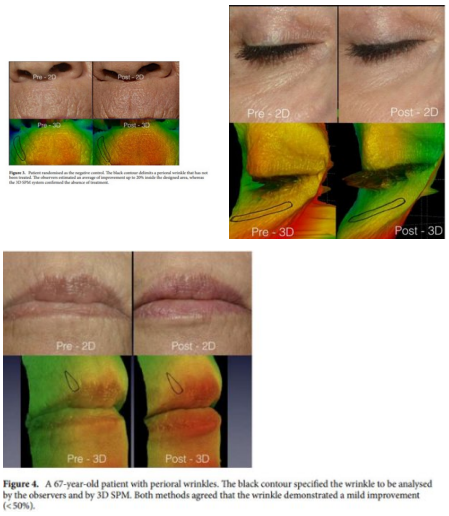


Figure 4. A 67-year-old patient with perioral wrinkles. The black contour specified the wrinkle to be analysed by the observers and by 3D SPM. Both methods agreed that the wrinkle demonstrated a mild improvement (< 50%).

Figure from the publication.

KEY FINDING

No false gains

3D imaging correctly detected no change in untreated controls, where human raters overestimated improvement.

CONCLUSION

This study confirmed a direct correlation between the IGAIS clinical scale and 3D SPM, validating the accuracy and efficacy of 3D SPM in assessing changes in skin microtopography after laser treatment.

LifeViz solution for this application: LifeViz Micro · skin micro-topography

Treatment of Scars with Laser-Assisted Delivery of Growth Factors and Vitamin C: A Comparative, Randomised, Double-blind, Early Clinical Trial

Barbara Helena Barcaro Machado, Jufen Zhang, James Frame & Mohammad Najlah

Aesthetic Plastic Surgery · 2021;45(5) · doi:10.1007/s00266-021-02232-4

STUDY DESIGN
Randomized, double-blind, comparative

COMPARISON
Vitamin C vs vitamin C + growth factors

3D ENDPOINT
Scar roughness and volume

BACKGROUND

Scarring can negatively impact the results of plastic surgeries. Deep dermal injuries activate fibroblasts that produce excess collagen, inflammatory cytokines, and growth factors, leading to increased fibrous tissue and scarring.

OBJECTIVE

This double-blind, randomized clinical trial aimed to investigate the use of laser-assisted drug delivery (LADD) for improving scars, to establish LADD as a standard therapy, and to identify suitable drugs for dermal administration.

RESULTS

Both groups showed significant reductions in scar roughness and volume ($p < 0.01$). The group treated with Vitamin C and GFs had significantly better results than the Vitamin C-only group ($p < 0.01$).

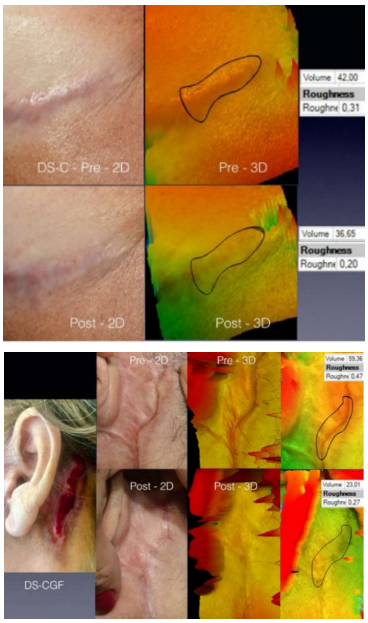


Figure from the publication.

KEY FINDING

p < 0.01

better reduction in scar roughness and volume when growth factors were added.

CONCLUSION

LADD proved effective in reducing scars, with the addition of growth factors resulting in significantly better outcomes and more inconspicuous scars. No adverse reactions were observed.

LifeViz solution for this application: LifeViz Micro · skin micro-topography

Resurface, Retone and Reboost: A Multi-Modality Approach for Prejuvenation of Millennial Patients

Vincent Wong

Journal of Clinical & Experimental Dermatology Research · 2021;12(S8):549

STUDY DESIGN	TREATMENT	IMAGING ENDPOINT
Case report (2 patients)	Peel, topical depigmentation and mesotherapy	Pigment count (skin analysis)

BACKGROUND

Millennials are increasingly seeking aesthetic treatments due to social media pressure and a desire for "prejuvenation"—preventing early signs of aging. Common concerns include hyperpigmentation, which affects skin tone and is often treated with minimally invasive procedures like chemical peels, depigmenting agents, and mesotherapy.

OBJECTIVE

Agents used for resurfacing, skin tone correction, and biorevitalising have been shown individually to address skin quality, melanogenesis, and rejuvenation, respectively. In this case report, the aim was to evaluate the overall prejuvenation effects of the combination of these agents in millennial subjects.

RESULTS

The male subject had ephelides, while the female had solar lentigines. After treatment with a chemical peel, topical hyperpigmentation treatment, and injectable mesotherapy, both showed improved skin quality, tone, and reduced hyperpigmentation, with a noticeable decrease in pigment count.

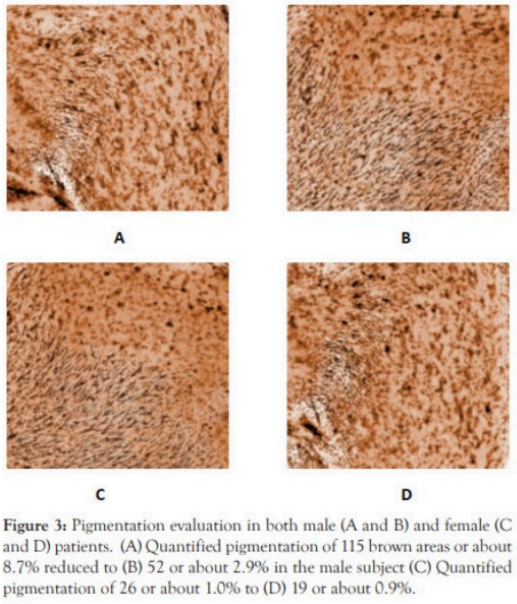


Figure 3: Pigmentation evaluation in both male (A and B) and female (C and D) patients. (A) Quantified pigmentation of 115 brown areas or about 8.7% reduced to (B) 52 or about 2.9% in the male subject (C) Quantified pigmentation of 26 or about 1.0% to (D) 19 or about 0.9%.

Figure from the publication.

KEY FINDING

Less pigment

Both patients showed better skin quality and tone, with a measurable decrease in pigment count.

CONCLUSION

The combination of agents for prejuvenation was found to improve the overall quality of the skin and objectively reduced hypermelanosis in both male and female subjects.

LifeViz solution for this application: DermaViz (LifeViz 2D) · 2D skin analysis

Curved Cannulas Cheekbone Augmentation with Novel Hyaluronic Acid Dermal Filler: Clinical Outcomes and Patient Satisfaction

Sebastian Torres

Kosmetische Medizin · 1/2021

STUDY DESIGN	FOLLOW-UP	3D ENDPOINT
Curved vs straight cannula	300 days	Cheekbone projection and volume

BACKGROUND

Cheekbone augmentation is a popular facial rejuvenation procedure due to its effective volumetric lifting of the midface, enhancing overall facial aesthetics.

OBJECTIVE

To evaluate the safety, efficacy, and patient satisfaction of a new cross-linked hyaluronic acid (HA) based dermal filler (Decoria Voluma) for cheekbone augmentation, using a novel zygomatic curved cannula.

RESULTS

Significant improvement in cheekbone projection and Ogee Curve was observed, with results lasting over 240 days. Minor product reabsorption was noted by day 300, but outcomes remained better than baseline. Patient satisfaction was excellent in the curved cannula group and good in the straight cannula group.



Fig. 5: Life Viz Software Volumetric Color Rendering.

Figure from the publication.

KEY FINDING

300 days

Cheekbone augmentation still better than baseline, with higher satisfaction in the curved-cannula group.

CONCLUSION

The new cross-linked HA dermal filler (Decoria Voluma) was effective for cheekbone augmentation, providing long-lasting results up to 300 days. Treatments performed with curved cannulas resulted in higher patient satisfaction and better product tolerance.

LifeViz solution for this application: LifeViz Mini · 3D facial imaging

Thread lifting of the midface: A pilot study for quantitative evaluation

Alberto Diaspro & Gabriele Rossini

Dermatologic Therapy · 2021

STUDY DESIGN	FOLLOW-UP	3D ENDPOINT
Pilot study	350 days	Midface volume

BACKGROUND

Volume restoration is a key goal in midface rejuvenation, and absorbable sutures can be used to create a suspension system that lifts sagging skin, particularly in the midface.

OBJECTIVE

To investigate the effectiveness of thread lifting procedures for lifting sagging midface tissues and determine the duration of results.

KEY FINDING

+5.59 mL

mean midface volume gain at 120 days, still +4.16 mL at 350 days ($P < 0.05$).

RESULTS

The study showed a mean volume improvement of 5.59 mL at 120 days (t0-t1), which decreased slightly to 4.16 mL at 350 days (t0-t2). Statistically significant improvements were observed at both t1 and t2 compared to baseline (t0), with all results being significant ($P < 0.05$).

CONCLUSION

Thread lifting for midface ptosis is safe and effective, with significant and lasting volume restoration that persists for up to 12 months, making it a viable option for correcting mild to moderate midface sagging.

LifeViz solution for this application: LifeViz Mini · 3D facial imaging

A Novel Combination Therapy in Aesthetic and Reconstructive Surgery: Sea Salt Exfoliation, Cavitating Ultrasound, and High Intensity Multiwavelength LED Treatment: (SaltFacial)

Greg Chernoff

Journal of Clinical and Cosmetic Dermatology · 2021

STUDY DESIGN
Safety and efficacy study

TREATMENT
Sea salt exfoliation, ultrasound and LED

IMAGING ENDPOINT
Facial skin analysis

BACKGROUND

The science in aesthetic medicine continues to grow and expand exponentially. With improved science comes advanced clinical therapeutics that further benefits our patients. Physicians are seeking non-surgical technologies that are capable of safely treating all Fitzpatrick skin types while yielding meticulous results.

OBJECTIVE

This study examines the safety and potential efficacy of a new instrument platform offering single session sea salt exfoliation in combination with cavitating cutaneous ultrasound and high intensity LED light therapy (SaltFacial) in treating aging skin, acne, infection, edema and wound healing.

RESULTS

There were no adverse reactions in any patient from the sea salt exfoliation, ultrasound therapy, or LED light treatment, alone or in combination with each other.



Figure from the publication.

KEY FINDING

0

adverse reactions from any of the three modalities, alone or combined.

CONCLUSION

The SaltFacial effectively treats aging skin, acne, infections, inflammation, and wound healing. Sea salt provides antibacterial, antifungal, and antiviral benefits, while enhancing healing, ultrasound penetration, and mineral deposition. Ultrasound improves circulation and dermal product absorption, and LED phototherapy reduces inflammation, boosts collagen synthesis, and alleviates pain. This combination therapy is valuable in aesthetic and reconstructive dermatology.

LifeViz solution for this application: DermaViz (LifeViz 2D) · 2D skin analysis

Improvement in the appearance of cellulite and skin laxity resulting from a single treatment with acoustic subcision: Findings from a multicenter pivotal clinical trial

Elizabeth L. Tanzi, Christopher C. Capelli, David W. Robertson, Brenda LaTowsky, Carolyn Jacob, Omer Ibrahim & Michael S. Kaminer

2021 · PMID: 34224601

STUDY DESIGN	FOLLOW-UP	ENDPOINTS
Multicenter pivotal trial	12 weeks	Cellulite severity and skin laxity

BACKGROUND

RESULTS Cellulite appearance is influenced by surface depressions and skin laxity. While some treatments improve cellulite through invasive methods, they require local anesthesia and recovery time. Additionally, skin laxity is often unaddressed. This study aimed to evaluate a noninvasive approach—rapid acoustic pulses (acoustic subcision)—for improving both cellulite depressions and skin laxity, measuring safety, efficacy, tolerability, and participant satisfaction.

