# Reversing Peripheral Neuropathy:

## A Comprehensive Guide to Restoring Nerve Health

By: Dr. Robert Gilliland D.C.

Robert Gilliland
510 Cr 466
Suite 201
Lady Lake FL 32159
United States
www.theladylakedoctor.com

# About the Author

Meet Dr. Robert Gilliland, a compassionate and dedicated healthcare professional whose journey into the realm of healing has been driven by a deep personal commitment to finding better solutions for health challenges. With a diverse educational background and a genuine passion for holistic well-being, Dr. Gilliland is a guiding force in the world of healthcare.

Dr. Gilliland's academic journey began with a Bachelor's degree in Environmental Science, where he developed a profound understanding of the intricate relationship between human health and the environment. Building on this foundation, he pursued a Doctor of Chiropractic degree from Palmer College, equipping him with a comprehensive understanding of the body's natural healing mechanisms.

Driven by a relentless pursuit of knowledge, Dr. Gilliland embarked on a path of post-graduate training that has enriched his expertise and empowered his practice. His studies in Functional medicine, neurology, nutrition, and functional blood chemistry analysis have elevated him to the forefront of healthcare innovation. This multifaceted approach allows him to offer a comprehensive understanding of health that goes beyond the conventional and delves into the root causes of health challenges.

In addition to his professional pursuits, Dr. Gilliland finds immense joy and strength in his family. He is a loving husband to Sarah and a proud father to three wonderful children: Amber, Ashley, and Matthew. This familial foundation infuses his approach to healthcare with empathy and understanding, as he recognizes the importance of wellness for individuals and their loved ones.

Dr. Gilliland's journey into healthcare was sparked by his own battles with chronic health issues, including three autoimmune diseases. This personal experience has kindled a fire within him to explore alternative avenues of healing, to question the status quo, and to offer his patients innovative solutions for their own health challenges.

With an unwavering commitment to enhancing lives through integrative and holistic approaches, Dr. Robert Gilliland stands as a beacon of hope and healing. His unique blend of education, experience, and personal insight forms the cornerstone of his approach to healthcare –a commitment to helping others experience the transformative power of well-being.

Join Dr. Gilliland on a journey of discovery, as he shares his insights, experiences, and the remarkable potential of PEMF therapy in his book "PEMF: The Best-Kept Secret In Medicine For Pain And Chronic Disease." Through his words, you'll discover a roadmap to better health, driven by

a doctor who knows firsthand the power of finding answers when they matter most.

INTENDED USE STATEMENT

The book titled ‘Reversing Peripheral Neuropathy: A Comprehensive Guide to Restoring Nerve Health' is intended to provide readers with insightful information and perspectives on alternative approaches to managing pain and chronic diseases. Through a comprehensive exploration of emerging medical insights, innovative therapies, and holistic strategies, this book aims to empower readers with knowledge that can supplement their understanding of pain management and chronic disease mitigation. It is important to note that the content of this book is for informational purposes only and should not be construed as medical advice or a substitute for professional medical consultation. Readers are encouraged to consult with qualified healthcare professionals for personalized guidance and recommendations tailored to their specific health conditions.

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# Introduction

In the realm of health and wellness, few challenges are as insidious and disruptive as peripheral neuropathy. It strikes silently, weaving its way into the intricate fabric of our nervous system, causing discomfort, pain, and a host of distressing symptoms. For those who bear its burden, each step can be a reminder of the body's intricate yet fragile balance.

Welcome to a journey that aims to unveil the enigmatic nature of peripheral neuropathy and its potential reversal. This is not just a guide; it's a beacon of hope for those seeking to reclaim their vitality, mobility, and overall well-being. As you embark on this exploration, you'll navigate through the labyrinth of medical knowledge, unveil the wisdom of regenerative therapies, and discover the remarkable potential of your body's innate healing capabilities.

At the heart of this journey lies a simple yet profound question: Can peripheral neuropathy be reversed? In these pages, we'll delve deep into the science, insights, and experiences that provide a resounding answer: Yes, it's possible. But the path to reversal requires a holistic understanding of the condition, a commitment to addressing its underlying causes, and the courage to explore innovative therapies that resonate with the body's natural rhythms.

As we venture together into the realm of peripheral neuropathy, you'll learn about the intricate dance of nerve function and communication, decode the array of symptoms that signify its presence, and understand the diverse factors that contribute to its onset. We'll traverse the landscape of traditional Western medicine's approach, acknowledging its strengths and limitations. More importantly, you'll be introduced to the realm of regenerative therapies—where the real magic happens.

The heart of our journey centers on the synergy of Pulsed Electromagnetic Field (PEMF) therapy, Hako-Med horizontal therapy, and the transformative power of specific nutrition. These elements are not just words on a page; they're the key to unlocking your body's potential for healing. We'll uncover the science behind each therapy, demystify their applications, and guide you in crafting a personalized plan that aligns with your unique needs and goals.

But our exploration doesn't stop there. We'll shine a spotlight on the complexities of diabetes and its complications—frequent companions of peripheral neuropathy—and unveil how PEMF therapy's enchanting potential extends beyond. You'll also find inspiration in the stories of those who have triumphed over adversity.

This is your invitation to step beyond the boundaries of what you thought possible, to empower yourself with knowledge, and to embrace the potential for a brighter,

healthier future. It's time to embark on a journey of healing, transformation, and restoration—a journey towards reversing peripheral neuropathy and reclaiming the vitality that is rightfully yours.In a world driven by rapid advancements in modern medicine, it's easy to believe that every ailment can be cured with a pill or a procedure. Yet, there exist realms of human suffering that defy the conventional approach, reminding us that not all puzzles can be solved with the tools found in the standard medical toolkit. One such enigma is peripheral neuropathy - a condition that has left countless individuals grappling with discomfort, pain, and a diminished quality of life.

# Chapter 1: Decoding Peripheral Neuropathy: Causes and Symptoms

Imagine your body as a symphony of signals, a complex orchestra of nerves that conducts messages between your brain and the farthest reaches of your extremities. These nerves are the messengers of sensation, allowing you to touch, feel, and navigate the world around you. But what happens when this symphony starts to play discordant notes, when the signals become distorted or silenced?

**Unveiling the Mystery: Defining Peripheral Neuropathy**

Peripheral neuropathy, in its simplest terms, is a disruption of this harmonious symphony. It's a condition that involves damage to the peripheral nerves—those that extend from the spinal cord to the rest of the body, including the limbs. When these nerves falter, their communication becomes disrupted, leading to a cascade of symptoms that can range from uncomfortable to debilitating.

The term "neuropathy" itself stems from "neuro," referring to nerves, and "pathy," indicating a disorder. While peripheral neuropathy is a term used to describe nerve damage anywhere in the peripheral nervous system, it most commonly affects the hands and feet, which are the outermost regions of the body. This "peripheral" damage often results in sensations such as tingling, numbness, burning, and pain.

**Rooted in Signals: Understanding Nerve Function and Communication**

To understand peripheral neuropathy, we must first grasp the intricate workings of our nervous system. Nerves are like electrical wires, transmitting messages between the brain and the rest of the body. Sensory nerves relay information about touch, temperature, and pain, while motor nerves control movement. Autonomic nerves regulate involuntary bodily functions like heart rate, digestion, and blood pressure.

This web of communication relies on the transmission of electrical signals along the nerve fibers. These signals are like the notes in a melody, creating a symphony of sensations and actions. However, when nerve fibers become damaged, these signals can become distorted, delayed, or even silenced. This disruption in communication is what gives rise to the symptoms of peripheral neuropathy.

**The Alarming Signs: Recognizing the Symptoms of Peripheral Neuropathy**

Peripheral neuropathy is not a one-size-fits-all condition. Its symptoms can manifest in various ways, depending on which nerves are affected and the extent of the damage. Some individuals may experience mild tingling, while others might face excruciating pain that feels like a never-ending electric shock.

Common symptoms of peripheral neuropathy include:

- Tingling or "pins and needles" sensations
- Numbness or loss of sensation
- Burning or stabbing pain
- Weakness or muscle atrophy
- Difficulty with coordination and balance
- Sensitivity to touch or temperature changes
- Foot ulcers and wounds that heal slowly

The symptoms can be episodic or chronic, sporadic or constant, and they may worsen over time if left untreated. While peripheral neuropathy is often a result of nerve damage, the question that arises is: What causes this damage in the first place?

**The Culprits Within: Exploring the Underlying Causes**

Just as there are many instruments in an orchestra, there are numerous factors that can contribute to the development of peripheral neuropathy. Some of the key culprits include:

**Diabetes**: Chronic high blood sugar levels can damage nerves over time.

**Autoimmune Disorders:** Conditions like lupus and rheumatoid arthritis can trigger nerve inflammation.

**Infections:** Viruses and bacteria can directly damage nerves or cause an immune response that affects them.

**Medications:** Certain drugs, particularly chemotherapy drugs, can lead to nerve damage.

**Vitamin Deficiencies:** Inadequate levels of vitamins like B12 can impact nerve health.

**Alcohol Abuse:** Excessive alcohol consumption can damage nerves.
**Trauma:** Injuries or accidents that damage nerves can lead to neuropathy.

As we embark on this journey to reverse peripheral neuropathy, understanding these potential underlying causes is vital. The key to unlocking the potential for healing lies in addressing these root factors and exploring innovative therapies that work in harmony with your body's natural healing processes.

# Chapter 2: The Western Medicine Approach: Pros and Cons

In the quest to understand and reverse peripheral neuropathy, one avenue that has been extensively explored is the realm of Western medicine. With its sophisticated diagnostic tools, targeted medications, and specialized interventions, Western medicine offers a systematic approach to addressing the challenges posed by peripheral neuropathy. However, as with any approach, there are both strengths and limitations to consider.

**A Clinical Perspective: How Western Medicine Diagnoses Peripheral Neuropathy**

One of the hallmarks of Western medicine is its rigorous diagnostic process. When it comes to peripheral neuropathy, healthcare professionals employ a range of tools and tests to unravel the complexities of nerve damage. Nerve Conduction Studies (NCS) and Electromyography (EMG) allow for a close examination of nerve function and muscle health by measuring the electrical activity of nerves and muscles. Blood tests are invaluable in identifying underlying conditions like diabetes, vitamin deficiencies, and infections that may contribute to neuropathy. Imaging techniques, such as MRI and CT scans, grant a visual window into nerve damage and structural issues.

While these diagnostic capabilities are remarkable, they are just the beginning of the journey towards addressing peripheral neuropathy.

**A Double-Edged Sword: Medications for Symptom Management**

Western medicine's pharmacological arsenal includes a variety of medications aimed at managing the symptoms of peripheral neuropathy. Pain relievers, nerve-pain specific drugs (such as gabapentin and pregabalin), and anti-inflammatory medications are among the options used to alleviate the discomfort experienced by individuals with neuropathy. These medications often provide quick relief, allowing patients to regain a sense of normalcy and improved quality of life.

However, the use of medications also comes with a set of challenges. While they may offer temporary respite, they often do not address the underlying causes of peripheral neuropathy. Moreover, some medications can produce side effects that range from mild to severe, impacting overall well-being. Balancing the benefits of symptom relief with the potential drawbacks of side effects is a complex calculus that patients and healthcare providers must consider.

**Seeking Balance: Weighing the Pros and Cons of Allopathic Treatment**

The allopathic approach to peripheral neuropathy shines in its diagnostic accuracy and immediate symptom relief. Its

ability to identify and categorize the complexities of nerve damage is an invaluable tool in the realm of healthcare. Additionally, offering patients swift relief from the often agonizing symptoms is a profound achievement that cannot be understated.

