

Oska Pulse and Bone Density



Pulsed Electromagnetic Field (PEMF) therapy improves bone density by mimicking the body's natural electrical signals to stimulate cellular repair and regeneration.

Here is an explanation of the specific mechanisms through which PEMF supports bone health:

1. Stimulation of Bone-Building Cells (Osteoblasts)

The primary way PEMF improves bone density is by activating **osteoblasts**, the cells that form new bone tissue.

- **Cellular "Jumpstarting":** Oska Pulse describes PEMF as "recharging" cells. By delivering low-frequency electromagnetic pulses, it restores the electrical potential of bone cells, encouraging them to divide and produce the bone matrix.
- **Balancing Bone Remodelling:** PEMF helps maintain a healthy balance between osteoblasts (builders) and osteoclasts (cells that break down bone), which is essential for preventing the thinning associated with osteoporosis and osteopenia.

2. Enhanced Mineralisation and Calcium Uptake

For bones to be dense and strong, they must effectively absorb and store minerals.

- **Ion Exchange:** PEMF therapy mimics the body's natural "voltage differentials." These electrical gradients open "transporter channels" in cell membranes, facilitating the flow of essential ions, such as calcium and magnesium, into bone tissue.
- **Nutrient Delivery:** By improving cellular metabolism, PEMF ensures that the minerals from your diet are better utilised and incorporated into the bone matrix (mineralisation).

3. Improved Blood Circulation

Healthy bone regeneration requires a steady supply of oxygen and nutrients.

- **Microcirculation:** Medic Technology emphasises that PEMF is scientifically proven to improve blood circulation. Increased blood flow to the skeletal system ensures that the "raw materials" needed for bone repair reach the targeted areas more efficiently.
- **Angiogenesis:** The therapy supports the formation of new blood vessels (angiogenesis) within bone tissue, which is a critical step in healing fractures and maintaining density in ageing bones.

4. Reduction of Chronic Inflammation

Chronic inflammation is a significant contributor to bone loss (resorption).

- **Protective Environment:** Both sources highlight PEMF's ability to reduce inflammation and oedema (swelling). By lowering inflammatory markers, PEMF creates a more favourable physiological environment for bone cells to thrive rather than being broken down.

5. Piezoelectric Effect

Bones are **piezoelectric**, meaning they generate a small electric charge when subjected to mechanical stress (such as walking or lifting weights).

- **Mimicking Exercise:** PEMF therapy induces similar electrical charges within the bone tissue without the need for high-impact physical stress. This "tricks" the bone into a state of repair and strengthening, making it a valuable tool for individuals with limited mobility who cannot perform heavy weight-bearing exercises.

Summary of Benefits for Bone Health:

- **Faster Fracture Healing:** Accelerates the recovery time for broken bones by speeding up tissue regeneration.
- **Prevention of Bone Loss:** Helps slow the progression of degenerative conditions like osteoporosis.
- **Non-Invasive Support:** Offers a drug-free, pain-free way to supplement traditional bone health strategies like diet and exercise.