KEY FINDING

−29.5%

mean reduction in cellulite after a single noninvasive session (56 participants).

RESULTS

rectly identified post-treatment photos for 96.4% of participants. Cellulite improvement was noted in 90.9% of treated areas using GAIS. Skin laxity showed a 27.9% reduction (0.57 LS reduction). GAIS for laxity improvement was 67.3%. 92.9% of participants reported satisfaction. No serious adverse events occurred, and pain scores were low (2.4 during treatment, 0.3 post-treatment).

CONCLUSION

A single noninvasive acoustic subcision session significantly improves cellulite and skin laxity with minimal pain and no downtime. Additional treatments may enhance results, and further trials are planned.

LifeViz solution for this application: LifeViz Infinity · 3D body imaging

Prospective, Randomized, Comparative Study of the Cutaneous Effects of a Topical Body Treatment Compared to a Bland Moisturizer

Jean Carruthers, MD, FRC (OPHTH), FRCSC, Gyasi Bourne, BASc, Michaela Bell, BS, MBA & Alan Widgerow, MBBCh, MMed, FCS, FACS

Aesthetic Surgery Journal · 2021;41(9):NP1188–NP1198 · doi:10.1093/asj/sjab161

STUDY DESIGN	COMPARISON	3D ENDPOINT
Prospective, randomized, comparative	TFB vs bland moisturizer (forearms)	Skin roughness

BACKGROUND

As human skin ages, it loses elasticity and thickness. Topical treatments aim to reverse these effects.

OBJECTIVE

This study aimed to evaluate the efficacy of TransFORM Body Treatment (TFB) in skin rejuvenation, comparing it to a bland moisturizer applied to the extensor and volar forearms.

KEY FINDING

p = 0.004

roughness improvement on the volar forearm with TFB; most other differences were not significant.

RESULTS

Roughness: Extensor: -0.09 mm for moisturizer vs. -0.26 mm for TFB (P = 0.174) Volar: 0.01 mm for moisturizer vs. -0.23 mm for TFB (P = 0.004)
Recoil velocity: Volar: -56°/sec for moisturizer vs. -24°/sec for TFB (P = 0.61) Extensor: -95°/sec for moisturizer vs. -63°/sec for TFB (P = 0.57)
Retraction speed: Volar: -3.25 ms for moisturizer vs. -20.08 ms for TFB (P = 0.33) Extensor: -2.17 ms for moisturizer vs. -10.83 ms for TFB (P = 0.66)
Histology: TFB increased mucopolysaccharide content, new collagen, and elastin fibers in the papillary dermis.
Rao-Goldman score: Volar: -0.17 for moisturizer vs. -0.33 for TFB (P = 0.25) Extensor: -0.08 for moisturizer vs. -0.17 for TFB (P = 0.36)

CONCLUSION

Histological analysis showed that TFB promoted the production of new collagen and elastin. Although some measures showed trends towards improvement, the differences between TFB and the bland moisturizer were not statistically significant for most parameters.

LifeViz solution for this application: LifeViz Micro · skin micro-topography

3D stereophotogrammetry quantification for tissue repositioning using Botulinum toxin A: a case report

Victor Rogério, Janaína Badin Carvas, Marcelo Germani Vieira, Viviane Rabelo, Pietra Roschel & Victor Ricardo Manuel Munoz-Lora

Brazilian Dental Science · 2022;25(3):e3411 · doi:10.4322/bds.2022.e3411

STUDY DESIGN	TREATMENT	3D ENDPOINT
Case report	Full-face BoNT-A	Volume change and soft-tissue displacement

BACKGROUND

Facial-lifting procedures with Botulinum toxin type A (BoNT-A) have gained popularity for their ability to reduce wrinkles and sagging skin. The efficacy of these treatments can be difficult to quantify, making objective measurement tools important for evaluating their outcomes.

OBJECTIVE

This study aimed to objectively assess the results of a full-face BoNT-A treatment using 3D stereophotogrammetry quantification (3D-SQ).

RESULTS

The photographs showed a noticeable decrease in expression lines and dynamic wrinkles. There was improved definition of the jawline and increased volume in the midface, along with a more defined profile due to reduced sagging skin beneath the chin. The 3D-SQ results showed a volume increase of 1.17 ml on the right and 1.59 ml on the left cheekbone, due to cranial soft tissue repositioning. Volume reduction was observed in the melomental folds: 0.27 ml on the right and 0.41 ml on the left. Cephalometric measurements revealed a decrease in total facial height (from Trichion to Mental points), indicating an upward shift in soft tissue.

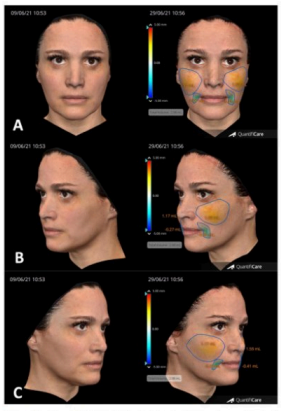


Figure 2 - Quantification of the facial soft tissue volume obtained by 3D Life Viz™ Mini- Quantificare from a (A) frontal, (B) left lateral and (C) right lateral view. Volume gains on the cheekbone areas are colored in yellow and volumes losses on the melomental folds (i.e. marionette lines) are colored in green.

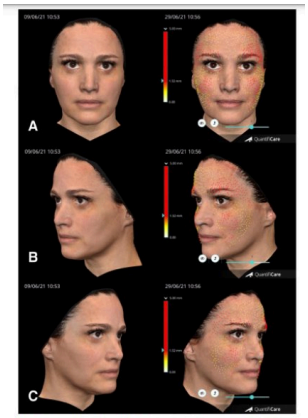


Figure 3 - The "Quantificare Analysis 3D viewer +" software calculates the volumetric changes and soft tissue displacement in between the initial and final images. Upward displacement of soft tissue is shown in red arrows and static tissue in yellow arrows from a (A) frontal, (B) left lateral and (C) right lateral view.

Figure from the publication.

KEY FINDING

+1.59 mL

left cheekbone volume gain (+1.17 mL right) from cranial soft-tissue repositioning.

CONCLUSION

The quantitative results obtained using 3D-SQ provide evidence of the effectiveness of BoNT-A in facial-lifting procedures. These findings emphasize the value of 3D-SQ in objectively assessing BoNT-A treatments and potentially other aesthetic procedures.

LifeViz solution for this application: LifeViz Mini · 3D facial imaging

IncobotulinumtoxinA for Glabellar Frown Lines in Chinese Subjects: A Randomized, Double-blind, Active-Controlled Phase-3 Study

Yan Wu MD PhD, Susanna Roll MD, Gudrun Klein PhD, Thorin L. Geister PhD, Michael A. Makara PhD & Bi Li MD PhD

Plastic and Reconstructive Surgery – Global Open · 2023;11(5):e4956 · doi:10.1097/GOX.0000000000004956

STUDY DESIGN	COMPARISON	PRIMARY ENDPOINT
Randomized, double-blind, phase 3	IncobotulinumtoxinA vs OnabotulinumtoxinA	Responders at day 30 (maximum frown)

BACKGROUND

This study evaluated the efficacy and safety of IncobotulinumtoxinA 20 U for treating glabellar frown lines in Chinese subjects.

RESULTS

At day 30, response rates for the primary efficacy endpoint (maximum frown) on the Merz Aesthetic Scales were comparable: IncobotulinumtoxinA (92.5%) and OnabotulinumtoxinA (95.1%). Noninferiority of IncobotulinumtoxinA was confirmed: the 95% confidence interval for the difference (−0.97% to 0.43%) lay entirely above the predefined noninferiority margin of −15%. Secondary efficacy endpoints showed similar results for both groups (response rates >85% per subject, >96% by independent review). Over 80% of subjects and 90% of investigators rated treatment as "much improved" or better at day 30. Both groups had consistent safety profiles, and IncobotulinumtoxinA was well tolerated, with no new safety concerns.

KEY FINDING

92.5%

responder rate at day 30 with IncobotulinumtoxinA (95.1% with OnabotulinumtoxinA); noninferiority confirmed.

CONCLUSION

IncobotulinumtoxinA 20 U is safe and effective for treatment of moderate to severe glabellar frown lines at maximum frown in Chinese subjects and is noninferior to OnabotulinumtoxinA 20 U.

Combining topical dermal infused exosomes with injected calcium hydroxylapatite for enhanced tissue biostimulation

Greg Chernoff

Journal of Cosmetic Dermatology · 2023;22(Suppl 1):15–27 · doi:10.1111/jocd.15695

STUDY DESIGN	FOLLOW-UP	IMAGING ENDPOINT
Clinical series, 40 patients	30 days	3D photography and skin analysis

BACKGROUND

Exosomes are being explored for skin regeneration, but delivering them through intact skin remains a challenge. Calcium hydroxylapatite (CaHA) is an established biostimulatory filler.

OBJECTIVE

To develop safe, reproducible protocols that improve topical exosome absorption, used alone or followed by facial or neck injections of diluted or hyperdiluted CaHA.

KEY FINDING

16 / 20

infusion patients were very satisfied; the other 4 were satisfied.

RESULTS

All patients were documented with QuantifiCare 3D photography and skin analysis at baseline and 30 days after treatment. Twenty received a facial dermal infusion alone; four groups of five received infusion plus diluted (1:1) facial CaHA, infusion plus hyperdiluted (1:4) neck CaHA, or either CaHA injection alone. Each approach improved skin tone, quality and texture. QuantifiCare analysis showed improvements in wrinkles, pores, tone and vascularity, with less oiliness and pigmentation. Patients primed with infusion before CaHA responded earlier and more strongly at 30 days. Of the 20 infusion patients, 16 were very satisfied and 4 satisfied.

CONCLUSION

Topical exosomes delivered by dermal infusion, without breaking the skin surface, can be used alone or combined with CaHA. Priming the skin with infusion appeared to accelerate and enhance the response to CaHA, which warrants further study.

LifeViz solution for this application: LifeViz Mini · 3D facial imaging

How to improve infraorbital hollows with neuromodulators–A clinical prospective interventional study about the application of facial biomechanics

Marcelo Germani DDS, Claudia C. M. S. Almeida DDS MSc, Victor R. M. Munoz-Lora DDS PhD, Victor Rogério DDS MSc, Nicholas Moelhoff MD, David L. Freytag MD, Jeremy B. Green MD, Michael Alfertshofer MD, Kristina Davidovic MD & Sebastian Cotofana MD PhD

Journal of Cosmetic Dermatology · 2023 · doi:10.1111/jocd.15970

STUDY DESIGN	FOLLOW-UP	3D ENDPOINT
Prospective interventional	30 days	Volume and cranial skin displacement

BACKGROUND

The "Toxin Lift" injection technique was previously introduced to describe volume increases in the midface following neuromodulator treatments of the jawline. This soft tissue repositioning can also potentially improve the severity of infraorbital hollows.

OBJECTIVE

The objective of this study was to evaluate whether the severity of infraorbital hollows could be improved by injecting neuromodulators in the supra-mandibular segment of the platysma.

RESULTS

Volume increase in the infraorbital region was 0.13 cc at 15 days ($p = 0.001$) and 0.02 cc at 30 days ($p = 0.452$). Skin displacement in the cranial direction was 0.54 mm at 15 days ($p < 0.001$) and 0.31 mm at 30 days ($p < 0.001$). Clinical evaluation showed significant improvements in the tear trough, palpebromalar groove, and lid-cheek junction compared to baseline (all $p < 0.001$).