However, it's essential to recognize the limitations of the allopathic approach. The focus on symptom management can sometimes overshadow the pursuit of addressing the root causes of peripheral neuropathy. Medications, while providing relief, do nothing to halt the progression of peripheral neuropathy. So, even if you take your medication as prescribed it won't prevent the progression of the disease from spreading further up your body, into your arms or legs. Moreover, the potential for side effects and the absence of a holistic perspective on overall well-being can leave patients seeking alternatives that offer a more comprehensive solution.

As we venture forward on our journey to reverse peripheral neuropathy, let us remain mindful of both the benefits and the boundaries of Western medicine. In the next chapter we will explore the potential side effects associated with taking medications for symptoms management.

# Chapter 3: The Bumpy Ride of Medications: Navigating the Side Effects of Peripheral Neuropathy Drugs

Picture this: you're handed a magic pill that promises to alleviate your peripheral neuropathy symptoms. It sounds like a ticket to relief, doesn't it? But wait, before you dive headfirst into this pharmaceutical adventure, let's take a closer look at the potential side effects that might just leave you feeling like you're on a roller coaster ride you never signed up for.

**Welcome to the Side Effect Spectacle:**
If the world of peripheral neuropathy medications were a theme park, the side effects would be the main attraction. These unwelcome guests can range from mild annoyances to downright show-stopping dramas that can make you question whether the "magic pill" is worth the price of admission.

**The "Drowsy Dungeon" Ride:**
Step right up to experience the "Drowsy Dungeon" ride! Some peripheral neuropathy drugs have a tendency to lull you into a drowsy state, leaving you feeling like you're navigating life through a foggy haze. Suddenly, staying awake during that important meeting or enjoying a movie with friends becomes a Herculean feat.

**The "Ups and Downs" of Digestive Distress:**
Hold on tight for the "Ups and Downs" ride, where stomach upset, nausea, and digestive distress are the stars of the show. Taking a pill for your peripheral neuropathy might trigger a digestive roller coaster, leaving you longing for a bit of calm in your tummy.

**The "Balance Beam" of Balance Issues:**
Get ready for the "Balance Beam," where balance issues take center stage. Some medications can leave you feeling as steady as a unicyclist on a tightrope. Suddenly, everyday activities like walking become a tightrope act, and you're left wondering whether your feet are your friends or foes.

**"The Mood Swing Carousel":**
Don't miss the "Mood Swing Carousel," where emotional turbulence can take you on a whirlwind adventure. Some peripheral neuropathy medications might mess with your mood, leaving you feeling like an unwitting participant in a roller coaster of emotions.

**The "Blurred Vision Express":**
All aboard the "Blurred Vision Express," where you might find yourself in a visual whirlwind. Some medications play tricks on your eyes, leaving you squinting at the world around you, wondering if you're watching life through a funhouse mirror.

**"Why Did I Sign Up for This?" Syndrome:**

As you navigate the dizzying world of peripheral neuropathy medications, you might reach a point where you ask yourself, "Why did I sign up for this?" The side effects, both big and small, can become a barrier to enjoying life to the fullest. Suddenly, the promise of relief doesn't seem worth the trade-offs.

**Escaping the Side Effect Show:**
It's no wonder that many individuals find themselves saying "no more" to this side effect spectacle. The trade-offs between relief and the potential downsides can leave you longing for an alternative path. That's where a holistic approach comes into play. Imagine addressing the underlying causes of peripheral neuropathy without the dramatic side effects that often accompany medications.

In the upcoming chapters, we'll explore the dangers of peripheral neuropathy and what you can do to avoid them. It's time to bid adieu to the unpredictable rides of medication and embark on a journey towards healing that doesn't involve roller coasters, funhouse mirrors, or drowsy dungeons. Your ticket to relief and vitality awaits, minus the side effects!

# Chapter 4: Navigating the Dangers of Peripheral Neuropathy

In this chapter, we'll explore the potential dangers of peripheral neuropathy and why taking action is crucial.

**The Silent Saboteur:**
Peripheral neuropathy might begin quietly, with subtle sensations like tingling, numbness, or mild pain. But don't be fooled by its initial subtlety - it's a condition that can snowball into more severe problems if left unchecked. Like a saboteur, peripheral neuropathy can weaken your body's defenses against everyday challenges.

**The Threats Multiply:**
One of the most significant dangers of peripheral neuropathy is its potential to compromise your ability to sense danger. Imagine stepping on a sharp object and not feeling the pain - you might continue walking, unaware that you're causing further harm. This lack of sensation can lead to injuries, ulcers, and infections that go unnoticed until they become serious.

As peripheral neuropathy progresses, it can disrupt your balance and coordination, increasing the risk of falls and fractures. Everyday tasks like walking, climbing stairs, and even standing can become treacherous endeavors.

**A Vicious Cycle:**

Peripheral neuropathy doesn't just affect your physical well-being; it can also impact your emotional and mental health. The chronic discomfort, pain, and limitations it brings can lead to anxiety, depression, and a reduced quality of life. This emotional toll can further worsen the physical symptoms, creating a vicious cycle that's challenging to break.

**The Connection with Diabetes:**
For those with diabetes, the dangers of peripheral neuropathy are especially concerning. Diabetes and peripheral neuropathy often go hand in hand. Elevated blood sugar levels can damage the delicate nerve fibers, exacerbating the symptoms and complications. It's like pouring gasoline on a fire - the neuropathy intensifies, and the risks multiply.

**Taking Charge of Your Health:**
Understanding the dangers of peripheral neuropathy is the first step towards protecting yourself. Ignoring or downplaying the symptoms can lead to severe consequences that affect your overall well-being. The good news is that you have the power to take control.

By exploring holistic approaches like PEMF therapy, Hako-Med therapy, and specific nutrition, you're addressing not only the symptoms but also the root causes of peripheral neuropathy. You're breaking the cycle of danger and discomfort and setting the stage for healing and recovery.

In the following chapters, we'll delve deeper into these holistic solutions, uncovering how they can help you regain control of your nervous system, mitigate the dangers of peripheral neuropathy, and pave the way to a healthier and more vibrant life. Remember, your journey towards wellness begins with understanding and action - and you're already on the right path.

# Chapter 5: Losing Independence: The Hidden Dangers of Peripheral Neuropathy

Imagine waking up one day, and your ability to navigate the world around you has drastically changed. Simple tasks that were once second nature now feel like insurmountable challenges. This is the reality that many individuals with peripheral neuropathy face, as this condition has the power to rob you of your independence and disrupt your once self-sufficient lifestyle.

**The Silent Thief of Independence:**
Peripheral neuropathy might start with subtle tingling or numbness in your extremities, but its impact can quickly escalate. One of the most distressing dangers is the loss of sensation - not being able to feel temperature changes, pressure, or pain. This may seem trivial, but consider how it can affect your daily life.

**Driving Into Uncertainty:**
Think about driving, for instance. Getting behind the wheel isn't just about getting from point A to point B; it symbolizes freedom, autonomy, and the ability to explore the world around you. Now, imagine not being able to feel the gas and brake pedals due to numb feet. This simple loss of sensation can turn driving into a risky venture, threatening your safety and that of others on the road. The

loss of confidence in your ability to drive can lead to isolation and a shrinking world.

**A Diminished Social Life:**
Peripheral neuropathy doesn't stop at affecting your mobility. It can impact your social interactions and leisure activities as well. The pain, discomfort, and balance issues it brings can make outings with friends, family gatherings, or even a simple walk in the park feel like insurmountable challenges. Gradually, you might find yourself withdrawing from the activities that once brought joy and connection.

**The Emotional Toll:**
The loss of independence doesn't just affect your physical capabilities; it takes a toll on your emotional well-being too. The frustration, anger, and sense of helplessness that come with being unable to do the things you love can lead to anxiety and depression. The once vibrant and self-reliant person might feel like a mere shadow of their former self.

**Regaining Control:**
It's important to recognize that you're not alone in this struggle, and there are steps you can take to regain your independence. Exploring holistic approaches like PEMF therapy, Hako-Med therapy, and nutrition can help address the underlying causes of peripheral neuropathy, alleviate symptoms, and promote healing.

Imagine being able to drive confidently again, feeling the pedals beneath your feet. Envision participating in social

activities without worrying about pain or balance issues. These possibilities can become your reality with the right approach to managing and reversing peripheral neuropathy.

In the following chapters, we'll delve into how these holistic therapies can work together to restore your independence and rekindle your zest for life. Remember, peripheral neuropathy might try to rob you of your independence, but you have the power to fight back and reclaim your life. Your journey to renewed vitality begins now.

# Chapter 6: Reversing the Tide: Regenerative Therapies for Peripheral Neuropathy

As we stand at the crossroads of healing, a new dawn emerges—one that beckons us to explore the realm of regenerative therapies for peripheral neuropathy. These therapies offer a transformative approach, one that goes beyond the mere management of symptoms and seeks to address the very roots of the condition. In this chapter, we will dive deep into the world of regenerative therapies, understanding their promise, and unraveling their potential to reverse peripheral neuropathy.

**Healing from Within: The Promise of Regenerative Therapy**

Regenerative therapy holds a fundamental belief that the body possesses an innate ability to heal itself - all you have to do is give your cells what they need to thrive and remove any interferences. This philosophy aligns with the wisdom of nature, reminding us that restoration and rejuvenation are woven into the very fabric of our being. The goal of regenerative therapies is not just to alleviate discomfort but to tap into the body's reservoir of healing potential and catalyze true reversal.

We recognize that peripheral neuropathy is not merely a collection of symptoms but a manifestation of underlying

imbalances. By addressing these imbalances, regenerative therapies aim to create an environment where damaged nerves may be repaired, function may be restored, and overall well-being may be reclaimed.

**Pioneering Solutions: How Regenerative Therapy Targets Underlying Causes**

At the heart of regenerative therapies lies the determination to unearth the hidden causes of peripheral neuropathy. The journey toward reversal begins with a comprehensive assessment that considers the individual's unique medical history, lifestyle factors, and the specific nuances of their condition. This personalized approach allows for the identification of the factors that contributed to the development of peripheral neuropathy.

Once the underlying causes are identified, regenerative therapies come into play. These therapies go beyond symptom management and work to create an environment that is conducive to healing. By addressing the root factors, such as poor circulation, inflammation, and nutritional deficiencies, regenerative therapies endeavor to reverse the damage inflicted on the peripheral nerves.

**The Power of Combination: Synergy of PEMF Therapy, Hako-Med, and Nutrition**

In the realm of regenerative therapies, there are three key players that synergistically contribute to the reversal of peripheral neuropathy: Pulsed Electromagnetic Field

(PEMF) therapy, Hako-Med horizontal therapy, and nutritional interventions.

**PEMF Therapy:** Pulsed Electromagnetic Field therapy utilizes electromagnetic fields to stimulate cellular activity. It enhances circulation, reduces inflammation, and promotes cellular regeneration. Its unique ability to resonate with the body's cells encourages healing from within, making it a vital component of regenerative therapy.

**Hako-Med Therapy:** Hako-Med therapy involves the application of specific bio-electric frequencies. It targets pain, enhances blood flow, and supports nerve function. This therapy has shown promise in improving both symptom relief and the overall health of damaged nerves.

**Nutritional Interventions:** Proper nutrition is the cornerstone of any regenerative therapy. Vitamins, minerals, and supplements play a crucial role in repairing nerve damage, reducing inflammation, and restoring overall balance. Addressing deficiencies and supporting the body's natural healing processes is essential for lasting reversal.

