Palomar Icon®
1540 Fractional Laser
Fractional Non-Ablative
Skin Resurfacing
Any treatment guidelines or parameters contained herein are intended for reference only and should not be substituted for sound clinical judgment.

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Please refer to the Icon® Operator’s Manual and Treatment Guide for additional information.

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1540 Fractional Erbium Laser

Applications
• Skin Resurfacing
• Soft Tissue Coagulation
• Acne Scars and Surgical Scars
• Melasma
• Striae (Stretch Marks)

- Wavelength: 1540 nm
- Spot Sizes: 15 mm, 12 mm x 12 mm
- Max. Energy: 70 mJ/mb
- Pulse Width: 10, 15, 20 ms
1540 Components

1. **Calibration Tip:** Calibrates output energy of the laser
2. **10mm Tip:** 100 mB/cm$^2$ (100 mB per pulse) - no longer for sale
3. **XD Microlens™** (or 12 x 12 mm tip): 25 mB/cm$^2$
4. **15mm Tip:** 320 mB/cm$^2$ (470 mB per pulse)
5. **XF Microlens™:** microbeam density 115 mB/cm$^2$
The range of thermal damage (depth and width) based on histology data

<table>
<thead>
<tr>
<th>Histology Orientation</th>
<th>10 mm Tip 70 mJ/mB</th>
<th>XD Microlens™ 70 mJ/mB</th>
<th>15 mm Tip 10 mJ/mB</th>
<th>XF Microlens™ 50 mJ/mB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Column Depth of Thermal Damage</td>
<td>725 microns</td>
<td>1060 microns</td>
<td>600 microns</td>
<td>750 microns</td>
</tr>
<tr>
<td>Average Column Width of Thermal Damage</td>
<td>200 microns</td>
<td>230 microns</td>
<td>125 microns</td>
<td>270 microns</td>
</tr>
</tbody>
</table>
Point Compression Approach Using 12 x 12mm XD Microlens

- Decreased heating of D/E junction and papillary dermis
  - Minimize side effect
- Depth
  - Reach deeper targets
  - Decreases scattering
- Flattening of tissue
  - Displaces water and blood
  - Decreases tissue thickness
1540 Fractional Laser Handpiece Tips

15mm, 320 mB/cm² & XF Microlens 115 mB/cm²

12mm x 12mm XD 25mB/cm²
1540 Fractional Laser

Examples of microbeam delivery per tip

15mm / 320mB/cm²  
10mm / 100mB/cm²

Goes up to 15 mJ/mB  
Goes up to 70 mJ/mB

Examples of microbeam delivery per tip
Healing occurs from viable untreated tissue between the columns of coagulated zones.

Stratum corneum remains intact which allows for rapid healing.
Exclusionary Criteria

- Individuals with a poor healing response
- History of light induced seizures
- During pregnancy
- Treatment of skin cancer
- Active infections/Immunosuppression
- Open lesions
- Blood disorders
- History of keloid formation

See Icon® Treatment Guide for a complete list of Exclusionary Criteria
Exclusionary Criteria

• Use of medications that significantly compromise healing response.

• Use of Isotretinoin (Accutane®) within 6-12 months of treatment (based on the level of treatment)

• Use of systemic steroids

• If currently taking anti-coagulants or blood-thinning medications, at least 2 weeks prior to and throughout a light-based treatment course - only with the approval of the prescribing physician.

See Icon® Treatment Guide for a complete list of Exclusionary Criteria
Cautionary Criteria

- Tretinoin (Retin-A®, Renova®) and exfoliating products – should be discontinued at least 2 weeks before and through course of treatments.
- Unprotected sun exposure or use of tanning beds or creams in areas to be treated.
- Pigmented Lesions
- Allergies
- Medications - Review both prescriptions and non-prescriptions. Be sure to include herbal and natural remedies as some of these may cause photosensitivity. For persons taking photosensitizing medication, perform test spots at least 24 hours before treatment.
Cautionary Criteria

- History of Herpes I or II within treatment area
- Heat Urticaria
- Diabetes
- Cosmetic Dermal Fillers/Implants
- Other conditions: History of vitiligo, eczema, psoriasis, allergic dermatitis, autoimmune diseases, immunocompromised status, any diseases affecting collagen including Ehlers-Danlos syndrome and scleroderma and other skin conditions may affect a person’s response to treatment.
- Suitability