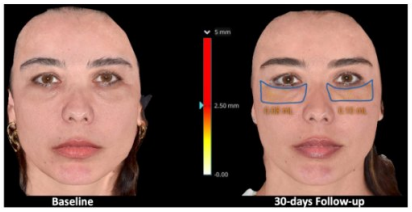


FIGURE 3 3D-imaging analysis showing the average volume increase of a female patient following the performed injection technique at 30 days follow-up. The average volume increase measured was for the right side 0.08 cc whereas it was for the left side 0.10 cc.

Figure from the publication.

KEY FINDING

0.54 mm

cranial skin displacement at 15 days ($p < 0.001$), with improved tear trough and lid-cheek junction.

CONCLUSION

The "Toxin Lift" injection technique significantly improved the clinical appearance of infraorbital hollows. The observed effects are consistent with facial biomechanics and soft tissue repositioning.

LifeViz solution for this application: LifeViz Mini · 3D facial imaging

A hyaluronic acid-based micro-filler improves superficial wrinkles and skin quality: a randomized prospective controlled multicenter study

Ferial Fanian, Jean-Jacques Deutsch, Marie Thérèse Bousquet, Sylvie Boisnic, Pierre Andre, Isabelle Catoni, Ghislaine Beilin, Christian Lemmel, Maryna Taieb, Marie Gomel-Toledano, Hanane Issa & Philippe Garcia

Journal of Dermatological Treatment · 2023;34(1):2216323 · doi:10.1080/09546634.2023.2216323

STUDY DESIGN	FOLLOW-UP	ENDPOINT
Randomized, controlled, multicenter	Day 120	Crow's feet wrinkle volume (profilometry)

BACKGROUND

NCTF®135HA is a bio-revitalizing solution containing hyaluronic acid designed to compensate for skin dehydration, fatigue, and fine wrinkles associated with endogenous and environmental aging.

OBJECTIVE

The primary objective was to evaluate changes in superficial wrinkles from baseline to D75, comparing NCTF®135HA + anti-aging cream with anti-aging cream alone, based on three outcomes: the mean volume of crow's feet wrinkles (profilometric measures), dermatologist-assessed neck wrinkles (Bazin scale), and décolleté wrinkles (Landau scale). Secondary objectives included assessing changes in additional parameters and time points.

KEY FINDING

146

subjects randomized; NCTF®135HA reduced wrinkles in all three areas vs control at D75 and D120.

RESULTS

146 subjects were randomized to NCTF®135HA (n=107) or control (n=38). At D75 and D120, NCTF®135HA significantly reduced wrinkles in all three areas and improved facial radiance scores compared with the control. Skin hydration significantly increased 7 days after the last NCTF®135HA injection. Self-esteem scales showed statistically significant improvements at D75 and D120 in subjects treated with NCTF®135HA versus baseline. Most adverse events were mild, resolved within 48 h, and were related to the injection procedure.

CONCLUSION

NCTF®135HA is an effective and well-tolerated treatment to reduce the skin signs of aging. The results are significantly superior to a routine anti-aging cream alone.

LifeViz solution for this application: LifeViz Micro · skin micro-topography

An Interim 6-Month Analysis of the Dermatologic Effects and Midface Volume Correction With XTRCL Filler in a Prospective, Single-Center Study

Giovanni Salti MD, Gabriel Siquier-Dameto MD, Siham Rharbaoui MD, Dennis Malvin Hernandez Malgapo MD, Silvia Innocenti MD & Martina Manni MD

Dermatologic Surgery · 2023;49(10):943–948 · doi:10.1097/DSS.0000000000003878

STUDY DESIGN	FOLLOW-UP	3D ENDPOINT
Prospective, single-center	6 months	Midface volume

BACKGROUND

Hyaluronic acid-based filler injections with parenteral anesthetics have become the standard in treating midface volume deficits. There are currently limited data on the effects of these types of fillers on skin density, thickness, and firmness.

OBJECTIVE

This study aimed to assess the efficacy of XTRCL filler in improving skin quality and tissue volume in women with midface volume loss.

KEY FINDING

6 months

significant improvement in midface volume deficit and skin quality.

RESULTS

XTRCL use led to significant improvement in midface volume deficits, and skin quality and skin thickness. Injector and subject satisfaction with the treatment were documented and only mild-to-moderate adverse reactions were reported.

CONCLUSION

XTRCL was shown to be effective in improving volume loss and skin quality at 6 months.

In this study, 3D volume was measured with LifeViz; skin density and thickness were measured with separate instruments (high-frequency ultrasound).

LifeViz solution for this application: LifeViz Mini · 3D facial imaging

Safety and Efficacy of Diluted Calcium Hydroxylapatite for the Treatment of Cellulite Dimpling on the Buttocks: Results from an Open-Label, Investigator-Initiated, Single-Center, Prospective Clinical Study

Kay Durairaj, Omer Baker, Monalea Yambao, Jacob Linnemann-Heath & Ani Shirinyan

Aesthetic Plastic Surgery · 2024;48(9):1797–1806 · doi:10.1007/s00266-023-03815-z

STUDY DESIGN	FOLLOW-UP	ENDPOINTS
Prospective, open-label, single-center	14 weeks	Dimple number and depth

OBJECTIVE

To assess the safety and efficacy of diluted CaHA for treating cellulite dimpling in the buttocks.

METHODS

A prospective, single-center, open-label study with 24 participants (mean age 35 years, mean BMI 26.88). No serious complications were reported.

KEY FINDING

−50%

dimple depth at 14 weeks, with 54% fewer visible dimples (24 participants).

RESULTS

RESULTS Reduction in Dimples: A 54% reduction in the number of visible dimples and a 50.09% reduction in dimple depth at 14 weeks. Cellulite Severity: Mean improvement of 43.92% in cellulite severity (CSS score decrease of 4.29 points). Subject Satisfaction: 91.6% of participants rated their cellulite appearance as “improved” or better.

CONCLUSION

The study supports the safety and efficacy of diluted CaHA for treating cellulite dimpling in adult women.

LifeViz solution for this application: LifeViz Infinity · 3D body imaging

Comparison of 2 Fillers for Lip Injection—A Randomized-Controlled Clinical Trial Assessed by 3D Imaging

Marcelo Germani, Claudia Cristina Miranda de Souza Almeida & Victor Ricardo Manuel Muñoz-Lora

Aesthetic Surgery Journal Open Forum · 2024;6:ojae003 · doi:10.1093/asjof/ojae003

STUDY DESIGN	FOLLOW-UP	3D ENDPOINT
Randomized controlled trial, 20 volunteers	30 days	Lip volume

BACKGROUND

Hyaluronic acid (HA) lip augmentation is popular, but outcomes are mostly judged with subjective scales; objective 3D volumetric comparisons between products are lacking.

OBJECTIVE

To compare lip volume change, patient satisfaction and adverse events after injection of two HA fillers made with different technologies (NASHA and OBT) in a randomized controlled trial.

KEY FINDING

P = .014

significant lip volume increase at 30 days with the OBT gel, after no significant immediate change.

RESULTS

Twenty volunteers were randomized into two groups of 10 and treated by the same injector with the same technique. Lip volume was measured with QuantifiCare 3D stereophotogrammetry and the LifeViz application at baseline, immediately after injection and at 30 days. The NASHA group showed a significant immediate volume increase that partly decreased by day 30. The OBT group showed no significant immediate increase but a significant increase at 30 days (P = .014). Volumes did not differ significantly between groups at either time point, FACE-Q satisfaction was similar, and no serious adverse events occurred.

CONCLUSION

3D quantification gave an objective view of lip volume over time: the firmer gel projected immediately and then partly decreased, while the more flexible gel increased progressively. Immediate post-injection appearance should not be treated as the final result.

LifeViz solution for this application: LifeViz Mini · 3D facial imaging

A novel approach for deoxycholic acid administration to treat submental fullness: A case report assessed by 3D stereophotogrammetry

Victor Rogerio, Viviane Rabelo, Pietra Roschel, Tatiane Sakemi, Marcelo Germani & Victor R. M. Munoz-Lora

Journal of Oral Biology and Craniofacial Research · 2024;14(3):280–283 · PMID: 38586285

STUDY DESIGN	FOLLOW-UP	3D ENDPOINT
Case report	90 days	Submental volume (LifeViz Mini)

BACKGROUND

Deoxycholic acid (DAc) injections reduce submental fat and are conventionally administered with hypodermic needles.

OBJECTIVE

To present the injection of DAc with blunt microcannulas to treat submental fullness, with outcomes quantified by 3D stereophotogrammetry (3D-SQ).

KEY FINDING

−14.81 mL

submental volume after two deoxycholic acid sessions delivered by microcannula.

RESULTS

A 47-year-old woman received two DAc sessions using blunt microcannulas. 3D scans with 3D LifeViz Mini (QuantifiCare) at baseline, 45 and 90 days showed a gradual reduction in submental volume, totalling 14.81 mL after the two applications. No serious adverse events were reported; the patient noted only minor pain and warmth at the treated site.

CONCLUSION

Cannula delivery of DAc reduced submental fullness, as quantified by 3D-SQ. Blunt microcannulas may be a safer option than hypodermic needles, reducing the likelihood of severe complications.

LifeViz solution for this application: LifeViz Mini · 3D facial imaging

Management of Mixed Melasma on Darker Phototypes: A New and Safe Laser Therapy Treatment

Massimo D. F. Vitale

International Journal of Clinical Studies and Medical Case Reports · 2024

STUDY DESIGN	POPULATION	IMAGING ENDPOINT
Case series	Darker phototypes	Pigmentary and vascular components

BACKGROUND

Melasma is a skin pigmentation disorder characterized by dark spots and patches on the face and other sun-exposed skin. While it can affect all people, people with darker skin have a significantly higher risk of developing this discoloration. In some parts of the world, such as Southeast Asia and Latin America, up to 30% of people may suffer from melasma, an acquired skin condition. In fact, individuals with darker Fitzpatrick phototypes IV–VI frequently have hyperpigmented macules on their faces, particularly women (90% of patients). It is characterized by uneven borders and bilateral distribution in sun-exposed areas, especially the face. The three most typical types of melasma are mandibular, malar, and centrofacial.

RESULTS

At T1, a consistent improvement in the pigmentary and vascular components was visible. This is always combined with a considerable reduction in vascular expression.

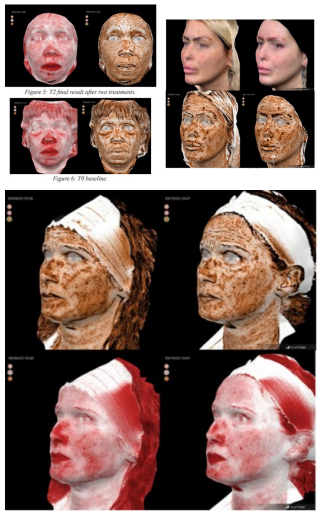


Figure from the publication.

KEY FINDING

675 nm

laser improved both the pigmentary and vascular components of mixed melasma.

CONCLUSION

This case series supports the use of a 675-nm laser for the vascular and pigmentary components of facial melasma in both men and women. The author reports a low risk of side effects and simple post-treatment management, which he attributes to the wavelength's strong affinity for collagen and melanin and to the typical anatomical capillary structure.

LifeViz solution for this application: LifeViz Mini · 3D facial imaging

A 12-Month Analysis of the Dermatologic Effects and Durability of Midface Volume Correction With DEFCL Volumizing Filler in a Prospective, Single-Center Study

Gabriel Siquier-Dameto MD, Giovanni Salti MD, Siham Rharbaoui MD, Dennis Malvin Hernandez Malgapo MD, Silvia Innocenti MD & Martina Manni MD

Dermatologic Surgery · 2024;50:1131–1136 · doi:10.1097/DSS.0000000000004307

STUDY DESIGN	FOLLOW-UP	3D ENDPOINT
Prospective, single-center	12 months	Midface volume

BACKGROUND

Certain manufacturing processes confer distinctive rheologic features to hyaluronic acid (HA), ensuring long-lasting effects. Skin quality improvement and the volumizing effects of the DEFCL volumizer filler, a sterile, biodegradable, viscoelastic, transparent, isotonic, and homogenized injectable cross-linked high G filler for the treatment of moderate-to-severe age-related midface changes, were initially documented at 6 months after the first injection.