Together, these therapies create a symphony of healing—a harmonious convergence of science, nature, and innovation. Their combined efforts amplify the body's capacity for regeneration, allowing for a comprehensive

approach that addresses the multifaceted nature of peripheral neuropathy.

As we traverse the landscape of regenerative therapies, we embark on a path that embraces the potential for true reversal. The chapters ahead will delve into the nuances of each therapy, revealing their mechanisms, applications, and the profound impact they can have on restoring nerve health. This is the journey toward healing from within, a journey that promises to lead us to the heart of peripheral neuropathy reversal.

# Chapter 7: Unveiling the Power of PEMF Therapy: A Beacon of Hope for Peripheral Neuropathy

In the realm of regenerative therapies, few stand as prominently as Pulsed Electromagnetic Field (PEMF) therapy—a beacon of hope that has captured the attention of both medical experts and individuals seeking healing from within. As we delve into the depths of this remarkable therapy, we uncover its potential to address the complications of diabetes and its broader applications for conditions commonly associated with peripheral neuropathy.

**A Dance of Energy: How PEMF Therapy Works**
Imagine the rhythm of life—a dance of energy that pulses through every cell of your body. PEMF therapy harnesses this dance by delivering electromagnetic pulses that resonate with the body's cells. These pulses mirror the natural frequencies of healthy cells, encouraging them to vibrate in harmony and restoring the balance that has been disrupted by neuropathy.

The effects of PEMF therapy are far-reaching and intricate, touching upon various aspects that contribute to peripheral neuropathy. Let's explore how this therapy can benefit not only the nerves themselves but also the underlying conditions that give rise to neuropathy.

**Addressing Complications of Diabetes: The Magic of PEMF Therapy**

One of the complications that often accompanies peripheral neuropathy is diabetes—a condition that casts its shadow over countless lives. Diabetes wreaks havoc on blood vessels, leading to reduced circulation, nerve damage, and slow wound healing. This intricate web of complications presents a formidable challenge for both patients and healthcare providers.

Enter PEMF therapy, a potential knight in shining armor. By enhancing circulation, PEMF therapy counters the microvascular damage caused by diabetes. Improved blood flow delivers much-needed oxygen and nutrients to nerve cells, offering a lifeline for their repair and regeneration. Moreover, the therapy's anti-inflammatory effects help mitigate the inflammation triggered by diabetes, contributing to overall nerve health.

**Expanding Horizons: PEMF Therapy for Common Peripheral Neuropathy Companions**

While diabetes is a frequent companion of peripheral neuropathy, it's not the sole contender. Conditions like autoimmune disorders, vitamin deficiencies, and infections can also intertwine with neuropathy's narrative.

Thankfully, the magic of PEMF therapy is not confined to a single chapter—it extends to address these companions as well.

For those grappling with autoimmune disorders, PEMF therapy's immune-modulating effects offer a glimmer of hope. By regulating the immune response, it may help temper the inflammation that can damage nerves.

Vitamin deficiencies, another frequent player in neuropathy's ensemble, can find solace in the realm of PEMF therapy. While it doesn't replace the essential vitamins, the therapy's ability to stimulate cellular function can enhance the utilization of available nutrients, promoting nerve health.

Even the specter of infections can be lessened by PEMF therapy's healing touch. Its anti-inflammatory properties contribute to immune system regulation, potentially aiding the body's efforts to combat infections and their impact on nerve function.

**The Symphony of Healing: Harnessing PEMF Therapy for Reversal**

PEMF therapy is not a panacea, nor does it claim to be. It's a tool—a profound tool that resonates with the body's innate capacity for healing. As we journey through the landscape of peripheral neuropathy reversal, let us not underestimate the transformative potential of PEMF therapy. It has the power to rekindle the dance of energy within, to restore the symphony of signals, and to guide us towards the realms of restoration and rejuvenation.

# Chapter 5: A Symphony of Benefits: Hako-Med's Impact on Nerve Health

Hako-Med Horizontal Therapy is an advanced modality that distinguishes itself by utilizing bio-electric frequencies. This unique approach optimizes the body's innate capacity to heal by synchronizing the electrical and chemical processes responsible for pain relief and nerve tissue recovery.

At its core, Hako-Med Horizontal Therapy harnesses bio-electric frequencies to stimulate specific physiological responses within the body. These responses include the release of natural enzymes and other tissue-building cells that play a pivotal role in the healing process. In doing so, Hako-Med Horizontal Therapy not only alleviates pain but also fosters the repair and regeneration of damaged nerve tissue.

By harmonizing the body's electrical and chemical healing responses with bio-electric frequencies, this therapy offers a safe and effective option for individuals seeking relief from neuropathic symptoms and a pathway towards improved nerve health.

Please note that Hako-Med Horizontal Therapy is administered by trained healthcare professionals who can tailor the treatment to the specific needs of each individual, ensuring optimal outcomes in the journey towards peripheral neuropathy rehabilitation.

# Chapter 6: The Nutritional Puzzle: Fueling the Journey to Peripheral Neuropathy Reversal

In the intricate tapestry of regenerative therapies, one thread stands out as indispensable—nutrition. Just as a symphony requires skilled musicians playing harmoniously, our bodies require a symphony of nutrients to function optimally. In this chapter, we delve into the role of nutrition, vitamins, and supplements in the quest to reverse peripheral neuropathy and restore the melody of well-being.

**The Building Blocks of Healing: Understanding Nutritional Support**

Imagine your body as a masterpiece in progress—a sculpture of intricate design, with each nutrient serving as a fundamental building block. These nutrients—vitamins, minerals, antioxidants—form the very foundation upon which health is built. When any of these elements are deficient, the masterpiece becomes vulnerable, and peripheral neuropathy is but one manifestation of this vulnerability.

**Vitamin Deficiencies in Diabetes: A Silent Culprit**

Vitamins play a pivotal role in nerve health, and their deficiencies often lurk in the shadows of conditions like diabetes. Individuals with diabetes are particularly

susceptible to certain vitamin deficiencies due to factors such as poor absorption and increased excretion. Vitamin B12, vitamin D, and antioxidants like alpha-lipoic acid are among the key players that can become compromised. Vitamin B12, in particular, is a crucial performer in the orchestra of nerve function. Its deficiency can lead to nerve damage, exacerbating the symptoms of peripheral neuropathy. Similarly, vitamin D, often referred to as the "sunshine vitamin," contributes to nerve health and immune function. Addressing these deficiencies becomes a critical step on the journey to reversing peripheral neuropathy.

**Antioxidants: The Guardians of Nerve Health**

The battle against peripheral neuropathy isn't just waged in the realms of vitamins and minerals—it's also fought on the frontlines of antioxidants. These molecular warriors safeguard our cells from oxidative stress—the imbalance between harmful free radicals and the body's ability to neutralize them. In conditions like diabetes, oxidative stress is heightened, posing a threat to nerve health.

Enter alpha-lipoic acid, a potent antioxidant that not only combats oxidative stress but also supports nerve function and regeneration. This antioxidant superhero holds the potential to mitigate nerve damage, addressing one of the key facets of peripheral neuropathy.

**The Art of Balance: Crafting a Nutritional Strategy**

In the pursuit of peripheral neuropathy reversal, nutritional support is not a one-size-fits-all approach. It's an art that requires personalized attention and a deep understanding of individual needs. The path forward involves identifying deficiencies through thorough assessment, tailoring a balanced diet rich in nerve-supportive nutrients, and strategically integrating supplements when necessary.

As we weave nutrition into the fabric of our regenerative journey, let us remember that the body is a masterpiece—one that thrives on a symphony of nutrients. By nourishing our bodies with the building blocks of health, we empower ourselves to reverse peripheral neuropathy, to rekindle the melody of well-being, and to embrace a future where healing reigns supreme.

# Chapter 7: Embracing the Synergy: Combining Therapies for Lasting Peripheral Neuropathy Reversal

As we stand at the crossroads of our journey to reverse peripheral neuropathy, a profound truth emerges: true healing often lies in the synergy of approaches. In this chapter, we explore the power of combining regenerative therapies—PEMF therapy, Hako-Med therapy, and nutrition—to create a symphony of healing that resonates with the very essence of our being.

**The Dance of Regenerative Therapies: A Harmonious Convergence**

Imagine a symphony where each instrument plays its unique melody, yet together, they form a harmonious composition that transcends the individual notes. Similarly, our regenerative therapies—PEMF therapy, Hako-Med therapy, and nutrition—compose a symphony of healing. Alone, they possess transformative potential; together, they create a force that is greater than the sum of its parts.

**PEMF Therapy:** Energizing the Landscape of Healing

PEMF therapy enters the stage with its electromagnetic pulses, resonating with the body's cells and igniting the spark of rejuvenation. It enhances circulation, stimulates cellular regeneration, and offers relief from pain and inflammation. As we've seen, it addresses the complications

of diabetes and extends its healing touch to conditions commonly associated with peripheral neuropathy.

**Hako-Med Horizontal Therapy: Elevating Healing with Bio-Electric Frequencies**

At its core, Hako-Med Horizontal Therapy harnesses bio-electric frequencies to stimulate specific physiological responses within the body. These responses include the release of natural enzymes and other tissue-building cells that play a pivotal role in the healing process. In doing so, Hako-Med Horizontal Therapy not only alleviates pain but also fosters the repair and regeneration of damaged nerve tissue.

By harmonizing the body's electrical and chemical healing responses with bio-electric frequencies, this therapy offers a safe and effective treatment option for individuals seeking relief from neuropathic symptoms and a pathway towards improved nerve health.

**Nutrition: The Nutrient-Rich Notes of Restoration**

Nutrition takes its place as the foundation of healing—a tapestry woven with vitamins, minerals, and antioxidants. It addresses deficiencies that can exacerbate peripheral neuropathy and offers the body the resources it needs to repair, regenerate, and thrive. Just as a symphony's beauty lies in its harmonious blend of notes, our bodies find harmony in the symphony of nutrients that nourish and restore.

**The Power of Synergy: A Holistic Approach to Healing**
When combined, these therapies create a comprehensive approach to peripheral neuropathy by addressing multiple aspects of the condition:
**Improved Circulation:** Both PEMF and Hako-Med therapies enhance blood flow, ensuring that nerve cells receive the oxygen and nutrients they require for repair and regeneration.
**Reduced Inflammation:** PEMF therapy, Hako-Med therapy, and proper nutrition all contribute to reducing inflammation, which can alleviate nerve damage and pain.
**Pain Management:** Both PEMF and Hako-Med therapies offer pain relief, allowing individuals to better cope with neuropathic pain.
**Nerve Repair and Regeneration:** PEMF therapy, in particular, is believed to stimulate cellular repair and regeneration, supporting the body's natural healing processes.
**Holistic Approach:** The combination of therapies emphasizes a holistic approach by addressing not only the symptoms but also the root causes and contributing factors of peripheral neuropathy.

It's important to note that individual responses to these therapies may vary, and results may take time to manifest. Therefore, a personalized treatment plan, along with consultation with healthcare professionals, is essential for optimal outcomes.

# Chapter 8: Success Stories and Testimonials

**Testimonials**
In this chapter, we bear witness to the real-life accounts of individuals whose lives have been touched by the power of regenerative therapy. Through their testimonials, we gain insight into the profound impact our program had in overcoming adversity and embracing a path to renewed vitality.