See Icon® Treatment Guide for complete list of Cautionary Criteria
Test Spots

• Always administer test spots before every treatment
• Begin testing with lower energy settings
• Immediately and 10 min after - evaluate discomfort and skin reactions (swelling with blanching is an expected reaction)
• Follow up at 24 hours and up to 1 week
  • Signs of blistering or over-treatment at 24 – 48 hours indicate the settings are above skin tolerance
  • Excessive redness may indicate a risk for PIH

• Treat darker skin types (V-VI) **below** the erythema threshold to help minimize risk of PIH

See Icon® Treatment Guide for detailed Test Spot instructions
Cautionary Treatment Criteria

- Do not stack pulses - risk of PIH
- Use extra care while treating scar tissue - risk of blisters
- Use caution when treating near the bony orbital area or 1 cm of the orbit or the outer corner of the eye
- 1540 has not been tested with cosmetic dermal fillers, neurotoxins, or implants
  - Physicians recommend waiting for a minimum of 2 weeks after neuro-toxin injections and 2-4 weeks after fillers before performing facial light-based treatments
  - There is the possibility for diffusion of neuro-toxin, as a result of edema associated with facial light-based treatment, which may result in facial asymmetry
  - Cynosure has conducted no clinical trials and cannot recommend any specific waiting time

See Icon® Treatment Guide for detailed list of Cautionary Criteria
1540 Treatment Guidelines

- Carefully screen all potential candidates for treatment
- Topical anesthesia may be used
- Clean the HP and shave Tx area prior to treatment
- Coupling agent not required, but LuxLotion™ may be used for irregular or rough areas
- Use firm contact and skin compression
- Excessive power settings or poor contact may increase the risk of injury
- Keep the HP window free from debris throughout treatment
- Between patients, clean the handpiece using an EPA-registered disinfectant/detergent, e.g., SaniCloth® Plus, LpHse®, and Birex®. Follow the cleanser manufacturer’s directions

(continued)
When considering treatment strategy

- Consider both the amount of correction needed and the relative thickness of skin.
- Consider using (10 mm), XF or XD on thicker skin requiring deeper correction.
- Consider using the 15 mm tip on thinner skin requiring moderate correction.
- XD tip should be used with firm compression of 1-5 sec. The longer the compression time, the greater the added depth.
- To increase depth and coverage - XD passes can be followed by pass with the (10 mm) or XF tip.

(continued)
Multiple passes

• May be needed to achieve the desired density

• Lift and slightly rotate the HP to randomize location of microbeams

• Use overlap to insure even treatment (50/50% overlap recommended for XD, 15mm; 50% overlap for XF).

• Allow time between passes (~2 min) to avoid bulk heating

• Use of Cool Roller™ or pausing during the treatment may improve comfort
Treatment plan

• For lower energy/lower coverage treatments
  • 3-4 treatments 1-4 weeks apart
• For higher energy/higher coverage treatments
  • 1-2 treatments
  • longer intervals between treatments
• Off face
  • longer intervals between treatments

(continued)
Refer to the Icon® Treatment Guide for recommended parameters for:

- Skin Resurfacing and Coagulation of Soft Tissue
- Acne Scars and Surgical Scars
- Melasma
- Striae
### 1540 Fractional Laser

<table>
<thead>
<tr>
<th></th>
<th>Tip (mm)</th>
<th>Energy (mJ/mL)</th>
<th>Pulse Duration (ms)</th>
<th>Overlap (%)</th>
<th>Passes</th>
<th>Depth (μm)</th>
<th>Coverage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Superficial to Moderate Corrections</td>
<td>15</td>
<td>12—15</td>
<td>10—15</td>
<td>50%</td>
<td>2—4</td>
<td>460—590</td>
<td>30—40%</td>
</tr>
<tr>
<td>Moderate to Deep Corrections</td>
<td>10</td>
<td>50—70</td>
<td>10—15</td>
<td>50%</td>
<td>2</td>
<td>600—750</td>
<td>30—48%</td>
</tr>
<tr>
<td>Deep Corrections With the XD Microlens™</td>
<td>12 x 12</td>
<td>70</td>
<td>10—15</td>
<td>50%</td>
<td>3—5</td>
<td>900</td>
<td>24—36%</td>
</tr>
<tr>
<td>XF Microlens™</td>
<td>15</td>
<td>30—50</td>
<td>10—15</td>
<td>50% overlap pulse to pulse, 10% overlap row to row</td>
<td>2—3</td>
<td>675</td>
<td>24—36%</td>
</tr>
</tbody>
</table>
Suggested 1540 Treatment Technique

Treatment Zones

Deliver all passes to a limited area before moving to the next.