OBJECTIVE

The authors aimed to objectively evaluate the effects of the DEFCL volumizer filler in improving skin density, thickness, and biomechanical properties and on tissue volume augmentation in women with midface volume loss after 12 months.

RESULTS

Improvements in skin quality and thickness and volumization were maintained 12 months after the first injection. Injector and patient satisfaction were highly rated with only mild adverse reactions observed.

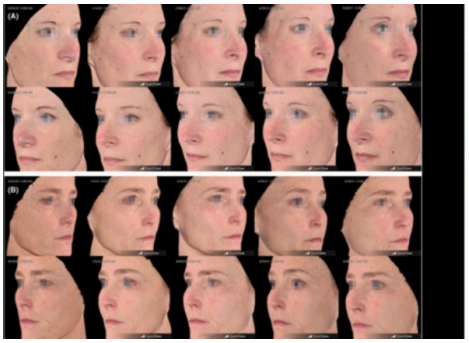


Figure from the publication.

KEY FINDING

12 months

Skin quality, thickness and volumization were maintained after the first injection.

CONCLUSION

Skin improvement and volumizing effects persisted in patients treated with the DEFCL volumizer after 12 months.

In this study, 3D volume was measured with LifeViz; skin density and thickness were measured with separate instruments (high-frequency ultrasound).

LifeViz solution for this application: LifeViz Mini · 3D facial imaging

Efficacy, Safety, and Longevity of Hyaluronic Acid Filler Injection in Treating Temple Hollowness by Sonographic Identifying 17 Soft Tissue Layers

Jong-Seo Kim MD

Plastic and Reconstructive Surgery – Global Open · 2024;12(9):e6154 · doi:10.1097/GOX.0000000000006154

STUDY DESIGN	FOLLOW-UP	3D ENDPOINT
Prospective, 25 women	6 months	Temple volume (LifeViz Mini)

BACKGROUND

Successful aesthetic treatment of the aging upper face requires a detailed understanding of temporal anatomy.

OBJECTIVE

To evaluate hyaluronic acid (HA) injection for temple hollowness by combining quantitative 3D and ultrasound measurements with detailed anatomical insights.

METHODS

Twenty-five women received HA injections into the interfacial layer between the superficial and deep temporal fascia. 3D scanning (LifeViz Mini), hollowness grading and sonographic measurements were performed at 3 and 6 months.

RESULTS

Sonography identified 17 distinct soft tissue layers in the temple, including the superficial and deep temporal fasciae and the innominate fascia. 3D volume was 0.86 mL at 3 months and 0.72 mL at 6 months. HA thickness measured 3.82 mm immediately, 3.00 mm at 3 months and 2.51 mm at 6 months. Temple depression went from 4.33 mm before treatment to 0.71 mm at 3 months and 1.62 mm at 6 months, and the hollowness grade improved by 2.41 and 1.74 levels.

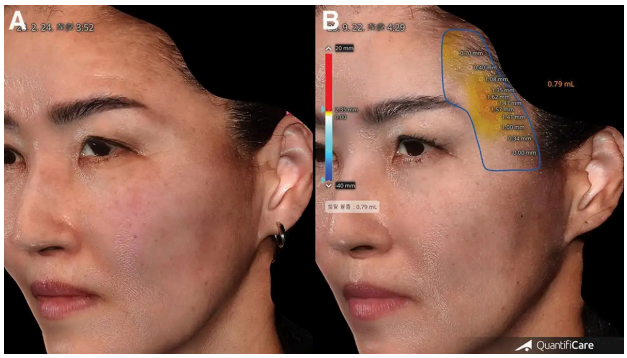


Figure from the publication · reuse rights pending.

KEY FINDING

0.72 mL

3D volume still measured at 6 months after temple HA injection (0.86 mL at 3 months).

CONCLUSION

The detailed layering seen on ultrasound challenges traditional descriptions of the temple. Quantitative 3D and sonographic assessment gave a comprehensive view of the structural changes after HA injection, and sonography is valuable for guiding injections in this region.

LifeViz solution for this application: LifeViz Mini · 3D facial imaging

Pilot Study: Single-depth Superficial Ultrasound with Subdermal Injections of Diluted Calcium Hydroxylapatite for Improving Lower Face Skin Quality

Sylvia Ramirez MD MPH MBA Dip Derm, Gunther Scherz MBA & Rémi Leprince MBA

STUDY DESIGN	FOLLOW-UP	ENDPOINT
Pilot study, 12 subjects	24 weeks	Skin roughness (Rv, R3z)

BACKGROUND

The lower face can be challenging to treat. We assessed the effectiveness of combining single-depth superficial microfocused ultrasound with visualization (MFU-V, Ultherapy; Merz North America, Inc. Raleigh, N.C.) and subdermal injections of diluted calcium hydroxylapatite (CaHA, Radiesse; Merz North America, Inc. Raleigh, N.C.) in a single session for improving skin quality in the lower face.

KEY FINDING

100%

of subjects rated improved by investigators from week 4; all satisfied from week 12.

RESULTS

Twelve subjects completed the study. The mean Rv value, mean R3z value, and mean modified Fitzpatrick Wrinkle Scale visual analog scale score improved significantly from baseline to week 24 (mean differences: −0.0321 mm, −0.0684 mm, −1.1667; all $P < 0.001$). All subjects were rated by the investigators as having demonstrated improvement in their overall aesthetic appearance as early as week 4. All subjects were "very satisfied" or "satisfied" with their treatment from week 12 onwards. No unexpected adverse events were reported.

CONCLUSION

Combination treatment with single-depth superficial MFU-V and diluted CaHA in a single session significantly improved lower facial skin quality, as assessed by both objective and subjective outcome measures.

LifeViz solution for this application: LifeViz Micro · skin micro-topography

Volume Restoration in Mid-Facial Aging: A Quantitative Evaluation of the Efficacy of Hyaluronic Acid Gel Injections—The Imperative to Optimize the Injection Volume Based on Anatomical Considerations

Alberto Diaspro & Giuseppe Sito

Surgeries (MDPI) · 2025;6(1):21 · doi:10.3390/surgeries6010021

STUDY DESIGN	FOLLOW-UP	3D ENDPOINT
Observational, 39 patients analysed	318 days	Mid-face volume (LifeViz Mini)

BACKGROUND

The mid-face has a strong impact on how a face is perceived, so treating its aging is a key component of facial rejuvenation.

OBJECTIVE

To provide an objective, repeatable evaluation of mid-face volume restoration with hyaluronic acid (HA) injections, using standardized photography and 3D analysis.

METHODS

Observational study. Patients were treated with HA fillers using needles and cannulas according to the authors' clinical assessment. Calibrated 3D images were captured with the LifeViz Mini and analysed with the 3D Viewer+ volume tool, aligned on the Frankfort horizontal plane.

RESULTS

Of 47 patients, 39 completed the study. Overall mid-face volume restoration was 4.46 ± 1.34 mL at 45 days after HA implantation, and 1.23 ± 0.68 mL remained at the end of the 318-day follow-up.

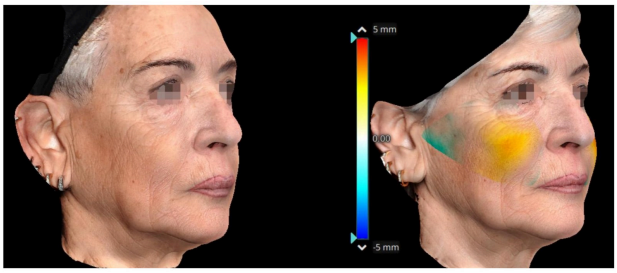


Figure from the publication · reuse rights pending.

KEY FINDING

4.46 mL

mean mid-face volume restoration at 45 days, with 1.23 mL still measured at 318 days.

CONCLUSION

Mid-face volume restoration with HA produced an indirect volumetric effect that was clinically more significant than the volume actually injected, and equally long-lasting.

LifeViz solution for this application: LifeViz Mini · 3D facial imaging

Clinical Case Study Investigating a Longevity Daily Serum for Japanese Women With Facial Skin Aging

Mayumi Nomoto, Morgann Young, Tatiana Kononov & Alisar Zahr

Journal of Cosmetic Dermatology · 2025 · doi:10.1111/jocd.70206

STUDY DESIGN	FOLLOW-UP	3D ENDPOINT
Split-face case study, 5 subjects	12 weeks	Facial lifting map

BACKGROUND

Mitochondrial health is important for skin health and healthy aging. A longevity daily serum (LDS) was developed with mitochondria-targeting ingredients to support skin energy.

OBJECTIVE

To evaluate the LDS against a placebo serum in Japanese women with facial skin aging.

RESULTS

Five women aged 45–52 (Fitzpatrick III–IV) completed the 12-week split-face study. Improvement in skin sagging on the LDS-treated side was captured by 3D lifting photography. 100% of subjects agreed their skin tone looked more even on the LDS side, versus 40% on the placebo side.

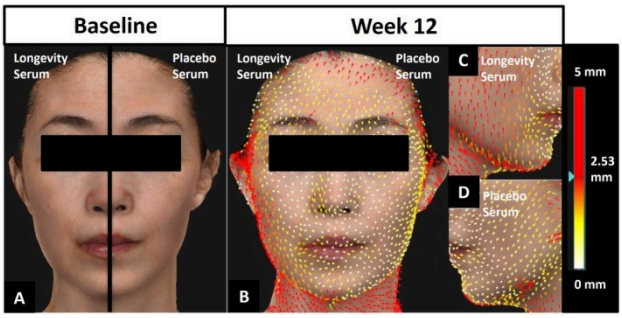


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KEY FINDING

100%

of subjects agreed their skin tone looked more even with the serum, vs 40% with placebo.

CONCLUSION

Efficacy grading and 3D photography showed a trend towards improved radiance, firmness and laxity with the LDS versus placebo over 12 weeks. The small sample size is a limitation.

LifeViz solution for this application: LifeViz Mini · 3D facial imaging

An 18-month analysis of the duration of the clinical effects and tolerability of Definisse™ core + lidocaine volumizing filler for midface volume restoration: A prospective and single-center study

Giovanni Salti, Gabriel Siquier-Dameto, Siham Rharbaoui, Dennis Malvin Malgapo, Martina Manni & Silvia Innocenti

Journal of Cutaneous and Aesthetic Surgery · 2025;18(4):286–293 · doi:10.25259/JCAS_46_2025

STUDY DESIGN
Prospective, single-center, 50 women

FOLLOW-UP
18 months

3D ENDPOINT
Cheekbone volume (LifeViz Mini)

BACKGROUND

DEFCL (Definisse™ core + lidocaine) is a cross-linked, high G′ hyaluronic acid filler for midface volume restoration. Its effects and tolerability had been documented up to 12 months.

OBJECTIVE

To establish the long-term (18-month) tolerability and clinical effects of DEFCL in middle-aged women with midface volume loss.

KEY FINDING

94%

of subjects with global aesthetic improvement at month 18 (98% at month 12).

RESULTS

Fifty women (mean age 51) were followed to 18 months. Investigators rated global aesthetic improvement in 98% of subjects at month 12 and 94% at month 18. The improvement in facial volume persisted to month 18 ($P < 0.0001$). Cheekbone volume, measured with 3D LifeViz Mini, remained significantly increased at every time point and rose again at month 18. Skin thickness increased slightly at month 18 (+6%, $P = 0.0002$). No serious adverse events occurred, and all device-related effects had resolved by month 18.