Testimonial 1: Michelle N.
"I came across an advertisement in the newspaper and decided to check it out. You see, I had been dealing with peripheral neuropathy in my hands and feet. Doctors had told me there was no real solution, so I was quite doubtful at first. However, during my initial trial session, something intriguing happened. I had the chance to chat with four other people who were also struggling with peripheral neuropathy. Surprisingly, each of them shared stories of seeing remarkable improvements. So, I thought, 'Why not give it a shot?'After completing 30 one-hour sessions, something truly amazing occurred. The pain and numbness that had plagued me for so long disappeared, and my balance improved significantly."

Testimonial 2: [Dan M.]
“When I went to see Dr. G., I was dealing with peripheral neuropathy in my hands and feet and had sciatica in my

right leg. My balance was so bad that I had to use a cane all the time just to keep from falling. The medications my doctor prescribed didn't really do much and caused too many side effects. Dr. G. recommended 30 one-hour sessions of PEMF and Hako-Med, and the pain went away, my balance greatly improved, and I am back playing golf again, which is amazing!."

Testimonial 3: [Martha G.]
"I came in with a 10 year history of back pain that was unresponsive to multiple therapies. I also had bursitis in my left hip that effected my sleep. I was very skeptical that this would help me but after half a dozen sessions I began to notice an improvement, and after 20 sessions my back pain and bursitis was gone!"

Testimonial 4: [Nancy P.]
"After the birth of my last child, over thirty years ago, I was unable to control my bladder. I panicked every time I coughed or sneezed. I was waking up 5 or 6 times every night to use the bathroom. After about 20 sessions of PEMF therapy I regained control of my bladder. I no longer panic when I feel a sneeze coming on. I'm sleeping through the night and my energy level is amazing!"

Testimonial 5: [Linda C.]
"I was skeptical coming in and probably wouldn't have returned had it not been for Dr. G.'s other patients bragging about their progress. I had trouble believing that sitting in a chair that tapped me on different areas of my body could

make my sciatic pain disappear, give me more energy, improve my sleep and even get rid of the floaters in my eyes. But all those things happened after 30 sessions of PEMF therapy. It's amazing. I am no longer a skeptic."

Testimonial 6: [Pamela F.]
" I got off to a rocky start. After my first two sessions I felt worse. But after that I began seeing improvement with my neck and shoulder pain. Before starting PEMF therapy I could barely move my right arm without severe pain. Now I am able to lift my hand above my head without pain and I've even started playing pickle ball again.

Testimonial 7: [John T.]
" I had a 15 year history of peripheral neuropathy, with pain and numbness in both feet, and swollen ankles. Despite that, Dr. G. didn't use the therapy over my feet or ankles for at least my first ten sessions. He would do some kind of funky test and tell me, "You don't need it over your feet yet." Ignoring my feet and ankles for 10-12 sessions greatly concerned me. But after 30 sessions the pain, numbness, and swelling were gone. I'm not sure how any of that stuff works but it does."

Testimonial 8 [Sherri M.]
"My surgeons had a serious chat with me, making it crystal clear that surgery wasn't even on the table. I experimented with all sorts of medications and injections, but honestly, they might as well have been placebos. When I walked into Dr. G.'s office, I was literally bent over like a question mark

from all that pain. But I kid you not, after just that initial session, I started noticing I could stand up straighter, and the pain had dialed down significantly. Fast forward a bit, I've gone through a total of 8 of those sessions, and I've got to say, my back's like a whole new ballgame. I'm even tackling things I've been pining for, if you can believe it. It's like a blessing, really."

Testimonial 8 [Matt H.]
"I work as a distributor for a popular home PEMF therapy device. My fascination with PEMF therapy led me to use it consistently for over two and a half years, and the results it brought to my overall health were truly remarkable. While the therapy greatly benefited many aspects of my well-being, I unfortunately found it ineffective in addressing my hand tremors. Despite diligently following the recommended instructions as a distributor, the tremors persisted. Driven by my commitment to finding a solution, I turned to Dr. G.'s hybrid device. His unique testing procedure unveiled a protocol different from what I had previously followed. Astonishingly, after just a single session with the hybrid device, my hand tremors disappeared entirely. Eager to ensure lasting relief, I continued to use the hybrid device for several weeks, determined to prevent any recurrence of the tremors. I even reserved one session as a precaution, but after an entire year without experiencing hand tremors, I finally utilized my last session during my final appointment. Though I'm uncertain whether it was Dr. G.'s testing method, the hybrid device itself, or a synergy of both that

put an end to my hand tremors, one thing is clear–it undeniably worked."

For more testimonials please visit our website at www.theladylakedoctor.com and watch our patient video testimonials.

# Chapter 9: Beyond the Horizon: Navigating Your Path to Peripheral Neuropathy Reversal

As we reach the final chapters of our journey to reverse peripheral neuropathy, a new dawn emerges—one that calls for reflection, empowerment, and a clear roadmap for the future. In this chapter, we'll explore the steps you can take to navigate your unique path toward healing, embracing the knowledge you've gained and forging ahead with renewed hope.

**The Power of Knowledge: Empowering Your Journey**

Knowledge is a torch that illuminates the path ahead. Armed with an understanding of what peripheral neuropathy is, its underlying causes, and the regenerative therapies available, you possess a formidable tool. Take the time to empower yourself with information—learn about your condition, engage with healthcare providers, and make informed decisions about your treatment plan.

**Personalized Approach: Your Healing Journey**

Each individual's journey to reversal is unique, much like a fingerprint. Your experience, medical history, and lifestyle factors all contribute to your path. Recognize that healing is not a linear process; it's a journey of peaks and valleys, triumphs and challenges. Embrace patience and perseverance, and trust in your body's ability to heal.

**Holistic Lifestyle: Nurturing Your Well-Being**

Peripheral neuropathy reversal is not confined to therapies and treatments—it encompasses the totality of your lifestyle. Embrace the principles of holistic well-being: nurture your body through balanced nutrition, engage in regular physical activity, manage stress through mindfulness and relaxation techniques, and prioritize quality sleep. These elements create a fertile ground for healing and restoration.

**Collaboration and Communication: Your Healthcare Team**

Your journey is not one you have to traverse alone. Forge a partnership with your healthcare providers, working together to create a comprehensive treatment plan that aligns with your goals. Share your concerns, ask questions, and stay engaged in your healing process. Collaboration and open communication will be your allies on this path.

**Embracing Optimism: Cultivating Hope**

As you embark on this journey, hold onto optimism like a guiding star. Hope is a beacon that lights up even the darkest of times. Celebrate small victories, acknowledge progress, and remain open to the possibilities that lie ahead. Trust in the process, and know that with dedication and perseverance, healing is within reach.

**A New Chapter: Your Future of Restoration**

As we close the chapters of this book, remember that this is not the end but a new beginning—a starting point for your journey to peripheral neuropathy reversal. Armed with

knowledge, empowered by regenerative therapies, and guided by your unique path, you are equipped to face the challenges and embrace the triumphs that lie ahead.
May your journey be one of restoration, rejuvenation, and renewal. May you find healing not just in the therapies you embrace but in the resilience of your spirit. With each step you take, you move closer to the restoration of your well-being–a future where peripheral neuropathy is no longer a barrier but a chapter in the story of your strength, determination, and ultimate healing.

**Recall Your Reasons for Choosing The Villages**
The Villages, located in the sunny state of Florida, has long been a favored destination for retirees seeking an invigorating and vibrant community. Let's revisit the primary motivations that have historically led people to make their homes in The Villages:

**An Active Lifestyle and Abundant Amenities:** The Villages is renowned for its wealth of recreational opportunities and amenities. Residents revel in the abundance of golf courses, swimming pools, pickleball courts, tennis courts, and various other fitness and leisure facilities. This community fervently promotes an active lifestyle, making it particularly appealing to retirees who wish to remain both physically and socially engaged.

**A Golfer's Paradise:** Golf enthusiasts find The Villages especially enticing due to its impressive array of golf courses. With impeccably maintained greens and fairways, it has earned a reputation as a golfer's paradise.

Here, residents have the privilege of enjoying their favorite pastime year-round.

**A Thriving Community and Robust Social Life:** The Villages has been meticulously crafted as a tightly-knit and vibrant community. Here, residents discover that forming meaningful connections and engaging in social activities is effortless. The community is teeming with diverse clubs, hobby groups, and social events, creating ample opportunities for residents to forge connections with like-minded individuals who share their passions.

As you embrace life in The Villages, remember that peripheral neuropathy need not stand in the way of your pursuit of a fulfilling and active lifestyle. Reach out to our office today, schedule an appointment, and let us help you continue living your best life.

REGENERATIVE THERAPY OF LADY LAKE
510 Country Road 466
Lady Lake, FL 32159
352-268-0199

## FREQUENTLY ASKED QUESTIONS

### What Is PEMF Therapy?

PEMF therapy stands for "Pulsed Electromagnetic Field" therapy. It's a non-invasive approach that involves using electromagnetic fields to stimulate the body's cells, promoting various physiological responses. This therapy aims to improve overall wellness, address pain, and aid in the recovery process for various health conditions. It's thought that these electromagnetic fields can influence cellular functions, such as enhancing circulation, reducing inflammation, and supporting the body's natural healing processes.

### How Does PEMF Work?

PEMF therapy, or Pulsed Electromagnetic Field therapy, operates on the principle of electromagnetic fields to interact with the body's cells and tissues. It involves the use of electromagnetic pulses at specific frequencies to generate pulsating magnetic fields. When these magnetic fields pass through the body, they induce small electrical currents within the cells. These currents can stimulate cellular activities and biochemical processes, which in turn can have various effects on the body.

PEMF therapy is thought to influence cell behavior in several ways:

**Cellular Resonance:** Each cell has its own natural frequency. PEMF devices can be tuned to emit frequencies that match these

natural frequencies, leading to resonance. This resonance can promote optimal cell function and communication.

**Improved Blood Flow:** PEMF therapy has been shown to enhance blood flow by causing blood vessels to expand and contract rhythmically. This can lead to improved oxygen and nutrient delivery to cells and removal of waste products.

**Enhanced Cellular Energy:** PEMF therapy may boost the production of adenosine triphosphate (ATP), which is the primary energy molecule in cells. Increased ATP can support cellular repair and overall energy levels.

**Reduction of Inflammation:** Some studies suggest that PEMF therapy can help reduce inflammation by modulating inflammatory responses at the cellular level. This can be particularly beneficial for conditions like neuropathy where inflammation plays a role.

**Stimulation of Healing Processes:** The gentle electrical currents induced by PEMF therapy can encourage the healing of tissues, including nerves. This may promote the regeneration of damaged nerves and tissues.

**Normalization of Cellular Activity:** PEMF therapy can help regulate abnormal cellular processes by influencing ion flow across cell membranes. This can restore normal cellular activities and support overall health.

It's important to note that the exact mechanisms of how PEMF therapy works are still being researched and understood. The effects of PEMF therapy can vary depending on the specific parameters used, including frequency, intensity, and duration of

the sessions. While PEMF therapy has shown promise in various health conditions, including peripheral neuropathy, it's recommended to consult with a healthcare professional before starting any new treatment approach.

## What Are Some Of The Benefits Associated With PEMF Therapy?

Pain relief
Improved circulation
Reduced inflammation
Enhanced tissue healing
Accelerated recovery from injuries
Increased cellular oxygenation
Relaxation and stress reduction
Better sleep quality
Enhanced muscle function
Improved range of motion
Reduction in muscle stiffness
Enhanced immune system function
Balancing of neurotransmitters
Improved mood and mental clarity
Increased energy levels
Reduction in swelling
Enhanced wound healing
Promotion of bone healing
Regulation of blood pressure
Support for nerve regeneration
Relief from chronic pain conditions
Reduction in muscle tension
Management of arthritis symptoms
Support for neurological disorders

Enhanced detoxification
Boosted cellular metabolism
Improvement in skin health
Alleviation of migraines and headaches
Support for digestive issues
Enhancement of overall well-being

**How does PEMF therapy influence our cells?**
Pulsed electromagnetic field (PEMF) therapy has been studied for its effects on human cells, and it is believed to have several potential impacts at the cellular level. Here are some of the effects that PEMF therapy may have on human cells:

**Cellular metabolism:** PEMF therapy has been suggested to enhance cellular metabolism, which refers to the biochemical processes occurring within cells to generate energy and maintain cellular function. By promoting cellular metabolism, PEMF therapy may potentially support optimal cellular activity and overall cellular health.

