High Intensity Focused Ultrasound Facial Skin Lifting
**HIFU Mechanism**

**HIFU** (High Intensity Focused Ultra-sound)

- Non-invasive treatment with thermal energy that focused ultrasound from transducer

**Features of HIFU**

1. Generate enough energy to coagulative necrosis
2. No damaged except treat area
3. No harm at all when passing through human tissue
4. No infection and no bleeding for non-invasive treatment
5. Less side effect and safe treatment
What is SMAS?

SMAS [Superficial Muscular Aponeurotic System]

- The area of between just below the dermis and the top portion of the muscle layer
- This muscle layer could make the reason of wrinkle and loosen skin
- The target area of Botox or face lifting treatment that depth is 4.5mm in the skin
Energy depth

The target area of HIFU treatment is more deeper than other lasers
# Specifications

<table>
<thead>
<tr>
<th>Irradiation Type</th>
<th>High Intensity Focused Ultrasound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>4MHz / 7MHz</td>
</tr>
<tr>
<td>Maximum Energy</td>
<td>3J/cm²</td>
</tr>
<tr>
<td>Depth</td>
<td>4MHz ; 4.5mm / 7MHz ; 3.0mm</td>
</tr>
<tr>
<td>Length</td>
<td>~ 30mm (1mm step)</td>
</tr>
<tr>
<td>Image Frequency</td>
<td>5 ~ 10MHz</td>
</tr>
<tr>
<td>Image Depth</td>
<td>20mm</td>
</tr>
<tr>
<td>Image Resolution</td>
<td>128Channel, Linear Type, B-mode</td>
</tr>
</tbody>
</table>
Coagulation Point

Take effect of High temperature over 65 ℃

The effect of Coagulation Point

- Wound healing
- Elastic fiber, collagen regeneration

<table>
<thead>
<tr>
<th>Temperature</th>
<th>40 ~ 60°C</th>
<th>60 ~ 70°C</th>
<th>70 ~ 100°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body change</td>
<td>Warming</td>
<td>Coagulation</td>
<td>Denaturation and Vaporization</td>
</tr>
<tr>
<td>Visual change</td>
<td>-</td>
<td>Bleaching</td>
<td>White / Gray</td>
</tr>
</tbody>
</table>
Ultra Skin Test

7MHz

4MHz

7MHz

4MHz
Explanation

Find your Secret Face Line

What is Ultra Skin?

Ultra Skin tightens skin effectively by penetrating into SMAS layer, which is located in the deep skin. This is the new lifting therapy and good for tightening, wrinkle and whitening.
The treatment rationale

- Treat the HIFU with the fractional type
- Coagulation zone into 4.5mm Depth (SMAS layer)
- Make the higher temperature than 65°C
  Tighten the skin tissue:
  Immediate tightening effect
- The production promoting Of Collagen & elastin.
  The effect of lifting and rejuvenation.
Features

Solve the problems of **Wrinkles and Tightening** at the same time..

**Advantages of Ultra Skin**

1. The visual lifting effect without surgery
2. The possibility of treatment in SMAS layer
3. Safe treatment
4. No down time
5. Immediate lifting effect and long term effects
Who need Ultra Skin treatment?

We recommended to whom..

✓ Who feel getting old herself
✓ Complex about double chins
✓ Lifting for V line
✓ Wrinkles on eyes, mouth, nasolabial and forehead
✓ Who is looking for non-surgery treatment
✓ Who is got a drooped eyelid after surgery
✓ Complex about dark circle and fat under eyes
User Interface

- **HIFU Image transducer**
- **Parameter save function**
- **Cartridge use**
- **Cartridge information**
- **Image transducer control**
- **Image RUN/FREEZE**
- **Standby / Ready**
- **Maximum length 30mm Adjust by 1mm**
- **Coagulation zone Dot interval Adjust by 1mm**
- **Energy control Max. Energy 3J**
Schematic Diagram

Waveform Generator (7MHz, 4MHz)

Signal Amplification (45W)

Ultrasound Image Processing

Ultrasound Image Control

Ultrasound Transducer

Skin
Imaging probe

Measure the skin texture with HIFU image transducer before

- More safe and accurate treatment

- 128CH sharper definition
- Check the skin depth and texture with image transducer
- Safe and accurate treatment is possible
4.5mm Cartridge

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>4MHz</td>
</tr>
<tr>
<td>Depth</td>
<td>4.5mm</td>
</tr>
<tr>
<td>Spacing</td>
<td>1.2mm</td>
</tr>
<tr>
<td>Length</td>
<td>25mm</td>
</tr>
<tr>
<td>Coagulation point</td>
<td>26</td>
</tr>
</tbody>
</table>
3.0mm Cartridge