CONCLUSION

DEFCL provided sustained volumization, improved skin quality and high satisfaction ratings at 18 months.

In this study, 3D volume was measured with LifeViz Mini; skin density and thickness were measured with high-frequency ultrasound.

LifeViz solution for this application: LifeViz Mini · 3D facial imaging

Injectable Particulated Human Acellular Dermal Matrix Booster for Skin Restoration: An Integrated Randomized, Split-Face, Double-Blinded Clinical Trial and Preclinical Study

Yonsei University Department of Dermatology (including Jihee Kim & Young In Lee)

International Journal of Molecular Sciences · 2026;27(5):2193 · doi:10.3390/ijms27052193

STUDY DESIGN	FOLLOW-UP	3D ENDPOINT
Randomized, split-face, double-blinded	20 weeks, 20 adults	Skin volume (LifeViz Micro)

BACKGROUND

Current injectable skin boosters mainly provide short-lived volumization or rely on inflammation-mediated collagen stimulation, raising questions about durability.

OBJECTIVE

To evaluate a particulated human acellular dermal matrix (phADM) as a facial skin booster and explore its mechanisms.

METHODS

Randomized, split-face, double-blinded trial in 20 adults with moderate cheek roughness: phADM on one side, hyaluronic acid on the other. Skin parameters were followed for 20 weeks with imaging and biophysical instruments, alongside in vitro, ex vivo and rat studies.

RESULTS

Skin volume measured with LifeViz Micro increased on the phADM side at every visit over 20 weeks, with a significantly greater change from baseline than the HA control side. Skin density also improved more on the phADM side. In rats, phADM showed fibroblast infiltration and localized new collagen formation within the implanted matrix.

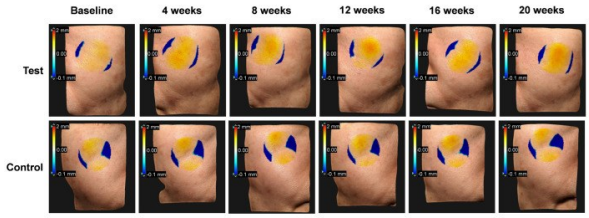


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KEY FINDING

20 weeks

of skin-volume gain on the phADM side, significantly greater than the HA control at every visit.

CONCLUSION

phADM acts as a restorative skin booster that promotes durable dermal remodeling and functional rejuvenation, with a favorable safety profile.

LifeViz solution for this application: LifeViz Micro · skin micro-topography

An 18-Month Prospective Evaluation of a Novel Hyaluronic Acid Filler (YYS 720) for 3-Dimensional Nasal and Chin Augmentation

Minjeong Son

Aesthetic Surgery Journal Open Forum · 2026 · doi:10.1093/asjof/ojag146

STUDY DESIGN	FOLLOW-UP	3D ENDPOINT
Prospective, single-arm, 16 patients	18 months	Chin volume, nasofrontal angle (3D Track)

BACKGROUND

Hyaluronic acid (HA) fillers typically require frequent reinjections. Next-generation fillers such as YYS 720 need extended clinical validation of their long-term performance and safety.

OBJECTIVE

To evaluate 18-month clinical outcomes, safety and satisfaction with YYS 720 for nasal and chin augmentation.

METHODS

Prospective, single-arm study. 3D images were captured with the LifeViz Mini, and baseline and follow-up scans were superimposed with the 3D Track module.

RESULTS

Sixteen Korean patients were treated (nose n = 12, chin n = 7). FACE-Q scores increased significantly up to month 18 for the nose (P = .0015) and month 6 for the chin (P = .0156). 3D analysis showed a chin volume of 1.73 ± 1.11 mL at month 18 (P = .0061) and a 3.99° increase in the nasofrontal angle at month 12 (P = .0015).

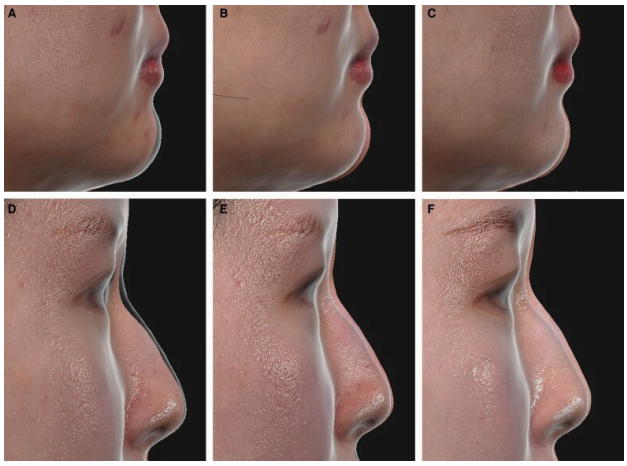


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KEY FINDING

+1.73 mL

chin volume at month 18 on 3D analysis (P = .0061).

CONCLUSION

This pilot study provides preliminary evidence of the 18-month efficacy and safety of YYS 720; the author notes it does not establish long-term durability.

LifeViz solution for this application: LifeViz Mini · 3D facial imaging

Objective and subjective retrospective evaluation of XERF, a novel single-shot dual-frequency non-invasive monopolar radiofrequency

Guy Erlich, Eliran Dahan & Yoram Wolf

Lasers in Medical Science · 2026;41:194 · doi:10.1007/s10103-026-04996-0

STUDY DESIGN	FOLLOW-UP	3D ENDPOINT
Retrospective, 16 women	3 months	Volume redistribution and skin quality (LifeViz)

BACKGROUND

Non-invasive monopolar radiofrequency induces collagen contraction and remodeling, but clinical outcomes vary. XERF delivers 6.78 MHz and 2 MHz energy sequentially within a single pulse.

OBJECTIVE

To evaluate objectively and subjectively the efficacy of XERF for facial skin laxity and skin quality.

METHODS

Retrospective review of adults treated with one XERF session. 3D images were acquired with the LifeViz Mini from three standardized angles, with automated LifeViz skin-quality analysis and Global Aesthetic Improvement Scale scoring.

RESULTS

Sixteen women completed follow-up after a single treatment session. 3D analysis documented volumetric redistribution and periorbital lifting, and automated skin-quality analysis showed progressive improvements in wrinkle severity, evenness, pore size and oiliness over 3 months, with no significant change in pigmentation.

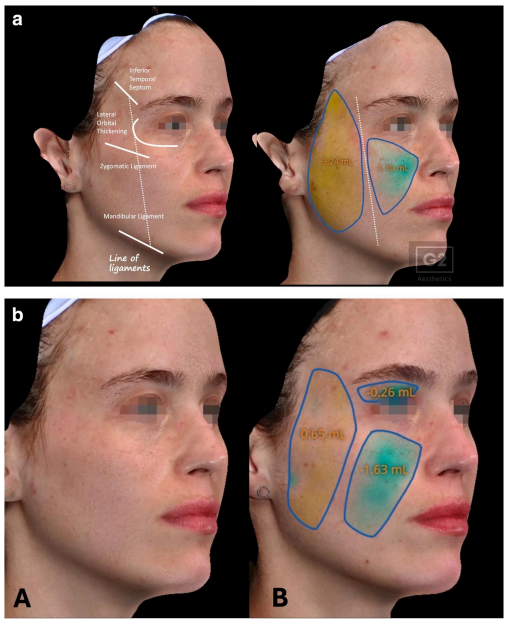


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KEY FINDING

1 session

of XERF improved facial laxity and skin quality on 3D and automated skin analysis at 3 months.

CONCLUSION

XERF improved facial skin laxity and skin quality, supported by objective and subjective outcomes, with a favorable safety and tolerability profile. The authors describe the findings as preliminary.

LifeViz solution for this application: LifeViz Mini · 3D facial imaging

Unexpected Botulinum Toxin Effect on Neck Rejuvenation After a Jawline Lifting Procedure: A Case Report

Monica Espinosa

Cureus · 2026 · doi:10.7759/cureus.115940

STUDY DESIGN	FOLLOW-UP	3D ENDPOINT
Case report	15 days	Neck volume and soft-tissue displacement

BACKGROUND

Botulinum toxin is widely used for facial rejuvenation, including jawline (Nefertiti) lifting. When neck rejuvenation is the goal, the platysma muscle is usually injected directly.

OBJECTIVE

To report an unexpected neck rejuvenation effect after a jawline lifting procedure with botulinum toxin.

RESULTS

A 51-year-old woman received lower-face treatment with prabotulinumtoxinA for jawline lifting, with no injection in the neck. 3D stereophotogrammetry with the LifeViz Mini before and 15 days after treatment quantified soft-tissue displacement and neck volume change (−2.41 mL and −6.92 mL on the two sides of the neck), along with a visible reduction of platysmal bands.

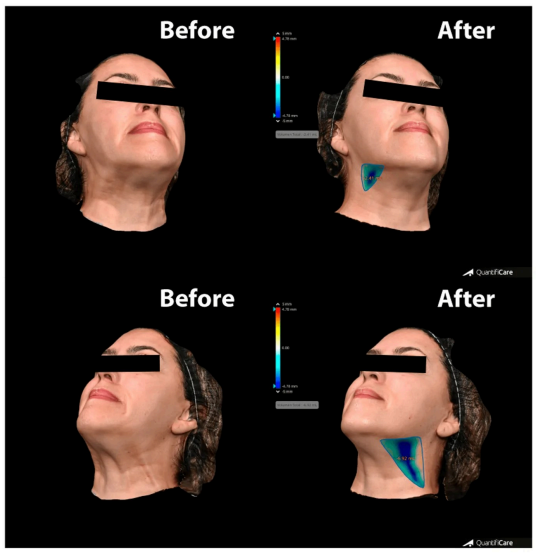


Figure from the publication · reuse rights pending.

KEY FINDING

−6.92 mL

neck volume change 15 days after jawline-only toxin treatment (−2.41 mL on the other side).

CONCLUSION

Jawline lifting with botulinum toxin produced a direct effect on the mandibular contour and an indirect rejuvenating effect on the neck, without direct neck injection.

LifeViz solution for this application: LifeViz Mini · 3D facial imaging





02

DERMATOLOGY

14 studies · 2011–2024

Topical Treatment of Basal Cell Carcinomas in Nevoid Basal Cell Carcinoma Syndrome with a Smoothened Inhibitor

Hans Skvara, Frank Kalthoff, Josef G. Meingassner, (...), Arthur P. Bertolino, Georg Stingl & Menno A. de Rie

Journal of Investigative Dermatology · 2011;131(8):1735–1744 · doi:10.1038/jid.2011.48

STUDY DESIGN	PATIENTS	TREATMENT
Clinical trial vs vehicle	8 with NBCCS	0.75% LDE225 cream

ABSTRACT

Basal cell carcinoma (BCC) is a key feature of nevoid basal cell carcinoma syndrome (NBCCS), caused by mutations in the PTCH1 gene, which activates the Hedgehog pathway. LDE225, a selective SMO antagonist, effectively inhibited BCC growth and regressed preformed tumors in mouse skin cultures. In a clinical trial with 8 NBCCS patients, 0.75% LDE225 cream was well tolerated and showed a partial or complete response in most BCCs, while the vehicle showed no clinical response, except for one partial response.

KEY FINDING

Regression

Most basal cell carcinomas responded to LDE225, while the vehicle showed almost no response.

CONCLUSION

Topical 0.75% LDE225 was very well tolerated in patients with NBCCS and induced regression of their basal cell carcinomas, making it a potentially attractive alternative to currently available therapies for this indication.