**Calcium ion influx:** PEMF therapy has been shown to influence calcium ion influx in cells. Calcium ions play a crucial role in various cellular processes, including signaling, muscle contraction, and gene expression. Modulating calcium ion levels can impact cellular function and may contribute to the effects of PEMF therapy.

**Electromagnetic resonance**: PEMF therapy involves the application of electromagnetic fields to the body, and these fields can interact with the charged particles within cells. This interaction can lead to

electromagnetic resonance, where the electromagnetic fields induce vibrations and oscillations within the cells, potentially influencing cellular behavior and signaling pathways.

**Gene expression:** Studies have suggested that PEMF therapy may modulate gene expression, influencing the activation or suppression of specific genes within cells. This modulation of gene expression can impact various cellular processes and may contribute to the therapeutic effects of PEMF therapy.

**Cellular communication and signaling:** PEMF therapy has been proposed to influence cellular communication and signaling pathways. It may affect the release and response to various signaling molecules, such as cytokines and growth factors, which play critical roles in cell-to-cell communication and the regulation of cellular processes.

**Anti-inflammatory effects:** PEMF therapy has been associated with anti-inflammatory effects in some studies. It may help reduce the production of pro-inflammatory molecules and promote a more balanced inflammatory response within cells, potentially contributing to the alleviation of inflammation-related conditions.

**Cellular proliferation and differentiation:** PEMF therapy has been studied for its potential effects on cellular proliferation (cell division and reproduction) and differentiation (cell specialization). It may influence the growth and differentiation of certain cell types, which can be relevant for tissue repair and regeneration processes.

**Oxidative stress and antioxidant activity:** PEMF therapy has been suggested to modulate oxidative stress and antioxidant activity within cells. Oxidative stress occurs when there is an imbalance between the production of reactive oxygen species (ROS) and the body's antioxidant defense mechanisms. PEMF therapy may help restore the balance by promoting antioxidant activity and reducing oxidative stress levels within cells.

It's important to note that the exact mechanisms by which PEMF therapy affects human cells are still being investigated, and the specific effects can vary depending on the parameters of the therapy, the type of cells studied, and other factors. Further research is needed to fully understand the cellular responses to PEMF therapy and its clinical implications.

**Can Everyone Use PEMF Therapy?**

No. While Pulsed Electromagnetic Field (PEMF) therapy is generally considered safe and well-tolerated by most individuals, there are certain groups of people who should exercise caution or avoid using PEMF therapy. It's important to consult with a healthcare professional before starting any new therapy, including PEMF, especially if you fall into any of the following categories:

**Pregnant Women:** Pregnant women should avoid using PEMF therapy, particularly during the first trimester, as the effects on the developing fetus are not fully understood.

**Individuals with Implantable Devices:** People with implantable electronic devices such as pacemakers, defibrillators, or cochlear implants should avoid PEMF therapy. The electromagnetic fields could potentially interfere with the functioning of these devices.

**Epilepsy and Seizure Disorders:** People with a history of epilepsy or seizure disorders should use PEMF therapy cautiously, as the electromagnetic fields could potentially trigger seizures in some individuals.

**Organ Transplants:** Individuals who have undergone organ transplantation might need to avoid PEMF therapy, as it could potentially affect the transplanted organ or the immune system.

**Active Bleeding or Hemorrhage:** People with active bleeding, or hemorrhagic conditions should avoid PEMF therapy, as it might interfere with blood clotting mechanisms.

**Cancer and Tumor Growth:** While some studies suggest potential benefits of PEMF therapy for cancer treatment, individuals with cancer or tumor growth should consult their oncologist before using PEMF therapy, as it might interact with certain treatments.

It's important to note that the safety and effectiveness of PEMF therapy can vary based on factors such as the device's design, frequency, intensity, and duration of use. Before starting PEMF therapy, it's advisable to consult with a qualified healthcare professional who can assess your individual health status and provide guidance on whether PEMF therapy is appropriate for your specific situation.

## How Might PEMF Therapy Benefit Someone with Pain?

PEMF therapy can offer several potential benefits to individuals experiencing pain:

**Pain Reduction:** PEMF therapy is often used to help manage various types of pain, including chronic pain, acute pain, and musculoskeletal discomfort.

**Inflammation Reduction:** It may help to reduce inflammation in the body, which is a common cause of pain. By reducing inflammation, PEMF therapy can contribute to pain relief.

**Enhanced Circulation:** Improved blood flow and circulation can promote healing and provide nutrients to the affected area, aiding in pain reduction.

**Stimulated Tissue Healing:** PEMF therapy can stimulate cells to regenerate and repair, potentially speeding up the healing process and reducing pain associated with injuries.

**Muscle Relaxation:** It can help relax tense muscles and reduce muscle spasms, leading to pain relief in conditions like muscle strains or tension headaches.

**Nerve Pain Relief:** PEMF therapy may help alleviate neuropathic pain by promoting nerve cell regeneration and reducing nerve irritation.

**Release of Endorphins:** It could stimulate the release of endorphins, the body's natural painkillers, providing a sense of relief and well-being.

**Reduced Stiffness:** For conditions like arthritis or joint pain, PEMF therapy might help reduce stiffness and improve joint mobility, leading to pain relief.

**Enhanced Range of Motion:** By promoting tissue healing and reducing inflammation, PEMF therapy may lead to an increased range of motion and less pain during movement.

**Drug-Free Pain Management:** Many individuals seek alternatives to pain medications, and PEMF therapy offers a drug-free approach to pain relief.

## Why Do Some People Feel Worse After Their First One Or Two Sessions?

The experience of feeling worse after the first couple of sessions of PEMF (Pulsed Electromagnetic Field) therapy, could be attributed to a phenomenon known as the "healing crisis" or "detoxification reaction." Here's a possible explanation:

**Detoxification Process:** PEMF therapy is believed to stimulate various processes within the body, including increased circulation and cellular activity. These processes can lead to the release of toxins that were stored in the body's tissues. As the body begins to eliminate these toxins, individuals may experience temporary symptoms such as fatigue, headache, muscle aches, and even a worsening of their existing symptoms. This initial period is often referred to as a detoxification or healing crisis.

**Cellular Activation:** PEMF therapy works at the cellular level to promote healing and balance. It's possible that as cells become

more active and efficient due to the therapy, they begin to process waste products and toxins more effectively. This sudden increase in cellular activity can lead to the release of accumulated toxins into the bloodstream.

**Individual Variability:** People's bodies respond differently to therapies, and their individual health conditions, toxin levels, and overall wellness play a role. Some individuals may have a higher toxin load or greater cellular dysfunction, leading to a more pronounced initial reaction.

**Adjustment Period:** As the body adapts to the changes brought about by PEMF therapy, the initial negative reactions tend to subside over time. With repeated sessions, the body's detoxification pathways become more efficient, and the healing crisis symptoms typically subsides.

**Activation of Self-Healing:** Over time, PEMF therapy can activate the body's self-healing mechanisms. As these mechanisms become more engaged, the body's natural ability to heal and recover improves, leading to an overall improvement in symptoms.

It's important to note that while some people may experience a temporary worsening of symptoms initially, this is not the case for everyone. Many individuals may notice immediate improvements or gradual relief from their symptoms after starting PEMF therapy. If you're considering PEMF therapy and experience a temporary worsening of symptoms, it's advisable to consult with a healthcare professional who is knowledgeable about PEMF therapy to ensure that the reactions are managed appropriately.

## How Many Sessions Will I Need?

Everyone wants to know how many sessions they will need  but that can vary widely based on several factors:

**Condition Severity:** The severity of the condition you're seeking treatment for can influence the number of sessions needed. Chronic and more severe conditions may require more sessions for noticeable improvement.

**Individual Response:** Each individual's body responds differently to therapies. Some people may experience significant relief after just a few sessions, while others might need more to notice a difference.

**Treatment Goals:** Your treatment goals also play a role. Are you seeking relief from acute pain, managing a chronic condition, or aiming to improve overall wellness? The intensity and frequency of sessions can be adjusted based on your goals.

**Consistency:** Consistency matters with PEMF therapy. Regular sessions spaced out over a certain period tend to yield better results compared to sporadic sessions.

**Device and Intensity:** The type of PEMF device used, its intensity, frequency range, and other parameters can affect the outcome. High-intensity devices might require fewer sessions than low-intensity ones.

**Duration of Condition:** The longer you've had a condition, the more sessions you might need. Chronic conditions that have been present for a while might take longer to respond.

**Overall Health:** Your general health, including factors like nutrition, sleep, exercise, and stress management, can impact how your body responds to PEMF therapy.

**Combination Therapies:** In some cases, PEMF therapy might be used alongside other treatments for enhanced benefits. The combination of therapies can influence the number of sessions needed.

*We recommend thirty one-hour therapy sessions at two session per week for 15 weeks, or three sessions per week for 10 weeks.

**How Often Do I Need To Come In For Therapy?**
At least twice a week until your issue is resolved. Why? Because consistency is important for the effectiveness of PEMF (Pulsed Electromagnetic Field) therapy. It helps ensure that the therapeutic benefits of the treatment can be maximized and sustained over time. Here's why consistency matters:

**Cellular Response:** PEMF therapy works by delivering electromagnetic pulses to cells in the body. These pulses influence cellular activity, including the exchange of ions and nutrients. Consistently applying PEMF therapy allows for a cumulative effect on cells, promoting healing, regeneration, and overall wellness.

**Biological Rhythms:** Many biological processes in the body follow rhythmic patterns. Consistent application of PEMF therapy can help synchronize these rhythms,

contributing to optimal physiological functioning. Regular sessions can support the body's natural rhythms and enhance its ability to respond to therapy.

**Tissue Remodeling:** PEMF therapy can facilitate tissue remodeling and repair. Consistent exposure to electromagnetic pulses encourages cells to engage in repair processes and remodel damaged tissues. Regular treatments are more likely to support ongoing healing.

**Condition Management:** For individuals using PEMF therapy to manage chronic conditions or symptoms, consistency is crucial. Many conditions require ongoing management, and consistent therapy can help maintain the improvements achieved over time.

**Cumulative Effect:** The effects of PEMF therapy are often cumulative. Regular sessions build on each other, creating a gradual improvement in cellular function, circulation, and overall health. Skipping sessions can disrupt this cumulative effect.

**Preventing Regression:** If therapy is stopped abruptly, there is a possibility that the improvements achieved could regress over time. Consistent therapy helps prevent regression and maintains the progress made.

**Adaptation of Cells**: Over time, cells can adapt to the stimulus provided by PEMF therapy. Consistent therapy

helps maintain the cells' responsiveness to the treatment and prevents a decrease in effectiveness.

**Optimal Response:** To achieve the optimal therapeutic response, PEMF therapy should be applied according to the recommended frequency and duration. Consistency in following the recommended treatment plan is essential for achieving the desired outcomes.

**Individual Variation:** Responses to PEMF therapy can vary from person to person. Some individuals might experience noticeable benefits sooner, while others might require more time. Consistent therapy increases the chances of achieving positive outcomes regardless of individual variation.

