Ultrasound Skin-Aging Assessment Protocol

Quantifying skin aging with the SLEB Ratio, adapted from Dr. Gina Moret's ultrasound assessment process

1 Prep the patient & machine

Use a handheld high-resolution ultrasound (e.g. Clarius L20 HD3). Apply gel, and set the probe perpendicular to the skin surface at every contact point for accurate measurements.

2 Scan the six standardized zones every visit

- **01** Zygomatic arch
- **02** Temples
- **03** Jawline
- **04** Infraorbital region
- **05** Perioral area
- **06** Neck

Keep positioning, landmarks, and machine settings identical at every scan so results are comparable over time.

3 Identify the tissue layers on the grayscale image

Epidermis
Thin bright line

Dermis
Brighter band beneath it, dense collagen

Hypodermis
Dark, fatty

4 Measure the SLEB and total dermal thickness

Identify the Sub-Epidermal Low-Echogenic Band (SLEB), the dark band just under the epidermis. Measure SLEB thickness, then total dermal thickness down to the upper border of the hypodermis (excluding the epidermis).

5 Calculate the SLEB Ratio

FORMULA

SLEB Ratio (%) = (SLEB Thickness ÷ Total Dermal Thickness) × 100

6 Read three supporting markers on the same scan

Dermal echogenicity
Brighter = healthier collagen;
Duller = collagen loss

Dermal thickness
Thicker = more structural support

Tissue homogeneity
Smooth/even = healthy;
Irregular = damage

7 Match the SLEB Ratio to a treatment tier (Table 1) and document

Record dermal thickness, SLEB thickness/ratio, echogenicity, homogeneity, subcutaneous quality, and any old filler, fibrosis, nodules, edema, or vascular risk zones.

8 Safety check

If SLEB Ratio **> 45–50%**, re-scan before treating. An outlier this high usually signals technical error or an underlying dermatologic condition, not routine aging.

9 Re-scan to verify results

Repeat the same six-zone scan at 1, 3, and 6 months post-treatment. Confirm progress by a lower SLEB ratio, greater dermal thickness, and higher echogenicity.

TABLE 1 · SLEB RATIO REFERENCE

SLEB RATIO	WHAT'S HAPPENING	CLINICAL STRATEGY
0–10%	**Optimal structure.** Minimal/absent SLEB, bright homogeneous dermis.	**Preserve:** 1–2 cycles/yr of mesotherapy or skin boosters.
10–20%	**Early changes.** Thin SLEB, dermal brightness still intact.	**Intervene early:** PRP, PDRN (salmon DNA polynucleotides), or light biostimulation.
20–30%	**Moderate aging.** Early heterogeneity, reduced brightness.	**Actively regenerate:** polynucleotides, exosomes, or combo tightening therapies.
30–40%	**Advanced compromise.** Thicker SLEB, disorganized dermis.	**Go stronger:** particulate biostimulators, CaHA or PLLA/PDLLA.
40%+	**Severe photo-damage.** Dense thick SLEB, lost structural definition.	**Multi-modal:** HIFU plus deep biostimulators and advanced regenerative therapy.

Note: A SLEB ratio only means something in context. Correct for scan zone (dermal thickness varies 3x across the face), and consider confounders such as corticosteroid use, connective tissue disorders, isotretinoin therapy, or GLP-1 agonists.

Adapted from: Clarius webinar, "Ultrasound for Facial Aesthetics: Skin Evaluation and Biostimulation Assessment," featuring Dr. Gina Moret and Clarius sonographer Janaye Smith.

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