This will allow all energy to be delivered before significant edema occurs.
Suggested 1540 TX Technique

Overlap in both directions

- 50%/50% overlap for XD, 15mm tip
- 50%/minimal overlap for XF tip
Suggested 1540 Treatment Technique

1. Pass
2. Pass
3. Pass
4. Pass
5. Pass
Suggested 1540 Treatment Technique

Offsetting passes and pulses will ensure good coverage and prevent over heating.
Suggested 1540 Treatment Technique - Melasma
Melasma with 1540

Pre Treatment

Post 3 Treatments

Photos courtesy of Tiffani K. Hamilton, M.D.
Desirable endpoints that may be observed are:

- Transient erythema and/or edema immediately post treatment
- Bronzing (brown debris) may develop a few days post treatment
Immediate Post Treatment
XD Optic
3 Day Post Non-ablative Treatment

Aggressive treatment

Less aggressive treatment
Striae Left Thigh Pre-treatment
• A low risk of prolonged itching, redness, and blistering

• Acne breakouts

• A risk of hyperpigmentation, hypopigmentation, burns, bruising, or blistering may occur, some of which may result in scarring. These complications are usually due to stacking pulses, or utilizing too many passes, at higher energy levels.

• A risk of infection following treatment, potentially resulting in side effects mentioned above.

• Advise clients to call treatment provider if any side effects occur.

See Icon® Treatment Guide for details of Possible Side Effects.
• CoolRoller™, cool gel packs, immediately post TX

• Avoid make up or moisturizers for at least 24 hours post-treatment (to avoid acne breakouts)

• Gentle cleansing ; non-irritating cosmetics

• No retinoids 2 weeks prior and throughout the course of treatment (prolongs healing)
• Thin layer of occlusive ointment during the healing process to help minimize transepidermal water loss
• 10min soaks to gently remove bronzing/debris
• Treated areas should not be picked at or scrubbed
• Avoid unprotected sun exposure
• Avoid excessive exercise for 1 – 3 days after treatment
• Advise patient to contact the treatment provider if there are any issues or concerns following the treatment

See Icon® Treatment Guide for details of Post Treatment Guidelines
Fractional Non-Ablative Laser Skin Resurfacing

Photos courtesy of Dwight Scarborough, MD
Acne Scar Treatment

Pre-Treatment

Post 4th Treatment

Photos courtesy of Stan Kovak, MD
Acne Scar Treatment

Pre-Treatment

Post Treatment

Photos courtesy of Michael Sinclair, MD
Melasma

Pre-Treatment

Post Treatment

Photos courtesy of Michael Sinclair, MD
Scars

Pre-Treatment

Post Treatment

Photos courtesy of David B. Vasily, M.D.
Scars

Pre-Treatment

6 Weeks Post Treatment 3

Photos courtesy of David B. Vasily, M.D.
Scars

Pre 1540 Treatment

3 Months Post Treatment

Photos courtesy of David B. Vasily, M.D.
1540 Treatment for Striae

Pre-treatment

Post-treatment

Photos courtesy of Meditech
Example of Layered Approach to Photorejuvenation

MaxG Pigmented Lesions + Vascular Lesions

Fractional Non-Ablative Laser Skin Resurfacing

Fractional Ablative Laser Skin Resurfacing
Example of Layered Approach to Photorejuvenation

MaxG Pigmented Lesions + Vascular Lesions

Fractional Non-Ablative Laser Skin Resurfacing

Groove™ Ablative Laser Skin Resurfacing
Example of Layered Approach to Photorejuvenation

MaxG
Pigmented Lesions + Vascular Lesions

Fractional Non-Ablative Laser Skin Resurfacing

MaxIR
Soft Tissue Coagulation
Q & A