In summary, consistent application of PEMF therapy is important because it allows for a sustained and cumulative impact on cells and tissues. Whether used for general wellness or for managing specific conditions, adhering to a consistent treatment regimen can enhance the overall effectiveness of PEMF therapy and contribute to better health outcomes.

**How Long Will The Results Last?**
The duration of the results obtained from PEMF (Pulsed Electromagnetic Field) therapy can vary based on several factors, including the individual's health condition, the frequency and duration of the therapy sessions, the underlying causes of the condition being treated, and the

maintenance of a healthy lifestyle. Here are some factors to consider when evaluating how long the results of PEMF therapy might last:

**1. Health Condition:** The nature of the health condition being treated plays a significant role in determining the longevity of the results. Some acute conditions might respond quickly to PEMF therapy, while chronic conditions may require ongoing or periodic sessions to maintain the benefits.

**2. Frequency of Treatment:** Consistent and regular PEMF therapy sessions are more likely to yield longer-lasting results. Skipping sessions or not following the recommended treatment plan might reduce the sustainability of the effects.

**3. Underlying Causes:** Addressing the underlying causes of a condition is essential for sustained results. PEMF therapy can provide relief and support, but if the root causes are not managed, the benefits might diminish over time.

**4. Maintenance of Lifestyle:** A healthy lifestyle that includes proper nutrition, exercise, stress management, and adequate sleep can contribute to the longevity of the results obtained from PEMF therapy. Lifestyle factors can either enhance or detract from the effects of therapy.

**5. Chronic Conditions:** For chronic conditions, maintenance sessions might be necessary to manage symptoms and maintain the improvements achieved. Some individuals may choose to integrate PEMF therapy as part of their long-term wellness routine.

**6. Individual Variation:** Responses to PEMF therapy can vary among individuals. Some people might experience long-lasting results, while others might need additional 'maintenance' sessions.
**7. Environmental Factors:** Environmental factors, such as exposure to toxins or stressors, can influence the sustainability of the results. Minimizing exposure to harmful substances can support the effectiveness of therapy.
**8. Combination Therapies**: In some cases, combining PEMF therapy with other treatments, such as physical therapy, chiropractic care, or medication, might lead to more durable results.
**9. Personal Goals:** Personal goals for therapy can impact the duration of results. Some individuals might seek short-term relief, while others aim for long-term management and wellness.
It's important to note that while PEMF therapy may provide benefits, it might not offer permanent solutions for all health conditions. Consultation with a qualified healthcare professional How To Reverse Peripheral Neuropathy provide insights into the expected duration of results based on your specific condition, treatment plan, and health goals. Maintaining open communication with your healthcare provider and following their recommendations may contribute to achieving the best possible outcomes from PEMF therapy.

**How Might PEMF Therapy Lessen The Symptoms Of Peripheral Neuropathy?**

PEMF therapy may alleviate symptoms of peripheral neuropathy through various mechanisms:

**Improved Blood Flow:** PEMF therapy can enhance blood circulation, delivering more oxygen and nutrients to nerve cells in the affected area. This improved circulation can help repair damaged nerves and reduce symptoms.

**Nerve Regeneration:** PEMF therapy may stimulate nerve cell regeneration and growth, helping to repair damaged nerve fibers and improve nerve function.

**Pain Reduction:** By promoting the release of endorphins and reducing inflammation, PEMF therapy can help alleviate the pain associated with peripheral neuropathy.

**Reduced Nerve Irritation:** PEMF therapy might help reduce nerve irritation and inflammation, leading to a decrease in the tingling, burning, and numbness often experienced in peripheral neuropathy.

**Enhanced Cellular Communication:** PEMF therapy's electromagnetic fields may facilitate better communication between nerve cells, promoting healthier nerve signaling and reducing symptoms.

**Muscle Relaxation:** For cases where peripheral neuropathy leads to muscle stiffness or cramps, PEMF therapy's muscle-relaxing effects could provide relief.

**Better Sleep:** Improved pain management through PEMF therapy can lead to better sleep quality, which is essential for overall well-being and nerve healing.

**Stress Reduction:** Stress can exacerbate peripheral neuropathy symptoms. PEMF therapy's ability to induce relaxation and reduce stress can indirectly alleviate symptoms.

**Neurotransmitter Balance:** PEMF therapy may help regulate neurotransmitter levels, contributing to more stable nerve function and symptom reduction.

## How Might PEMF Therapy Benefit Someone With Arthritis In Their Knees?

PEMF therapy has the potential to alleviate symptoms of peripheral neuropathy through various mechanisms:

**Improved Blood Flow:** PEMF therapy can enhance blood circulation, delivering more oxygen and nutrients to nerve cells in the affected area. This improved circulation can help repair damaged nerves and reduce symptoms.

**Nerve Regeneration:** PEMF therapy may stimulate nerve cell regeneration and growth, helping to repair damaged nerve fibers and improve nerve function.

**Pain Reduction:** By promoting the release of endorphins and reducing inflammation, PEMF therapy can help alleviate the pain associated with peripheral neuropathy.

**Reduced Nerve Irritation:** PEMF therapy might help reduce nerve irritation and inflammation, leading to a decrease in the tingling, burning, and numbness often experienced in peripheral neuropathy.

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**Stress Reduction:** Stress can exacerbate peripheral neuropathy symptoms. PEMF therapy's ability to induce relaxation and reduce stress can indirectly alleviate symptoms.

**Neurotransmitter Balance:** PEMF therapy may help regulate neurotransmitter levels, contributing to more stable nerve function and symptom reduction.

## How Might PEMF Therapy Benefit Someone With Urinary Incontinence?

PEMF therapy may offer several potential benefits for individuals dealing with urinary incontinence:

**Muscle Stimulation:** PEMF therapy's ability to stimulate muscles could be beneficial for strengthening pelvic floor muscles, which play a crucial role in maintaining urinary continence.

**Improved Nerve Function:** By potentially enhancing nerve cell communication and function, PEMF therapy might contribute to better control over the bladder muscles and reduce involuntary contractions.

**Enhanced Blood Circulation:** PEMF therapy's effects on blood circulation could help improve the health of tissues and muscles in the pelvic region, aiding in bladder control.

**Relaxation of Pelvic Muscles:** Tense pelvic muscles can contribute to urinary incontinence. PEMF therapy's muscle-relaxing effects could alleviate tension and improve muscle coordination.

**Inflammation Reduction:** Inflammation of the bladder or surrounding tissues can worsen urinary incontinence. PEMF therapy's potential to reduce inflammation might help alleviate related symptoms.

**Support for Nerve Regeneration:** Some studies suggest that PEMF therapy could support nerve regeneration, which might aid in improving bladder control.

**Non-Invasive Option:** PEMF therapy offers a non-invasive approach to addressing urinary incontinence, potentially reducing the need for more invasive treatments.

**Complementary Treatment:** When used alongside other therapies such as pelvic floor exercises, dietary changes, and lifestyle modifications, PEMF therapy could provide an additional layer of support for managing urinary incontinence.

**Improved Quality of Life:** By addressing the underlying factors contributing to urinary incontinence, PEMF therapy might improve an individual's overall quality of life by reducing the impact of this condition on daily activities and self-esteem.

**Potential for Reduced Medication Dependence:** If PEMF therapy helps improve urinary control, individuals may rely less on medications or other interventions to manage their symptoms.

**Explain The Differences Between Harmful and Beneficial EMFs?**

Electromagnetic fields (EMFs) are generated by the movement of electrically charged particles. They are present in both natural and man-made environments. EMFs are often categorized into two main types: harmful EMFs and beneficial EMFs.

**Harmful EMFs:**

Harmful EMFs, also known as non-ionizing radiation, are associated with potential negative health effects when exposure levels are high or prolonged. These types of EMFs are primarily generated by sources such as power lines, electrical appliances, cell phones, Wi-Fi networks, and microwave ovens. Here are some characteristics of harmful EMFs:

**Frequency and Intensity:** Harmful EMFs are often generated at frequencies that are commonly encountered in daily life, such as radio frequencies and microwaves. Their intensity can vary depending on the source and proximity.

**Potential Health Concerns:** There is ongoing debate and research regarding the potential health effects of prolonged exposure to harmful EMFs. Some studies suggest a possible link between high exposure to certain types of EMFs and increased risk of cancer, neurological disorders, and other health issues.

**Regulation:** Many countries have established safety guidelines and exposure limits for harmful EMFs to protect the public from potential health risks. These limits are designed to minimize potential harm.

**Beneficial EMFs (PEMF Therapy):**
Beneficial EMFs, also known as pulsed electromagnetic fields (PEMFs), are specifically designed to have positive effects on biological systems. PEMF therapy involves applying electromagnetic pulses to the body to promote various health benefits. Unlike harmful EMFs, PEMF therapy is used in controlled settings and has been studied for its potential healing effects. Here are some characteristics of beneficial EMFs, as seen in PEMF therapy:

**Specific Frequencies and Intensity:** PEMF therapy uses specific frequencies and intensity levels that are thought to interact positively with cells and tissues. These frequencies are carefully chosen based on research and clinical studies.

**Biological Response:** Beneficial EMFs, when applied correctly, can stimulate cellular activities, enhance circulation, support tissue repair, reduce inflammation, and promote overall wellness.

**Controlled Application:** PEMF therapy is administered under controlled conditions by trained professionals. The devices used for therapy are designed to provide specific therapeutic benefits without causing harm.

**Research and Clinical Studies:** Over the years, there has been research into the potential therapeutic effects of PEMF therapy for various conditions, including pain management, wound healing, bone health, and more.

**Individualization:** The frequencies and parameters used in PEMF therapy can be tailored to the individual's needs, ensuring a personalized approach to treatment.

It's important to note that while there is ongoing research and interest in the potential benefits of PEMF therapy, it's advisable to consult with a healthcare professional before starting any new treatment. Beneficial EMFs used in PEMF therapy should not be confused with the harmful EMFs associated with some common electronic devices.

**What Are The Differences Between A Magnet and PEMF Therapy?**

Static magnets and Pulsed Electromagnetic Field (PEMF) therapy are both forms of magnetic therapy, but they differ in terms of their mechanisms, applications, and potential health benefits.

Here are the key differences between using a static magnet and PEMF therapy for health benefits:

**1. Mechanism of Action:**

Static Magnets: Static magnets work by creating a constant magnetic field. The idea is that the magnetic field interacts with the body's own magnetic fields and energy pathways to potentially promote healing and alleviate discomfort.

PEMF Therapy: PEMF therapy involves the use of pulsating electromagnetic fields that change in intensity and direction over time. These pulsed fields are believed to penetrate deeper into tissues and cells, affecting cellular activities and promoting various physiological responses.

**2. Strength of Magnetic Field:**

Static Magnets: The strength of the magnetic field in static magnets is relatively weaker compared to the intense and dynamic electromagnetic pulses used in PEMF therapy.

PEMF Therapy: PEMF devices are capable of producing stronger magnetic fields that can penetrate tissues more effectively, potentially influencing cellular activities.