LifeViz solution for this application: LifeViz Micro · skin micro-topography

DERMATOLOGY SKIN LESIONS · VALIDATION · JUNE 2012

Quantification of skin lesions with a 3D stereovision camera system: validation and clinical applications

Hans Skvara, Patrick Burnett, Julie Jones, Nikolaus Duschek, Peter Plassmann & Jean-Philippe Thirion

Skin Research and Technology · 2013;19(1):e182–e190 · doi:10.1111/j.1600-0846.2012.00625.x

STUDY DESIGN
Phantom validation and clinical application

LESIONS
Basal cell carcinomas

3D ENDPOINT
Lesion volume and surface

BACKGROUND

A new 3D digital camera system enables precise skin reconstruction and volumetric quantification. This study validates the system on phantoms and its clinical application.

RESULTS

Validation showed an accuracy of 55 µm and precision of 8 µm, with a 0.999 correlation between injected and measured volumes. In basal cell carcinomas, 2D and 3D surface measurements strongly correlated. Significant differences were observed in 3D volume ($P = 0.01$) and surface ($P = 0.001$) under treatment.

KEY FINDING

55 µm

accuracy (8 µm precision), with a 0.999 correlation between injected and measured volumes.

CONCLUSION

The 3D camera provides precise, objective skin measurements, sensitive enough to detect small changes before and after treatment.

LifeViz solution for this application: LifeViz Micro · skin micro-topography

A phase II, multicenter, open-label, 3-cohort trial evaluating the efficacy and safety of vismodegib in operable basal cell carcinoma

Howard Sofen MD, Kenneth G. Gross MD, Leonard H. Goldberg MD FRCP, Harry Sharata MD PhD, Tiffani K. Hamilton MD, Barbara Egbert MD, Benjamin Lyons PhD, Jeannie Hou MD & Ivor Caro MD

Journal of the American Academy of Dermatology · 2015;73:99–105

STUDY DESIGN	PATIENTS	PRIMARY ENDPOINT
Phase II, open-label, 3 cohorts	24–25 per cohort	Complete histologic clearance

BACKGROUND

Vismodegib is approved for treatment of advanced basal cell carcinoma.

OBJECTIVE

We sought to characterize vismodegib efficacy and safety in operable basal cell carcinoma.

RESULTS

In all, 24 patients enrolled in cohort 1, and 25 in cohorts 2 and 3. Complete histologic clearance was achieved by 42%, 16%, and 44% of patients in cohorts 1, 2, and 3, respectively. Muscle spasms (76%), alopecia (58%), and dysgeusia (50%) were the most frequent adverse events (AEs). Five (7%) patients discontinued treatment because of an AE. AE reversibility was evaluated in cohort 2 with 24 weeks of observation after treatment discontinuation.

KEY FINDING

44%

complete histologic clearance in cohort 3 (42% cohort 1, 16% cohort 2); primary endpoints were not met.

CONCLUSION

Primary efficacy end points were not met (predefined complete histologic clearance rate: >50% in cohorts 1 and 3; >30% in cohort 2). Safety was comparable when dosed continuously versus intermittently. Posttreatment reversibility of vismodegib-related AEs was demonstrated.

3D photography for Skin lesion Quantification

G. Hogendoorn, C. Lemoine, R. Rissmann & J. Burggraaf

Clinical Therapeutics (conference abstract) · 2015;37(8 Suppl):e99 · doi:10.1016/j.clinthera.2015.05.284

STUDY DESIGN
Technical validation (phantom object)

VARIABILITY TESTED
Operators, skin backgrounds, days

3D ENDPOINT
Lesion volume

BACKGROUND

Reliable quantification of skin lesions is essential to grade disease severity and assess response to treatment. Dermatology trials often rely on 2D digital photography, which has inherent limitations. High-resolution 3D imaging may offer advantages such as offline 3D visualization and automatic image segmentation, but it required technical and analytical validation before clinical use.

KEY FINDING

≤ 2.6%

coefficient of variation for volume across operators, skin backgrounds and days.

METHODS

Technical validation of a 3D imaging system on a phantom object representing a skin lesion, assessing measurement variability between operators, across skin backgrounds and between days.

RESULTS

Coefficients of variation for the volume measured by the 3D system were 1.0% between operators, 2.6% across skin backgrounds and 1.4% between days.

CONCLUSION

This validation study shows that the 3D imaging system is precise and objectively quantifies a phantom object representing a skin lesion.

LifeViz solution for this application: LifeViz Micro · skin micro-topography

Secukinumab shows significant efficacy in palmoplantar psoriasis: Results from GESTURE, a randomized controlled trial

Alice Gottlieb MD PhD, John Sullivan MD, Martijn van Doorn MD, Alexey Kubanov MD, Ruquan You MSc, Anne Parneix MD, Sophie Hugot MSc & Marina Milutinovic MD

Journal of the American Academy of Dermatology · 2017;76(1):70–80 · doi:10.1016/j.jaad.2016.07.058

STUDY DESIGN	PRIMARY ENDPOINT	COMPARISON
Randomized controlled trial	ppIGA 0/1 at week 16	Secukinumab 300 / 150 mg vs placebo

BACKGROUND

Plaque psoriasis affecting palms and soles is disabling and often resistant to treatment.

OBJECTIVE

Evaluate the efficacy and safety of secukinumab, an anti-interleukin 17A antibody, in subjects with palmoplantar psoriasis.

KEY FINDING

33.3%

clear or almost clear palms and soles with secukinumab 300 mg vs 1.5% with placebo at week 16.

RESULTS

At Week 16, secukinumab 300 mg (33.3%) and 150 mg (22.1%) showed significantly higher rates of clear or almost clear palms and soles (ppIGA 0/1) compared to placebo (1.5%, P<0.001). Palmoplantar Psoriasis Area and Severity Index (ppPASI) was significantly improved with secukinumab 300 mg (-54.5%) and 150 mg (-35.3%) vs. placebo (-4.0%, P<0.001). Dermatology Life Quality Index (DLQI) 0/1 responses were also significantly higher in the secukinumab groups (P<0.01). Secukinumab significantly improved pain and function of palms and soles, with secukinumab 300 mg showing the best outcomes. The safety profile was favorable and consistent with previous studies.

CONCLUSION

In GESTURE, the largest randomized controlled trial in palmoplantar psoriasis, secukinumab demonstrated the greatest efficacy to date for treating difficult-to-treat psoriasis.

Validation of 3D skin imaging for objective repeatable quantification of severity of atrophic acne scarring

L. Petit, D. Zugaj, V. Bettoli, B. Dreno, S. Kang, J. Tan, V. Torres, A. M. Layton & P. Martel

Skin Research and Technology · 2018;24(4):542–550 · doi:10.1111/srt.12464

STUDY DESIGN	3D SYSTEM	3D ENDPOINT
Single-center, 31 patients	LifeViz Micro	Scar volume (Vvv)

BACKGROUND

Atrophic acne scarring is a common consequence of acne, but objective tools to assess scars are lacking. Standard 2D photography is limited by lighting and shadows, making accurate evaluation challenging. This study aimed to define and evaluate 3D imaging parameters for assessing the severity of atrophic acne scarring.

METHODS

A 3×3 cm facial target area was rated by five dermatologists who categorized scars by size. 3D images were captured with LifeViz Micro and analysed with MountainsMap® software to compute scar volume loss (Valley void volume, Vvv 80%).

RESULTS

The Vvv parameter correlated strongly with global severity ratings (correlation coefficient of 0.77). The scar volume, as measured by Vvv, was mainly influenced by scars > 2 mm. The method showed excellent repeatability (ICC = 0.98).

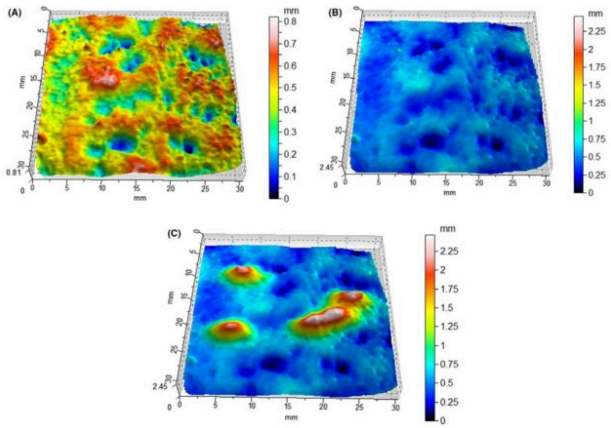


Figure from the publication.

KEY FINDING

ICC 0.98

excellent repeatability; scar volume correlated with global severity ratings (r = 0.77).

CONCLUSION

3D skin imaging provides convergent validation with clinical assessments and demonstrates good repeatability in evaluating atrophic acne scarring. This imaging technique is straightforward and can be integrated into automated workflows.

LifeViz solution for this application: LifeViz Micro · skin micro-topography

Effect of secukinumab on clinical activity and disease burden of nail psoriasis: 32-week results from the randomized placebo-controlled TRANSFIGURE trial

Kristian Reich, John Sullivan, Petr Arenberger, Ulrich Mrowietz, Sasha Jazayeri, Matthias Augustin, Anne Parneix, Pascaline Regnault, Ruquan You & Marina Milutinovic

British Journal of Dermatology · 2019;181(5):954–966 · doi:10.1111/bjd.17351

STUDY DESIGN	FOLLOW-UP	PRIMARY ENDPOINT
Randomized, placebo-controlled	32 weeks	NAPSI at week 16

BACKGROUND

Nail psoriasis is associated with functional impairment, pain and reduced quality of life.

OBJECTIVE

To demonstrate the superiority of secukinumab vs. placebo in clearing nail psoriasis as assessed by NAil Psoriasis Severity Index (NAPSI) at Week 16 and over time up to Week 132 .Presented here is the Week 32 interim analysis. Impact on quality of life was assessed by Nail Assessment in Psoriasis and Psoriatic Arthritis (NAPPA) patient questionnaires.

KEY FINDING

-63.2%

NAPSI improvement at week 32 with secukinumab 300 mg.

RESULTS

This study showed that both doses of secukinumab (300 mg and 150 mg) were significantly more effective than placebo at Week 16, with NAPSI improvements of -45.3%, -37.9%, and -10.8%, respectively (P<0.0001). Quality of life also improved significantly (NAPPA-QOL decrease of 60.9%, 49.9%, and 15.8% for secukinumab 300 mg, 150 mg, and placebo, respectively, P<0.0001). Nail psoriasis improvements persisted through Week 32, with NAPSI changes of -63.2% and -52.6%. Skin clearance was significant, with PASI 90 of 72.5%, 54.0%, and 1.7% for secukinumab 300 mg, 150 mg, and placebo at Week 16 (P<0.0001), sustained through Week 32. Common side effects included nasopharyngitis, headache, and upper respiratory tract infections.

CONCLUSION

Secukinumab demonstrated significant and clinically meaningful efficacy and quality of life improvements for patients with nail psoriasis up to Week 32.

Sustained Efficacy of Secukinumab in Subjects with Moderate-to-Severe Palmoplantar Psoriasis: 2.5-Year Results from GESTURE, a Randomized, Double-blind, Placebo-controlled Trial

Alice B. Gottlieb, Alexey Kubanov, Martijn van Doorn, John Sullivan, Kim A. Papp, Ruquan You, Pascaline Regnault & Jennifer A. Frueh

British Journal of Dermatology · 2019 (online) · doi:10.1111/bjd.18331

STUDY DESIGN	FOLLOW-UP	ENDPOINT
Randomized, double-blind, placebo-controlled	2.5 years	ppIGA 0/1

BACKGROUND

Secukinumab has shown sustained efficacy and safety in several psoriasis manifestations including nails, scalp, palms, soles and psoriatic arthritis.

