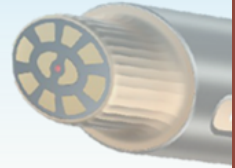


## Review of Home-Use Radiofrequency (RF) Devices For Hair Removal



### AEONEX REVIEW OF HOME-USE IPL DEVICES FOR HAIR REMOVAL

*The information provided here is general and specialized knowledge. However, it does not constitute medical advice. It is essential to consult with a qualified healthcare professional for any decisions on aesthetic technologies and treatments.*

#### **1) How Do Handheld/Home-use Radiofrequency Devices Work?**

Handheld RF devices operate by generating **electromagnetic waves** within a specific frequency range, typically between **1 MHz and 6 MHz** for aesthetic applications. These waves are produced by an **oscillator circuit**, which converts electrical energy into high-frequency alternating current (AC). This AC signal is then transmitted through electrodes that deliver RF energy to the skin.

#### **2) Skin Science on How The Device Produces The Beauty / Aesthetic Effects**

The effectiveness of RF devices is rooted in their ability to induce thermal effects in the skin. When applied to the skin, RF waves heat the dermis (typically to ~37–42 °C) while largely keeping the epidermis -the skin surface - cool. This controlled heating causes collagen fibers to contract, leading to an immediate tightening effect. Over time, the stimulated fibroblasts produce new collagen, improving skin texture, reducing wrinkles, and enhancing overall firmness.

#### **3) What does the body of research show relating to the effectiveness (efficacy) of these RF home-use device treatments?**

Current evidence, mainly from small clinical studies, suggests home RF devices provide modest improvements in wrinkles and skin tone. A systematic review graded the evidence as “B” (moderate), citing trials showing reduced wrinkle volume and improved skin laxity.

Select research studies:

- >> A 2022 split-face trial in 33 women found significantly better wrinkle reduction, skin radiance, and thickness on the RF-treated side.
- >> A 12-week study of 45 women using a home RF device observed improved marionette lines, facial lift, elasticity, and firmness.
- >> A Chinese trial of 22 women reported significant wrinkle reduction and increased dermal thickness after eight weeks of RF use.

While multiple studies confirm RF’s skin-rejuvenating effects, larger placebo-controlled trials are still needed for the body of evidence. In addition, the range of handheld RF devices will produce varying results, depending on their technical specifications and functional performance.

#### 4) Does the Treatment Work for All Skin Types and Colors?

RF treatments are generally safe for most skin types and tones because they do not rely on light-based energy, which can sometimes cause pigmentation issues in darker skin tones. Unlike laser treatments, RF energy does not target melanin, making it a suitable option for diverse skin colors. However, the FDA notes that safety in very dark skin (Fitzpatrick Scale V–VI) has not been established, and extreme caution is recommended for such device uses.

#### 5) Are there any dangers in using such a device?

Home RF devices are designed to be low-risk, but precautions are important.

The results of small industry studies should be viewed with some skepticism, since they can be self-serving. While studies confirm RF's skin-rejuvenating effects, larger placebo-controlled trials are still needed for the body of evidence.

While these devices are considered safe for home use, improper application or excessive use can lead to adverse effects.

Two potential risks are:

- **Skin Burns:** Overuse or incorrect application can cause excessive heating, leading to burns.
- **Redness and Swelling:** Some users may experience mild redness or swelling after treatment, which typically subsides within a few hours.