**3. Applications:**
Static Magnets: Static magnets are commonly used for localized applications, such as attaching them to specific body parts. They are often used for managing pain and discomfort.
PEMF Therapy: PEMF therapy can be used for both localized and whole-body applications. It's applied through devices that emit pulsed electromagnetic fields, making it suitable for addressing a wider range of health concerns, including pain, inflammation, bone health, wound healing, and more.
**4. Dynamic vs. Static Fields:**
Static Magnets: The magnetic field generated by static magnets remains constant and doesn't change over time.
PEMF Therapy: PEMF therapy involves the use of dynamic and pulsating electromagnetic fields that change in intensity and direction, mimicking the body's natural electromagnetic rhythms.
**5. Depth of Penetration:**
Static Magnets: The magnetic field of static magnets has limited penetration and might primarily affect the skin and superficial tissues.
PEMF Therapy: PEMF therapy's dynamic fields can penetrate deeper into tissues and cells, potentially influencing cellular activities and processes.
**6. Research and Clinical Studies:**
Static Magnets: While static magnet therapy has been explored, the evidence supporting its effectiveness is relatively limited and controversial.

PEMF Therapy: PEMF therapy has been the subject of more extensive research, with studies investigating its potential benefits for various conditions such as pain management, wound healing, osteoarthritis, and more.

In summary, static magnets and PEMF therapy both involve the application of magnetic fields for potential health benefits. However, PEMF therapy offers a more dynamic and targeted approach with stronger and pulsating electromagnetic fields that can potentially penetrate deeper into tissues and cells. While research is ongoing for both approaches, PEMF therapy has gained more attention in the medical and scientific community due to its versatility and potential for a broader range of health applications. Always consult with a healthcare professional before using any form of magnetic therapy for health benefits.

# PEMF MEDICAL STUDIES

**ALZHEIMER'S DISEASE**

Impairments in visual memory and visuoconstructive functions commonly occur in patients with Alzheimer's disease (AD). Recently, I reported that external application of electromagnetic fields (EMF) of extremely low intensity (in the picotesla range) and of low frequency (in the range of 5Hz-8Hz) improved visual memory and visuoperceptive functions in patients with Parkinson's disease. The report demonstrates, for the first time, that specific cognitive symptoms of AD are improved by treatment with EMF of a specific intensity and frequency. The rapid improvement in cognitive functions in response to EMF suggests that some of the mental deficits of AD are reversible being caused by a functional (i.e., synaptic transmission) rather than a structural (i.e., neuritic plaques) disruption of neuronal communication in the central nervous system. - International Journal of Neuroscience PMID: 7960477

Repetitive transcranial magnetic stimulation applied to the dlPFC improves naming performance also in the advanced stages of AD. Moreover, in the severe group the effect is not specific for action naming, as in the case of the mild AD group. These findings suggest that rTMS can affect the intrinsic ability of the brain to restore or compensate for damaged function and may represent an useful new tool for cognitive rehabilitation. - European Journal of Neurology PMID: 19049544

**AMYOTROPHIC LATERAL SCLEROSIS (LOU GEHRIG'S DISEASE)**

A study of three patients with Amyotrophic Lateral Sclerosis were treated with a pulsed magnetic field administered by a Magnobiopulse apparatus. Given three times a week for approximately 75 sessions to achieve maximum benefits, all three experienced beneficial effects.
A. Bellosi & R. Berget, "Pulsed Magnetic Fields: A Glimmer of Hope for Patients Suffering from Amyotrophic Lateral Sclerosis," Second World Congress for Electricity and Magnetism in Biology and Medicine, 8-13 June 1997, Bologna, Italy.

**ANKLE SPRAIN**

Acutely sprained ankles represent a frequent and common injury among active duty troops in training, and are a significant source of morbidity with respect to days lost to training. In a randomized, prospective, double blind study of 50 grade I and II (no gross instability) sprained ankles, a statistically significant decrease in edema was noted following one treatment with pulsed electro magnetic field (PEMF) therapy. The application of this modality in acutely sprained ankles could result in significant decreases in time lost to military training. - Military Medicine PMID: 8441490

**ARTHRITIS**

A total of 33 patients were screened, and 28 patients, aged between 60 and 83 and affected by bilateral knee osteoarthritis, were enrolled in this study. They received PEMF therapy on the right leg for a total of three 30-minute sessions per week for a period of 6 weeks, while the left leg did not receive any treatment and served as control. An intravenous drip containing ketoprofen, sodium clodronate, glucosamine sulfate, calcitonin, and ascorbic acid, for a total volume of 500 mL, was administered during PEMF therapy. At baseline and 3 months post-PEMF therapy, Visual Analog Scale (VAS) was used to assess

knee pain and Western Ontario McMaster Universities Osteoarthritis Index (WOMAC) was used to measure knee pain, stiffness and physical function.
RESULTS:
Changes in VAS and WOMAC scores were calculated for both knees as baseline minus post-treatment. A two sample Student's t-test, comparing change in knee-related VAS pain for PEMF-treated leg (49.8 ± 2.03) vs control leg (11 ± 1.1), showed a significant difference in favor of PEMF therapy ($P < 0.001$). A two sample Student's t-test comparing change in knee-related WOMAC pain, stiffness, and physical function for PEMF-treated leg (8.5 ± 0.4, 3.5 ± 0.2, 38.5 ± 2.08, respectively) vs control leg (2.6 ± 0.2; 1.6 ± 0.1; 4.5 ± 0.5 respectively), also showed a significant difference in favor of PEMF therapy ($P < 0.001$). No adverse reactions to therapy were observed.
CONCLUSION:
The present study shows that PEMF therapy improves pain, stiffness and physical function in elderly patients affected by knee osteoarthritis. PMID: 24106421

Low frequency pulsed electromagnetic field (PEMF) can provide noninvasive, safe and easy to apply method to treat pain, inflammation and dysfunctions associated with rheumatoid arthritis (RA) and osteoarthritis (OA) and PEMF has a long term record of safety. This review focusses on the therapeutic application of PEMF in the treatment of these forms of arthritis. The analysis of various studies (animal models of arthritis, cell culture systems and clinical trials) reporting the use of PEMF for arthritis cure has conclusively shown that PEMF not only alleviates the pain in the arthritis condition but it also affords chondroprotection, exerts antiinflammatory action and helps in bone remodeling and this could be developed as a viable alternative for arthritis therapy. PMID: 20329696

**BACK PAIN**

Back pain and the whiplash syndrome are very common conditions involving tremendous costs and extensive medical effort. A quick and effective reduction of symptoms, especially pain, is required. Magnetic fields appear to have a considerable and statistically significant potential for reducing pain in cases of lumbar radiculopathy and the
whiplash syndrome. - Neuro Rehabilitation PMID: 12016348

**BACK PAIN - LOW BACK**

This randomized, double-blind, placebo-controlled clinical trial studied the effectiveness of pulsed electromagnetic therapy (PEMT) in patients with chronic lower back pain. PEMT produced significant pain reduction throughout the observation period compared with baseline values. The percentage change in the NRS score from baseline was significantly greater in the PEMT group than the placebo group at all three time-points measured. The mean revised Oswestry disability percentage after 4 weeks was significantly improved from the baseline value in the PEMT group, whereas there were no significant differences in the placebo group. In conclusion, PEMT reduced pain and disability and appears to be a potentially useful therapeutic tool for the conservative management of chronic lower back pain. -
Journal of International Research PMID: 16749411

We evaluate the efficacy and safety of therapeutic electromagnetic fields (TEMF) on chronic low back pain. Secondary objectives included the investigation of the effects of TEMF on psychometric measures. Both groups improved over time. Although groups were similar during the treatment period, treated subjects (TEMF of 15 mT) improved significantly over

sham treatment during the 2-week follow- up period (20.5% reduction in pain); There were no reported serious adverse events. This study demonstrates that TEMF may be an effective and safe modality for the treatment of chronic low back pain disorders. - Pain Practice PMID: 17714104

**BONE DENSITY**

To determine the effect of a 72 Hz pulsating electromagnetic field (PEMF) on bone density of the radii of osteoporosis-prone women, the nondominant forearms of 20 subjects were exposed to PEMF 10 h daily for a period of 12 weeks. The data suggest that properly applied PEMFs, if scaled for whole-body use, may have clinical application in the prevention and treatment of osteoporosis. - The Journal of Bone and Mineral Research PMID: 2195843

**BONE FRACTURES**

A group of 83 adults with ununited fractures were examined for the effects of bone grafting and pulsed electromagnetic fields for this study. Results showed a successful healing rate of 87 percent in the original 38 patients treated with bone grafts and PEMF for ununited fractures with wide gaps, malalignment, and synovial pseudarthrosis. Of the 45 patients that were not successfully treated with PEMF and had bone grafting, when re-treated with pulsing electromagnetic fields, achieved a 93 percent success rate. ( I hope you can comprehend this - there was no union, meaning the bone did not heal until they used pulsed magnetic field therapy) PMID: 6752151

**BPH (ENLARGED PROSTATE)**

Ten patients with BPH, aging 68-78 years old (y.o), were treated for 2 weeks with a very short wave duration, pulsed electromagnetic field at radiofrequencies generated by an ion

magnetic inductor, for 30 min daily, 5 consecutive days per week. There was a significant improvement in clinical symptoms. Follow-up of the patients of this group for one year revealed that results obtained by EMFs treatment
are still remaining. PMID: 21537858

PEMF was performed on 20 dogs affected by BPH. 3 weeks of PEMF produced a significant reduction in prostatic volume (average 57%) without any interference with semen quality, testosterone levels or libido. The efficacy of PEMF on BPH in dogs, with no side effects, suggests the suitability of this treatment in humans and supports the hypothesis that impairment of blood supply to the lower urinary tract may be a causative factor in the development of BPH. PMCID:
4145661

**BRONCHITIS**

Results of this double-blind, placebo-controlled study indicated that both low-frequency electromagnetic field treatment and treatment with pulsed electromagnetic fields proved effective in patients suffering from chronic bronchitis when coupled with standard drug therapies. Magnetic field treatment consisted of a total of 15 15-20-minute daily exposures.
V.M. Iurlov, et al., "The Efficacy of the Use of Low-Frequency Electromagnetic Fields in Chronic Bronchitis," Voen Med Zh, 3, 1989, 35-36.

**CANCER - BLADDER**

The study deals with immune status of patients operated for bladder cancer and exposed postoperatively to alternating magnetic field (MF). MF application was followed by higher T- and B-lymphocyte and CD4+, CD16+ cell levels as well as

enhanced T-cell activity; no postoperative complications were registered and tumor relapse rates
were relatively low. The effect was likely to be due to antistressor influence of MF. The procedure may substitute drug therapy for immunocorrection and to avoid recurrence of bladder cancer. - Volpr Onkol PMID: 11544830

**CANCER - BREAST TUMORS**

The study was concerned with effect of alternating magnetic field (AMF) on immunobiological characteristics of lymphocytes from patients with locally-advanced breast tumors. Patients received infusions of treated autoblood and changes in their immunological status were followed up. Stimulation of T-, B- and NK- cells was observed. Immuno-regulating effect was apparent when autoblood was treated with 50 H/25 mT1 and 100 H/50 mT1. - Volpr Onkol PMID: 15088521

**CANCER - CELLS**

PEMF promotes the growth of undifferentiated cells but progressively suppresses the growth of more differentiated cells, i.e., PEMF controls cell growth depending on the degree of cell differentiation. This study also shows the potentiality of PEMF as an adjunctive treatment method for malignant tumors. - Bioelectromagnetics PMID: 10653622

No adverse side-effects were reported in an investigation of the antitumor effect of turbulent magnetic field (TMF) carried out as a component of preoperative chemoradiotherapy for breast cancer at the Center's Clinic. The study group included 114 patients with locally advanced tumors(T3, N1-N3, M0). According to the clinical, roentgenological and histological evidence on the end-results, the procedure was highly effective. Also, it was

followed by shorter and less extensive postoperative lymphorrhea. - Volpr Onko PMID: 14976921

**CANCER**

Results of this study found that prolonged exposure to a 7-tesla uniform static magnetic field for a period of 64 hours inhibited growth of three human tumor cell lines in vitro.
R.R. Raylman, et al., "Exposure to Strong Static Magnetic Field Slows the Growth of Human Cancer Cells in Vitro," Bioelectromagnetics, 17(5), 1996, . 358-363.