RESULTS

The primary endpoint, palmoplantar Investigator's Global Assessment (ppIGA) 0/1, was met at Week 16. The effect was sustained over 2.5 years with 59.2% (95% CI: 43.5 -74.1) and 52.5% (35.1-69.6) of subjects in the secukinumab 300 and 150 mg groups, respectively, achieving clear or almost clear palms and soles (ppIGA 0/1). At 2.5 years, the mean palmoplantar Psoriasis Area and Severity Index % was reduced with both secukinumab 300 (–74.7%) and 150 mg (–61.6%). A total of 16.7% and 17.9% subjects experienced no difficulty in hand and feet functionality in the secukinumab 300 mg and 150 mg groups respectively, as indicated by the Palmoplantar Quality of Life Instrument overall scores. The safety profile was favorable and similar to previous studies.

KEY FINDING

59.2%

of patients with clear or almost clear palms and soles at 2.5 years on secukinumab 300 mg.

CONCLUSION

GESTURE, the largest and longest duration randomized controlled trial in ppPsO to date, revealed that secukinumab provides a strong and sustained response over 2.5 years in challenging-to-treat ppPsO.

Stereophotogrammetric three-dimensional photography is an accurate and precise planimetric method for the clinical visualization and quantification of human papilloma virus-induced skin lesions

M. Rijsbergen, L. Pagan, T. Niemeyer-van der Kolk, R. Rijneveld, G. Hogendoorn, C. Lemoine, Y. Meija Miranda, G. Feiss, J. N. Bouwes Bavink, J. Burggraaf, M. I. E. van Poelgeest & R. Rissmann

Journal of the European Academy of Dermatology and Venereology · 2019;33(8):1506–1512 · doi:10.1111/jdv.15474

STUDY DESIGN	LESIONS	3D ENDPOINT
Validation study	Anogenital and common warts, vulvar HSIL	Lesion size and height

BACKGROUND

Quantifying human papillomavirus (HPV)-induced skin lesions is crucial for monitoring disease progression and treatment response. Traditional clinical assessments using calipers do not fully capture the three-dimensional (3D) nature of lesions, and inter-rater variability can be high.

OBJECTIVE

This study aimed to validate a stereophotogrammetric 3D camera system for quantifying HPV-induced lesions.

KEY FINDING

ICC ≥ 0.86

agreement between raters for all lesion types, with reproducibility CVs ≤ 2%.

RESULTS

Technical validation showed excellent accuracy (coefficients of variation ≤ 0.68%) and reproducibility (CVs ≤ 2%). There was good to excellent agreement between operators (CVs ≤ 8.7%) and raters for all lesion types (ICCs ≥ 0.86). When comparing 3D measurements to caliper measurements, excellent agreement was found for the long diameter of AGWs (bias 5%), good agreement for the short diameter of AGWs (bias 10%) and height of CW (bias 8%), and acceptable agreement for the diameter of CW (bias 11%) and vulvar HSIL (bias 14-16%). However, there was a significant discrepancy in the height measurement of AGWs (bias 25%).

CONCLUSION

Stereophotogrammetric 3D imaging is an accurate and reliable method for the clinical visualization and quantification of HPV-induced skin lesions.

LifeViz solution for this application: LifeViz Micro · skin micro-topography

Use of 3-D photographic images to document changes in tumor volume following photodynamic therapy in patients with basal cell carcinoma of the skin

Taylor Bullock, Jeffrey Negrey, Urvashi Kaw, Christine Warren & Edward V. Maytin

Proceedings of SPIE · 2020

STUDY DESIGN
Randomized, double-blind, placebo-controlled

3D SYSTEM
LifeViz Micro

3D ENDPOINT
Tumor volume and surface area

BACKGROUND

Basal cell carcinoma (BCC) is a common skin cancer caused by chronic UV exposure. Photodynamic therapy (PDT) is effective for superficial BCC but less so for thicker, nodular lesions. This study investigates whether neoadjuvant treatment with Vitamin D before ALA-PDT (5-aminolevulinic acid and blue light) can improve tumor clearance rates.

METHODS

Patients received three PDT treatments two months apart, each preceded by vitamin D or placebo (randomized, double-blind) for up to 14 days. Tumor shrinkage was measured with LifeViz Micro 3D photography, which quantifies tumor height and volume.

RESULTS

Among 45 BCC lesions, 37.8% cleared after the first treatment, 26.7% after the second, and 15.6% after the third, resulting in a final clinical clearance rate of 80%. For responsive lesions, volume reductions were 81.4%, 66.2%, and 80.9%, and surface area reductions were 78.8%, 70.2%, and 77.6% after each treatment.

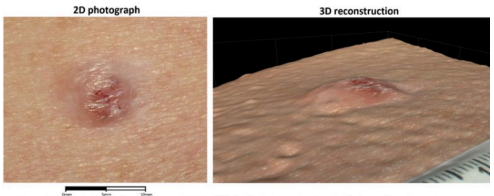


Figure 2. Example of a basal cell carcinoma (BCC) with typical pink color, telangiectatic blood vessels, and central erosion.

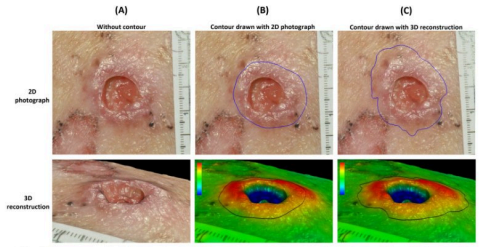


Figure 6. An example of how 3-D reconstruction facilitates more accurate placement of the border that defines a BCC tumor. (A), tumor shown without any contour; (B), tumor shown with an inaccurate contour that was drawn using only the 2D photograph; (C), A more accurate tumor contour drawn by referencing a 3D-generated heat map (indicating tumor height).

Figure from the publication.

KEY FINDING

80%

final clinical clearance of 45 BCC lesions after three treatments.

CONCLUSION

This study confirms that neoadjuvant Vitamin D combined with ALA-PDT effectively clears BCC lesions. The 3D imaging technique reliably tracks tumor clearance, supporting its use in evaluating BCC treatment outcomes.

LifeViz solution for this application: LifeViz Micro · skin micro-topography

Efficacy and safety of topical terbinafine 10% solution (MOB-015) in the treatment of mild-to-moderate distal subungual onychomycosis: A randomized, multi-center, double-blind, vehicle-controlled phase 3 study

Aditya K. Gupta, MD, Maria S. Surprenant, DPM, Steven E. Kempers, MD, David M. Pariser, MD, Kjell Rensfeldt, MD & Amir Tavakkol, PhD

Journal of the American Academy of Dermatology · 2021;85(1):95–104 · doi:10.1016/j.jaad.2020.06.055

STUDY DESIGN	FOLLOW-UP	ENDPOINTS
Phase 3, randomized, vehicle-controlled	52 weeks	Complete and mycological cure

BACKGROUND

Onychomycosis is a persistent fungal nail infection, and topical antifungal agents may be preferred due to fewer systemic side effects compared to systemic treatments.

OBJECTIVE

To evaluate the efficacy and safety of topical terbinafine 10% solution (MOB-015) for treating distal and lateral subungual onychomycosis (DSO).

METHODS

In a multicenter, double-blind phase 3 North American study, participants with mild-to-moderate DSO applied MOB-015 or a matching vehicle daily for 48 weeks. The primary endpoint was complete cure; mycological cure was secondary.

KEY FINDING

69.9%

mycological cure at week 52 with MOB-015, vs 27.7% with vehicle.

RESULTS

At week 52, the mycological cure rate was 69.9% for MOB-015 versus 27.7% for the vehicle ($P < 0.001$). Complete cure was 4.5% for MOB-015 versus 0% for the vehicle ($P = 0.0195$). Adverse events leading to discontinuation occurred in 2.8% of the MOB-015 group and 4.2% in the vehicle group.

CONCLUSION

MOB-015 is an effective treatment for onychomycosis with a safety profile similar to the vehicle.

Dupilumab Treatment Normalizes Skin Barrier Function in Children Aged 6 to 11 Years With Moderate-to-Severe Atopic Dermatitis

Michael J. Cork, Donald Y.M. Leung, Peck Ong, Simon G. Danby, Marco Ramirez-Gama, Shannon Garcia, Patricia Taylor, Joseph Zahn, Amy Praestgaard, Gabriel Bologna & Annie Zhang

Conference abstract | PELISTAD study (NCT04718870)

POPULATION	FOLLOW-UP	ENDPOINT
Children aged 6–11	16 weeks	Skin barrier function (TEWL)

BACKGROUND

Atopic dermatitis (AD) is associated with significant disruption in skin barrier function, mediated by type 2 inflammatory cytokines interleukin (IL)-4 and IL-13. Previous studies show that dupilumab treatment in patients over 12 years of age with moderate-to-severe AD improves skin barrier function

OBJECTIVE

To report the effect of dupilumab treatment in pediatric patients aged 6–11 years with moderate-to-severe AD on skin barrier function, clinician-, and patient-reported outcomes

RESULTS

Median TEWL after 5 skin tape strips decreased significantly after 16 weeks of dupilumab in lesional ($P<0.0001$) and non-lesional ($P<0.05$) skin vs day 1. By week 16, non-lesional skin reached TEWL levels comparable to healthy skin. No adverse events were serious or severe, or led to discontinuation.

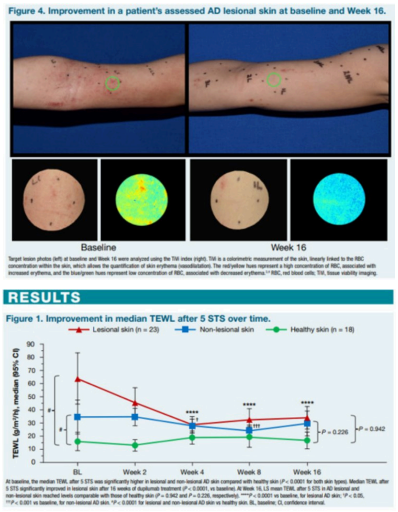


Figure from the publication.

KEY FINDING

16 weeks

non-lesional skin barrier function reached levels comparable to healthy skin.

CONCLUSION

Dupilumab treatment normalizes skin barrier function, as assessed by decreased TEWL, and improves clinician- and patient- reported outcomes in pediatric patients aged 6–11 years with moderate-to-severe AD

DERMATOLOGY SKIN HYDRATION · IMAGING · JULY 2024

Heatmap Evaluation of Facial Hydration Using a Novel Python Program

Thu Q. Nguyen PhD, Christine Emesiani PharmD & Matthew Meckfessel PhD

Journal of Drugs in Dermatology · 2024

STUDY DESIGN	FOLLOW-UP	ENDPOINT
Pilot evaluation, 5 subjects per product	1 week	Hydration heatmaps

BACKGROUND

Evaluating cleansers and moisturizers provides important information to guide clinicians in the recommendation of these products. This project was performed to visualize skin hydration via heatmap after the use of a gentle skin cleanser (GSC) and moisturizing lotion (ML).

RESULTS

Five subjects completed the cleanser assessments, and 5 subjects completed the 30-minute evaluation for the lotion, with 4 completing the week 1 assessment. There was a visible shift in skin hydration post-GSC application from values approximately in the 12-42 AU (arbitrary unit) range to 30-60 AU at 30 minutes. Similarly, there was a shift in hydration from baseline to 30 minutes that continued to increase through week 1 of ML use.

KEY FINDING

30 min

after one cleanser application, hydration shifted from about 12–42 AU to 30–60 AU.

CONCLUSION

This innovative heatmap data generation showed a clear, visual change in hydration over time. There was a visible shift in hydration values from baseline to 30 minutes after application of cleanser; hydration also improved after use of moisturizing lotion at 30 minutes and increased after week 1 application.

