

Microneedling + Dermo-Electroporation Protocol Card

1. Face Protocol (Single-Device: Integrated MN+EP Systems)

Recommended Depths:

- 0.5 mm — forehead, periorbital, thin skin regions
- 0.75–1.0 mm — cheeks, nasolabial, jawline
- 1.0–1.25 mm — thicker dermis regions

Workflow:

1. Cleanse → optional numbing
2. Apply serum
3. Run MN+EP (2–3 passes)
4. Soothe + sunscreen

2. Scalp Protocol

Depths:

- MN: 1.0 mm
- MN+EP: 0.5 mm

Workflow:

1. Cleanse
2. Apply solution
3. MN/MN+EP passes

3. Two-Box Flow (Separate Devices)

Sequence:

- Microneedling first
- Electroporation second
- Sonophoresis optional final step

4. Electroporation Parameter Sandbox

- Voltage: 100–1,000 V/cm
- Duration: 0.1–1.0 ms
- Pulse count: 10–100
- Square-wave pulses preferred

5. Data-Collection Checklist

TEWL:

- Baseline, 1h, 24h, 48h, 72h

Ultrasound:

- Thickness + echogenicity at baseline, 4, 8, 12 weeks

Elasticity:

- Cutometer R0, R2, R5

Imaging:

- Polarized photos for erythema/pigmentation/texture

A/B Testing:

- Left vs right or upper vs lower zones