

PEMF Therapy for Back Pain

Back pain is one of the most common health issues for which people visit a doctor or miss their routine. Most individuals will experience it at some point in their lives. In fact, approximately 65 million Americans suffer from some sort of back pain, with around 16 million people experiencing chronic or persistent pain.

Back pain is the sixth most expensive condition in the United States. You may have tried several drugs, ointments, and other therapies with minimal success, or you may simply want to explore new options. Whether you've tried multiple treatments or are seeking something new, pulsed electromagnetic field (PEMF) therapy is an effective treatment for acute and chronic back pain.

What causes back pain?

Your back is a complex system made up of many structures working together to support your body. These include your vertebrae, spinal cord, intervertebral disks (soft pads between your vertebrae), ligaments (tissues that connect bones or cartilage), muscles, and tendons (connecting muscles to bones). If any of these structures have problems, it may lead to back pain.

A specific cause for back pain cannot be identified in tests or imaging studies. A few conditions that can commonly cause it include:

Accidents and injuries

Activities like lifting heavy objects, lifting incorrectly, sudden movements, sports injuries, or car accidents can lead to back problems such as sprains, strains, fractures, or spasms.

Movement and posture

Poor movement and posture can cause back pain. For instance, sitting with a hunched posture while using a computer, as well as while performing everyday activities, may gradually cause back and shoulder problems.

Disk issues

The spine is made up of bones called vertebrae and between them are cushions called disks. Sometimes, these disks can bulge or slip, causing intense discomfort down the

buttocks and back of the leg, a condition known as sciatica. Disks may also rupture or wear down over time, adding pressure to nerves and causing back problems.

Arthritis and Osteoporosis

As we age, our bones, including the vertebrae, become brittle and porous, a condition known as osteoporosis. This makes compression fractures more likely. Osteoarthritis in the spine can narrow the space around the spinal cord, resulting in back pain.

Ankylosing spondylitis

It is an inflammatory condition that may lead to the fusion of certain bones in the spine. This fusion reduces the flexibility of the spine, causing stiffness and discomfort.

Lifestyle triggers

Daily habits like poor posture (hunching over or bending the neck forward), lifting heavy items improperly, or repeated movements may trigger pain and inflammation in the back. Being overweight, wearing high heels, lack of exercise, or using an unsupportive mattress can also contribute to back issues.

Other health conditions

Conditions like pregnancy, scoliosis (curvature of the spine), tumors, kidney stones, endometriosis, or fibromyalgia may also cause discomfort.

How can you identify symptoms and types of back pain?

Back pain may feel like muscle soreness, especially in the morning. It can hurt more when you move, bend, or twist your body. The pain might spread to your buttocks, legs, hips, or abdomen, and sometimes, it may cause numbness or weakness in your legs or feet.

The pain can be localized (specific spot) or it may be generalized (spread all across your back). Every individual has a different level of pain.

Types of back pain

- **Acute:** it occurs suddenly and lasts for a few days to a few weeks.
- **Subacute:** it may strike abruptly or gradually and continue for 4-12 weeks.
- **Chronic:** it may appear suddenly or gradually and remain for more than 12 weeks and occur regularly.

What are the limitations of conventional treatments?

Acute or short-term back pain usually goes away with home treatment and self-care, such as using hot or cold packs, resting, exercising, and using over-the-counter medications. But, for chronic conditions, these treatments may take weeks or months to provide relief. You may also require other alternative treatments, such as massage, acupuncture, and multiple visits to a physical therapist, which can be quite expensive.

Using medications can result in drug tolerance, wherein you may require higher doses to feel relief from pain, which could cause drug dependence. Moreover, surgery can have complications, particularly when identifying the exact source of the pain is challenging, making surgical procedures less effective.

Can PEMF therapy effectively cause relief from back pain?

Many different studies conducted in recent years noted that PEMF can significantly help with several forms of muscle and bone pain, including but not limited to back pain.

Research has shown that using PEMF therapy can help manage pain. One study in 2012 found that PEMF therapy reduced symptoms and relieved nerve compression in patients with discogenic lumbar radiculopathy (a type of low back pain).

Another study in 2019 discovered that combining PEMF therapy with regular physiotherapy led to better pain relief, improved mobility, and increased range of motion.

A systemic review also concluded that PEMF therapy effectively reduces pain and enhances functionality for people with low back pain.

Many more studies are showing its effectiveness for various conditions that cause discomfort, like osteoporosis, multiple sclerosis, and arthritis.

How does PEMF therapy alleviate back pain?

The healing electromagnetic waves emitted from the PEMF device can help strengthen your muscles that support the back. It can also help decrease back pain caused by other conditions while addressing the underlying cause or condition that is causing the discomfort. PEMF therapy has several therapeutic effects that can potentially help alleviate back pain, including the following.

Stimulation of soft tissue repair

Back pain caused by sprains, strains, or injuries often cause the rupture of soft tissues like ligaments, muscles, or tendons. PEMF therapy accelerates the healing process of soft tissue injuries by improving blood flow and oxygenation to the affected area. Thus, it can effectively alleviate discomfort associated with soft tissue injuries.

Cartilage regeneration and joint health

Degenerative conditions like osteoarthritis can cause low back pain due to wear and tear of cartilage between the spinal joints. Cartilage is a strong and flexible fibrous tissue that protects your joints and bones and does not have the capability to regenerate like soft tissue as it has a limited blood supply.

PEMF therapy is capable of modulating the paracrine function (cell signaling or communication between cells) of mesenchymal stem cells (MSCs). MSCs release anti-inflammatory cytokines and growth factors that can stimulate the regeneration of cartilage. Thus, enhanced cartilage health contributes to reduced friction between spinal joints, thus alleviating pain and enhancing mobility. This may be beneficial for individuals suffering from osteoarthritis.

Nervous system modulation

PEMF therapy also has the potential to treat nerve-related back pain. It modulates the nervous system by preventing nerve endings from firing and transmitting pain signals to the brain. PEMF also boosts the production of natural endorphins (pain-relieving chemicals), alleviating nerve-related problems, including sciatica, herniated disks, and radiculopathy.

PEMF therapy causes electrical changes within the cell, re-energizes damaged cells, and restores them to their natural, healthy state. This contributes to the body's natural ability to protect, heal, and recover from back pain.

How often should you use PEMF therapy?

There are no strict rules on how often to use PEMF therapy for back pain. However, based on studies and clinical trials, it has been observed that using PEMF therapy for at least once a day, five days a week, for two weeks can show positive effects. Generally, it is suggested to limit each session to at least 10-20 minutes a day with a frequency of 50 Hz and intensity of 20 Gauss.

It is important to note that while some people feel better quickly with PEMF therapy, it might take longer and require more sessions for others, especially if you have a chronic problem.

If you're thinking about using PEMF therapy for back pain, consult your doctor first. They can help you determine if the treatment is right for you and advise you on the appropriate duration for your specific condition.

Conclusion

Using PEMF with regular treatment for back pain works better in reducing pain and improving function than conventional treatment alone. PEMF is an excellent option if you are looking for a cost-effective and convenient treatment for chronic back pain.

References

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