Automatic Acne Severity Grading with a Small and Imbalanced Data Set of Low-Resolution Images

Rémi Bernhard, Arnaud Bletterer, Maëlle Le Caro, Estrella García Álvarez, Belchin Kostov & Diego Herrera Egea

STUDY DESIGN	DATA	ENDPOINT
Deep learning model	1,374 image triplets, 391 patients	IGA severity grade

BACKGROUND

Developing automatic acne vulgaris grading systems is challenging due to the high cost of data acquisition, requiring large numbers of high-resolution images from diverse patients with well-balanced severity grade distributions and extensive labeling.

OBJECTIVE

To develop a deep learning model that can grade acne severity using the Investigator's Global Assessment (IGA) scale, trained on low-resolution images, a small number of patients, an imbalanced severity distribution, and minimal labeling.

METHODS

1,374 image triplets (frontal and lateral views) from 391 acne patients, labelled with IGA grades by an expert dermatologist, were used to train and validate the model.

KEY FINDING

66.67%

accuracy on the test set, consistent across all severity grades.

RESULTS

The model achieved 66.67% accuracy on the test set, with consistent performance across all grades, even with the imbalanced data. It performed similarly to methods requiring larger datasets or more balanced distributions.

CONCLUSION

The deep learning model showed promising accuracy despite limited data, suggesting potential for use as a tool for medical practitioners and as a standardized acne grading method for patients.

03

WOUNDS

5 studies · 2017–2020

Three-dimensional digital imaging is as accurate and reliable to measure leg ulcer area as transparent tracing with digital planimetry

Guillaume Chaby MD, Catherine Lok MD PhD, Jean Philippe Thirion PhD, Arnaud Lucien PharmD PhD & Patricia Senet MD

STUDY DESIGN	FOLLOW-UP	3D ENDPOINT
Comparison study, 36 patients	4 weeks	Ulcer area and healing rate

BACKGROUND

An accurate and reliable method for measuring venous leg ulcer (VLU) area is important in assessing treatment effects. The new three-dimensional (3D) LifeViz digital imaging system (QuantifiCare S.A., Valbonne, France) combines a compact, easy to use stereovision camera and image management software to provide 3D medical images.

OBJECTIVE

investigate whether the 3D LifeViz digital imaging system could be considered a suitable alternative to manual transparent wound tracing for the measurement of VLU area and 4-week healing rates.

RESULTS

A total of 36 consecutive outpatients, each presenting with at least one VLU and representing a total of 44 TWs, were recruited. At inclusion, comparable results were observed with both methods in terms of mean VLU area, showing a good correlation of the digital imaging method with the transparent tracing method (concordance correlation coefficient [CCC], 0.989; 95% confidence interval [C], 0.983-0.992). Furthermore, this system detected the same changes in the 4-week healing rate as the transparent tracing method, showing that both methods were equivalent in measuring changes in VLU areas over time (CCC, 0.996; 95% CI, 0.994-0.997). Strong intrarater and inter-rater concordances demonstrated good reproducibility of the digital imaging system for VLU area measurements (CCC, 0.994 [95% CI, 0.992-0.995] for intrarater variability; and CCC ≥ 0.99 for each center for inter-rater variability). Moreover, regardless of the operator measuring the VLUs, the reliability of image capture and image quality remained excellent.

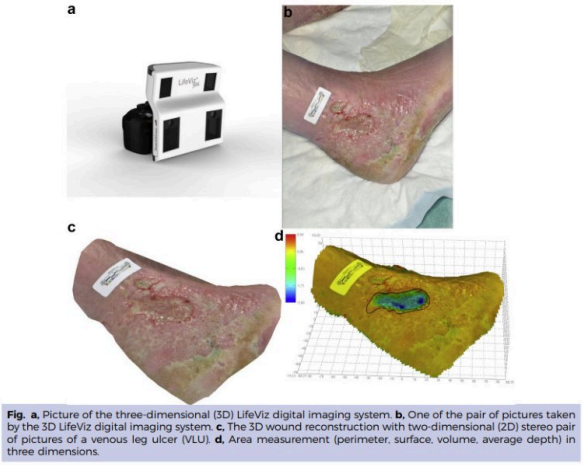


Fig. a, Picture of the three-dimensional (3D) LifeViz digital imaging system. **b,** One of the pair of pictures taken by the 3D LifeViz digital imaging system. **c,** The 3D wound reconstruction with two-dimensional (2D) stereo pair of pictures of a venous leg ulcer (VLU). **d,** Area measurement (perimeter, surface, volume, average depth) in three dimensions.

Figure from the publication.

KEY FINDING

CCC 0.989

agreement with transparent tracing for ulcer area, and 0.996 for the 4-week healing rate.

CONCLUSION

The 3D LifeViz digital imaging system is a noncontact stereophotographic method that provides measurements of VLU area or changes in VLU areas that are as accurate and reliable as those obtained using the planimetry method and in conditions as close as possible to those of a clinical trial.

LifeViz solution for this application: LifeViz Micro · skin micro-topography

Treatment of Disfiguring Cutaneous Lesions in Neurofibromatosis-1 with Everolimus: A Phase II, Open-Label, Single-Arm Trial

John M. Slopis, Octavio Arevalo, Cynthia S. Bell, Adelaide A. Hebert, Hope Northrup, Roy F. Riascos, Joshua A. Samuels, Keri C. Smith, Patti Tate & Mary Kay Koenig

Drugs in R&D

STUDY DESIGN	PATIENTS	3D ENDPOINT
Phase II, open-label, single-arm	22 treated	Lesion surface volume and height

BACKGROUND

Cutaneous neurofibromas cause disfigurement and discomfort in individuals with neurofibromatosis type 1 (NF-1).

RESULTS

Of the 22 patients who took the study drug, 17 completed the trial, with 5 withdrawing due to adverse events. Sixteen patients had sufficient photographic data for primary outcome assessment. A significant reduction in lesion surface volume, defined as a volume > 2 standard errors (SE) less than baseline, was observed in 4/31 lesions (13%) from 3/16 patients (19%). A statistically significant absolute change in average height for paired lesions was found ($p = 0.048$). Although not a prespecified outcome, a dramatic reduction in the size of 3 large plexiform neurofibromas with a cutaneous component was also observed, confirmed by maximum circumference measurement or MRI-based volumetric analysis. Adverse events were common, but no serious adverse events occurred.

KEY FINDING

p = 0.048

significant change in average lesion height; surface volume fell significantly in 13% of lesions.

CONCLUSION

Although this was a small, exploratory trial that was not powered for significance, the reduction in surface volume observed in this study is noteworthy assuming that the natural course for untreated lesions is to maintain or increase in volume. Future studies are needed with larger study populations that incorporate longer durations of treatment and better standardization of volumetric measurements.

LifeViz solution for this application: LifeViz Micro · skin micro-topography

Different pro-angiogenic potential of γ-irradiated PBMC-derived secretome and its subfractions

Tanja Wagner, Denise Traxler, Elisabeth Simader, Lucian Beer, Marie-Sophie Narzt, Florian Gruber, Sibylle Madlener, Maria Laggner, Michael Erb, Vera Vorstandlechner, Alfred Gugerell, Christine Radtke, Massimiliano Gnecchi, Anja Peterbauer, Maria Gschwandtner, Erwin Tschachler, Claudia Keibl, Paul Slezak, Hendrik J. Ankersmit & Michael Mildner

Preclinical study (mouse model)

STUDY DESIGN	MODEL	ENDPOINT
In vitro and mouse model	Diabetic mouse wound	Wound closure

BACKGROUND

Secretomes from various cell sources have strong regenerative effects on multiple organs, including the skin. Although secretomes contain diverse components, evidence suggests that small extracellular vesicles (EVs) are primarily responsible for their regenerative capacity. We previously showed that the secretome from γ-irradiated peripheral blood mononuclear cells (PBMCs) promotes wound healing. This study aimed to analyze the molecular composition of EVs in the secretome and compare their wound-healing effects with other secretome subfractions and the fully supplemented secretome (MNCaposec).

KEY FINDING

Faster closure

with the fully supplemented secretome (MNCaposec) in diabetic mice.

RESULTS

γ-irradiation significantly increased the size and number of EVs and altered their composition compared to non-irradiated PBMCs. EVs from irradiated PBMCs showed a strong association with regenerative processes. However, the regenerative activity of the EV subfractions was lower than that of the fully supplemented secretome (MNCaposec). Moreover, MNCaposec accelerated wound closure in the diabetic mouse model.

CONCLUSION

Secretome-based wound healing presents a promising therapeutic approach. Our findings suggest that the complete secretome, rather than purified EV subfractions, should be used to fully harness its regenerative potential.

Effectiveness of a hydrogel dressing as an analgesic adjunct to first aid for the treatment of acute paediatric thermal burn injuries: study protocol for a randomised controlled trial

Maleea D. Holbert, Bronwyn R. Griffin, Steven M. McPhail, Robert S. Ware, Kelly Foster, Demi C. Bertoni & Roy M. Kimble

Trials · 2019;20:13 · doi:10.1186/s13063-018-3057-x · Study protocol (no results)

STUDY DESIGN	COMPARISON	ENDPOINTS
Randomized controlled trial protocol	Burnaid® vs plastic wrap	Pain and re-epithelialization

BACKGROUND

Burns are painful and traumatic, especially for children. Reducing pain and anxiety can improve re-epithelialization rates in pediatric burn patients, but current literature lacks a comprehensive understanding of how pain and anxiety affect wound healing. This study aims to evaluate if Burnaid® hydrogel dressing effectively reduces pain in the acute phase of a burn injury and whether this reduction improves re-epithelialization compared to the standard plastic wrap treatment at our institution.

KEY FINDING

Protocol

Trial design only; the completed trial (2021) did not find a clear analgesic benefit.

DISCUSSION

This study will provide data on Burnaid®'s analgesic effects in treating acute pediatric thermal burns. If proven effective in reducing pain, Burnaid® could be integrated into standard practice in the hospital's emergency department. The study aims to identify clinically significant analgesic and wound-healing benefits in a real-world scenario.

CONCLUSION

This protocol describes a randomised controlled trial comparing Burnaid® hydrogel with plastic wrap as an acute burn dressing in children; it reports no results. The completed trial, published in 2021, did not identify a clear analgesic benefit of Burnaid® over the standard film dressing.

Contamination of wounds with fecal bacteria in immuno-suppressed mice

Lisa Karner, Susanne Drechsler, Magdalena Metzger, Paul Slezak, Johannes Zipperle, Guadalupe Pinar, Katja Sterflinger, Friedrich Leisch, Johannes Grillari, Marcin Osuchowski & Peter Dungel

Scientific Reports · 2020;10:11494 · doi:10.1038/s41598-020-68323-5 · Preclinical study (mouse model)

STUDY DESIGN	INOCULUM	ENDPOINT
Mouse model	Fecal slurry, 1:166 to 1:400	Wound healing

BACKGROUND

Immunocompromised patients are prone to chronically infected wounds, particularly ulcers on the dorsal region, which often develop secondary polymicrobial infections. Current infection models typically use single-strain bacteria, which do not fully replicate the complex infections caused by fecal contamination in immunocompromised patients.

OBJECTIVE

This study aimed to establish a new mouse model for polymicrobial wound infections caused by fecal bacteria, to better mimic clinically occurring infections in immunocompromised patients.

KEY FINDING

$p < 0.05$

significantly delayed wound healing, without systemic reaction.

RESULTS

Infection with fecal slurry at dilutions between 1:166 and 1:400 led to significantly delayed wound healing ($p < 0.05$) without systemic reactions. Swab analyses confirmed the polymicrobial composition of the infection. Customized wound scores also showed significant differences between groups ($p < 0.05$).

CONCLUSION

The study successfully established a new mouse model for clinically relevant polymicrobial wound infections caused by fecal bacteria. This model offers a valuable tool for studying complex microbiological interactions and evaluating new therapeutic approaches for wound infections in immunocompromised patients.

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