

The Science of PEMF Therapy

A friendly guide to how gentle magnetic pulses help your body heal



Oska Pulse PEMF therapy uses low-energy electromagnetic pulses to encourage your cells to become active and heal. It might sound high-tech, but the idea behind it is natural: PEMF works with the body's electrical and chemical systems, giving them a gentle nudge in the right direction. Here's a friendly, step-by-step explanation.

1. Your cells run on electricity

Every part of you is made of cells, and cells rely on tiny electrical signals to do their jobs. When a cell is injured or unwell, that electrical activity can be disrupted. PEMF therapy gently restores normal, healthy activity—like giving a run-down battery a helpful top-up.

2. Helping charged particles move (ion exchange)

First, a quick word: an “ion” is a tiny, charged particle — such as calcium, sodium or potassium — that helps carry electrical signals around your body.

Getting ions moving. PEMF devices generate electromagnetic pulses that penetrate your tissues and interact with these charged particles — *calcium, sodium and potassium* — within and around your cells.

Opening the right “doorways”. The pulses gently encourage ions to move, which can help open and close the tiny “gates” in the cell wall (*called voltage-gated channels*). This flow of ions in and out is essential for cells to communicate, take in nutrients and remove waste.

Recharging the cell. PEMF may also help restore the cell's membrane potential — the small electrical charge across the cell's outer wall that keeps it healthy and working well.

“Ions” and “voltage-gated channels”: Ions are tiny, charged particles (such as calcium, sodium and potassium) that carry electrical signals. Voltage-gated channels are the little doorways in a cell's wall (plasma membrane) that open and close to let them pass — helping the cell take in nutrients and clear out waste.

A promotional banner for OSKA Pulse PEMF Therapy. On the left, a smiling male doctor in a white coat and stethoscope holds a black, oval-shaped PEMF device. In the center, text reads 'FROM YOUR DOCTOR' above 'OSKA PULSE PEMF THERAPY', followed by the tagline 'Don't just block pain, get to the cause' and a 'LEARN MORE' button. On the right, an inset photo shows a woman wearing a black PEMF device around her waist in a clinical setting. Below the main text, two more black PEMF devices are shown, one held by a hand. The background is a teal gradient with a dotted pattern on the left and plus signs at the bottom right.

3. Boosting your cells' energy

Tiny power stations. Inside each cell are mitochondria, often called the “powerhouses” because they produce the body's main energy source — a molecule called ATP (adenosine triphosphate).

More energy for healing. Research suggests PEMF can help mitochondria work more efficiently and produce more ATP. With more energy on hand, cells can better repair and renew themselves.

Mitochondria & ATP: *Mitochondria are the miniature “power stations” inside your cells. ATP (adenosine triphosphate) is the fuel they make — the energy your cells spend on everything, healing included. (See more on page 11)*

4. Switching on the body's healing signals

PEMF also seems to gently trigger some of the body's own repair processes:

Better blood flow. PEMF can influence nitric oxide, a natural molecule that helps widen blood vessels (called vasodilation), improving circulation and supporting wound healing.

Encouraging repair. It may prompt the release of growth factors — natural proteins that help cells grow and rebuild damaged tissue.

Calming inflammation. PEMF can support the body's natural anti-inflammatory response, helping to ease swelling and pain by reducing the chemical messengers (called cytokines) that drive inflammation.

Building new tissue. Studies show PEMF can encourage cells to grow and specialise, especially those that repair bone, cartilage and muscle.

Two terms explained: *Vasodilation simply means the widening of blood vessels, which lets blood flow more freely. Cytokines are the body's chemical “messengers” that help switch inflammation on and off.*

5. Better circulation and oxygen

By gently widening blood vessels, PEMF therapy helps blood flow more freely. This means oxygen and nutrients reach your tissues more easily, while waste products are cleared more efficiently through the lymphatic system—your body's natural drainage and cleaning network.

What the research shows

PEMF has been studied for many conditions. Some of the most promising areas include:

- **Bone healing** — a long track record of helping fractures that won't mend (called non-union fractures), with approved bone-healing devices dating all the way back to 1979.
- **Pain relief** — studies suggest PEMF can ease both long-term and sudden pain, including pain from endometriosis and adenomyosis (conditions affecting the womb), osteoarthritis, fibromyalgia (widespread muscle pain) and muscle or joint injuries.
- **Less inflammation** — by calming the body's inflammatory response, PEMF helps reduce pain and accelerate healing.
- **Tissue repair** — PEMF may support the healing of muscles, tendons, ligaments and other tissues.

- **Wound healing** — research indicates PEMF can accelerate the early stages of closing a wound.

A few honest things worth knowing

The science behind PEMF is genuinely growing, and we think it's only fair to be open about a few points:

Devices differ. How well PEMF works can depend on the frequency, strength, waveform and how long it's used — so different studies aren't always easy to compare directly.

Research continues. Scientists are still exploring the full range of uses and the best treatment settings.

Not all devices are equal. Some PEMF devices, like the Oska Pulse, have official clearance (from the FDA, TGA and CE) for specific conditions, while others are sold only as “general wellness products” and can't make medical claims.

In conclusion

A growing body of scientific evidence supports PEMF therapy — both by explaining how it works and by showing real benefits across a range of conditions. At its heart, PEMF uses the body's own natural electricity: helping balance the electrical charge in cells, boosting energy production, guiding ion flow, and switching on many of the natural signals your body uses to repair and renew itself. That's why it shows promise across so many areas, from helping bones and wounds heal to easing pain and supporting the immune system.

On the clinical side, PEMF has received official clearance (FDA, TGA and CE) for specific uses, providing a solid, validated foundation. The evidence is particularly strong for bone healing — especially for fractures that struggle to mend — and shows encouraging results for pain conditions such as osteoarthritis, chronic lower-back pain and fibromyalgia. Newer research also points to possible benefits for brain and mental health, athletic recovery, and intriguing early findings on cancer cells. That said, until this is confirmed by rigorous scientific research, we do not recommend using the Oska Pulse to treat cancer unless your oncologist (cancer specialist) advises it.

As our understanding deepens and the technology advances, PEMF therapy looks set to become an increasingly valued part of gentle, non-invasive care—offering real promise for a wide range of health needs.

This document is for informational purposes only and is not a substitute for professional medical advice. Please do not change or stop any current medication without first consulting your doctor.

With warm regards,

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