- Frequency: 7MHz
- Depth: 3.0mm
- Spacing: 1.0mm
- Length: 25mm
- Coagulation point: 31

![Image of 3.0mm Cartridge with details about frequency, depth, spacing, and length.]
Measurement System
Schlieren Images

Schlieren Image of 4M HIFU

Color Mapping
Schlieren Image Processing

Measured the length from bottom reflector to HIFU Peak Power
- Depth = 12 mm

Measure the depth with ruler and compare with HIFU pattern.
- Depth = about 12 mm
- Made the software for digitize an image
- The result of measurement of B type 7M HIFU

- The result of measurement of C Type 4M HIFU
Procedure

1. Counseling
   - Check the skin texture and check the target depth

2. Cleansing
   - Clean the skin before treatment

3. Anesthesia
   - Usually treat without anesthesia, but it depends on patients

4. Apply Gel
   - Apply the HIFU gel on treatment area of the skin

5. Treatment
   - Treat the full face or part

6. After Care
   - Apply cooling mask pack for sooth the skin
Indication

- Face Lifting (Cheek, Lower eyelid bags)
- Wrinkle (Eye, fine wrinkles)
- Double Chin
- Jowl Line
- Pore treatment
- Tightening
Q & A

Q: How about treatment pain?
It’s depends on parts of face and patients. You can feel warming and little pain, more painful on close parts with bones.

Q: How long takes for the treatment?
It takes 20 minute for full face treatment.

Q: When we can check the effect after treatment?
Usually 2~3 weeks later, you can notice the effect. You can see best effect after 2 month. The effect works maximum 6 month.

Q: How long does the treatment effect??
You can have great result after only once treatment. If you want dramatic result, we recommend additional one more treatment after one month.

Q: How is skin care after treatment?
Apply sun block well when you go out. And moisturizing will be helpful.
## Ultra-Skin Program

<table>
<thead>
<tr>
<th>General Program</th>
<th>Additional Program</th>
<th>Part Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>300Shot (Full face)</td>
<td>300Shot + Thread Lifting</td>
<td>[Jaw] 150Shot + Botox</td>
</tr>
<tr>
<td></td>
<td>300Shot + Botox</td>
<td>[Eyes] 100Shot + Filer</td>
</tr>
<tr>
<td></td>
<td>300Shot + PRP + Repairing care</td>
<td>300Shot + Laser Toning + Whitening</td>
</tr>
<tr>
<td></td>
<td>300Shot + RF</td>
<td>Tightening Program</td>
</tr>
<tr>
<td></td>
<td>300Shot + Fraxel + Repairing care</td>
<td>400Shot + RF + Repairing care</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Intensive Program</td>
</tr>
<tr>
<td></td>
<td></td>
<td>300Shot + Mesotoxin</td>
</tr>
</tbody>
</table>
Ultra Skin

Tek Seansla gelen güzellik

Öncesi

3 hafta sonrası

Before

After 3 weeks
Clinic Data

Before

After 2 month
Clinic Data

Before

After 2 month
Clinic Data

Before

After 2 month
Clinic Data

Before

After 2 month
Clinic Data

Before

After 2 month
Clinic Data

Before

After 2 month
Clinic Data

Before

After 2 month
Clinic Data

Before

After 2 month
Guide Line: 4.5mm

4MHz Skin Depth 4.5mm

<table>
<thead>
<tr>
<th>Region</th>
<th>Lower face</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy</td>
<td>1.2~1.5J</td>
</tr>
<tr>
<td>Spacing</td>
<td>1.2mm</td>
</tr>
<tr>
<td>Length</td>
<td>25mm</td>
</tr>
<tr>
<td>Patient Line</td>
<td>144</td>
</tr>
</tbody>
</table>
Guide Line ; 3.0mm

- Region: Lower face + Upper face
- Energy: 0.8 ~ 1.0J
- Spacing: 1.0mm
- Length: 25mm
- Patient Line: 168

7MHz Skin Depth 3.0mm
Guideline: 4.5 / 3.0mm

**4.5mm**
- Region: Neck
- Energy: 1.2~1.5J
- Spacing: 1.2mm
- Length: 25mm
- Patient Line: 168

**3.0mm**
- Region: Neck
- Energy: 0.8~1.0J
- Spacing: 1.0mm
- Length: 25mm
- Patient Line: 168
Caution Area

- Supraorbital nerve
- Mandibular nerve
- Thyroid gland
- Auricular nerve