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This study examined the effects of a rotational magnetic field on a group of 51 breast cancer patients. Results showed a significant positive response in 27 of them.
N.G. Bakhmutskii, et al., "The Assessment of the Efficacy of the Effect of a Rotational Magnetic Field on the Course of the Tumor Process in Patients with Generalized Breast Cancer," Sov Med, (7), 1991, . 25-27.

Results of this study indicated that pulsed magnetic field stimulation increased the incorporation of antitumor agents into cells, and thus increased antitumor activity shifting the cell cycle to a proliferative from a nonproliferative phase.
Y. Omote, "An Experimental Attempt to Potentiate Therapeutic Effects of Combined Use of Pulsing Magnetic Fields and Antitumor Agents,"Nippon Geka Gakkai Zasshi, 89(8), August 1988, .. 1155-1166.

Results of this study found that 20-30 sessions of magnetotherapy administered preoperatively exhibited antitumor effects in patients suffering from lung cancer.

L.S. Ogorodnikova, et al., “Morphological Criteria of Lung Cancer Regression Under the Effect of Magnetotherapy,” Vopr Onkol, 26(1), 1980, . 28-34.

This study examined the effects of microwave resonance therapy (MRT) in patients suffering from various forms of cancer. Results showed that MRT treatment prior to surgery reduced the spread of cancer-associated conditions and reduced the risk associated with surgery in 87 percent of patients. MRT applied postoperatively had beneficial effects in 68 percent.
D.V. Miasoedov, et al., “Experience with the Use of Microwave Resonance Therapy as a Modifying Factor in Oncological Therapy,” Abstracts of the First All-Union Symposium with International Participation, May 10-13, 1989, Kiev, Ukraine, .. 313-315.

Results of this study proved that the combination of weak pulsed electromagnetic fields with antioxidant supplementation is beneficial in the treatment of patients suffering from tongue cancer, improving speech, pain control, and tolerance to chemotherapy.
U. Randoll & R.M. Pangan, “The Role of Complex Biophysical-Chemical Therapies for Cancer,”Bioelectrochem Bioenerg, 27(3), 1992, 341-346.

Results of this controlled study indicated that treatment with a constant magnetic field significantly improved long-term (3-year) survival time in patients undergoing radiation therapy for cancer of the throat. Constant magnetic field therapy consisted of the application of 300 mT for 30 minutes to tumor and metastasizing regions immediately prior to each irradiation.
V.G. Andreev, et al., “Radiomodifying Effect of a Constant Magnetic Field in Radiation Therapy of Patients with Cancer of the Throat,” Fizicheskaia Meditzina, 4(1-2), 1994,. 92.

Results of this Russian study indicated that the use of whole body eddy magnetic fields, coupled with more conventional cancer therapies (including magnetotherapy) is effective in the treatment of patients suffering from a variety of different malignancies. V. Smirnova, "Anti-Tumorigenic Action of an Eddy Magnetic Field,"Vrach, 2, 1994, . 25-26

This article reports on the case of a 48-year-old-woman with breasT cancer who was treated successfully with magnetotherapy. Infiltration showed a marked decrease following 30 whole body exposures to an eddy magnetic field for 60 minutes. One metastatic node disappeared while the size of others was reduced following 60 such exposures. A total regression of tumor and metastases was seen following the completion of a course of 110 exposures.
N.G. Bakhmutskii, et al., "A Case of Successful Treatment of a Patient with Breast Cancer Using a Rotating Electromagnetic Field," Soviet Medicine, 8, 1991, . 86-87.

This study examined the effects of whole body magnetic fields (16.5-35 G, 50- 165 Hz) on patients suffering from different forms of cancer. Treatment consisted of 15 cycles, each 1-20 minutes in duration, and was coupled with more traditional cancer therapies. Results showed that the magnetotherapy had overall beneficial effects, particularly with respect to improved immune status and
postoperative recovery.
V.A. Lubennikov, et al., "First Experience in Using a Whole-Body Magnetic Field Exposure in Treating Cancer Patients," Vopr Onkol, 41(2), 1995, . 140-141.

**CARPAL TUNNEL SYNDROME**

PEMF exposure in refractory carpal tunnel syndrome provides statistically significant short and long-term pain reduction and mild improvement in objective neuronal functions. Neuromodulation appears to influence nociceptive-C and large A-fiber functions, probably through ion/ligand binding. - Pain Medicine PMID: 18777606

**CARTILAGE**

Severe joint inflammation following trauma, arthroscopic surgery or infection can damage articular cartilage, thus every effort should be made to protect cartilage from the catabolic effects of pro- inflammatory cytokines and stimulate cartilage anabolic activities. Previous pre-clinical studies have shown that pulsed electromagnetic fields (PEMFs) can protect articular cartilage from the catabolic effects

**CHRONIC PAIN**

Specific pulsed electromagnetic fields (PEMFs) have been shown to induce analgesia (antinociception) in healthy human volunteers. These findings provide some initial support for the use of PEMF exposure in reducing pain in chronic pain populations and warrants continued investigation into the use of PEMF exposure for short-term pain relief. - Pain Research & Management PMID: 16770449

**DENTAL PAIN**

Two hours of exposure to a weak, oscillating magnetic fields induced a significant decrease in three parameters (dental sensory and cutaneous pain and tolerance thresholds), whereas the other two parameters showed a similar tendency. When the same subjects were exposed to a sham treatment, only marginal, nonsignificant variations in all parameters were observed. These results represent the first piece of evidence that weak alterations

of the magnetic field may induce hyperalgesia in humans. - Bioelectromagnetics PMID:8554630

**DEPRESSION**

This review article examined the literature concerning the use of transcranial magnetic stimulation in the treatment of depression. Results showed the high-frequency, repetitive transcranial magnetic stimulation treatment to be an effective, side-effect free therapy for depression that may hold promise for treating related psychiatric disorders as well. M.T. Kirkcaldie, et al., Transcranial Magnetic Stimulation as Therapy for Depression and Other Disorders." Aust N Z J Psychiatry, 31(2), April 1997, . 264- 272.

Noting that there is good reason to believe the pineal gland is a magnetosensitive system and that application of magnetic fields in experimental animals has a similar effect to that of acute exposure to light with respect to melatonin secretion, the authors propose that magnetic treatment could be a beneficial new therapy for winter
depression in humans.
R. Sandyk, et al., "Magnetic Felds and Seasonality of Affective Illness: Implications for Therapy," International Journal of Neurosci, 58(3-4), June 1991, . 261-267.

This review article notes that transcranial magnetic stimulation has been shown to elicit antidepressant effects, electically stimulating
deep regions of the brain.
C. Haag, et al., "Transcranial Magnetic Stimulation. A Diagnostic Means from Neurology as Therapy in Psychiatry?" Nervenarzt, 68(3), March 1997, . 274-278.

In this theoretical paper, the author argues that deep, low-rate transcranial magnetic stimulation can produce therapeutic effects equivalent to those of electroconvulsive therapy but without the
dangerous side effects.
T. Zyss, "Will Electroconvulsive Therapy Induce Seizures: Magnetic Brain Stimulation as Hypothesis of a New Psychiatric Therapy," Psychiatr Pol, 26(6), November-December 1992, . 531-541.

This study examined the effects of millimeter wave (MW) therapy as a supplemental treatment in patients suffering from various types of depression. MW therapy involved the use of a "Yav'-1? apparatus (5.6 mm wavelength, 53 GHz), and consisted of up to 60 minutes of exposure per day, 2 to 3 times per week, for a total of as many as 15 exposures. Results showed that combined MW/ conventional treatment produced a complete recovery in over 50 percent of cases studied, a significant improvement in 41 percent, and some improvement in 8 percent. Recovery rates among controls (conventional treatment only) were 4, 48, and 41 percent, respectively.
G.V. Morozov, et al., "Treatment of Neurotic Depression with a Help of Extremely High Frequency Electromagnetic Radiation," Zh Nevropatol Psikhiatr Im S S Korsakova, 96(6),1996, . 28-31.

Results of this study led researchers to conclude that patients suffering from major depression experienced a significant reduction of depressive symptoms following treatment with transcranial magnetic stimulation coupled with standard medication relative to patients taking the medicine. This was true after just three TMS treatments.

Conca, et al., “Transcranial Magnetic Stimulation: A Novel Antidepressive Strategy?” Neuropsychobiology, 34(4), 1996, . 204-207.

**DERMATITIS**

This study examined the effects of conventional treatments combined with millimeter wave (MW) therapy (54- to 70-GHz frequency, 8-15 daily exposures of 15-30 minutes each) on patients suffering from atopic dermatitis. Results indicated that the MW therapy was well- tolerated all patients, with the rash generally regressing after 7-8 exposures. Marked recovery was seen among 78 percent of patients receiving the combination treatments. Two-year follow-up showed a 23-percent relapse rate among combination patients, compared to 54 percent among controls.

V.P. Adaskevich, “Effectiveness of the Use of Millimeter-Range Electromagnetic Radiation in Complex Treatment of Atopic Dermatitis

Patients,” Millimetrovie Volni v Biologii I Meditcine, (3), 1994, . 78-81

**DIABETES**

In this study, 320 diabetics received impulsed magnetic field treatment while 100 diabetics (controls) received conservative therapy alone. Results showed beneficial effects with respect to vascular complications in 74 percent of the patients receiving magnetotherapy combined with conservative methods, compared to a 28-percent effectiveness rate among controls.

I.B. Kirillovm, et al., “Magentotherapy in the Comprehensive Treatment of Vascular Complications of Diabetes Mellitus,” Klin Med, 74(5), 1996, . 39-41.

This study involving 72 diabetics with purulent wounds found that
magnetic fields aided healing significantly.
R.A. Kuliev & R.F. Babaev, "A Magnetic Field in the Combined Treatment of Suppurative Wounds in Diabetes Mellitus," Vestn Khir I I I Grek, 148(1), January 1992, . 33-36.

**DIABETIC NEUROPATHY/ANGIPATHY**

Significant improvement of symptoms, and of all registered parameters of peripheral circulation was established after the therapy. High-frequency pulsating electromagnetic field is recommended for the treatment of diabetic angiopathy. In patients with neuropathic changes it can be used as an introduction procedure. Srpski arhiv za celokupno lekarstvo PMID: 7725151

This study demonstrates that pulsed electromagnetic fields are able to accelerate wound healing under diabetic and normal conditions by up- regulation of FGF-2-mediated angiogenesis. They also prevented tissue necrosis in response to a standardized ischemic insult, suggesting that noninvasive angiogenic stimulation by pulsed electromagnetic fields may be useful to prevent ulcer formation, necrosis, and amputation in diabetic patients. - Plastic and Reconstructive Surgery PMID: 18176216

**DUCHENNE-ERB DISEASE**

This study examined the effects of electromagnetic fields in the treatment of 5- year-old children suffering from Duchenne-Erb disease. Children were exposed to either UHF or DMW therapy for 8-12 minutes per day on alternating days over a period of approximately 10 days. Following the electromagnetic fields course, children received mud applications on the collar area

and injured extremity. Results showed that treatment decreased contractures in shoulder and elbow joints, increased mobility and muscle strength, and improved general function of the arm.
A.D. Burigina, et al., "Electromagnetic Waves in Complex Therapy of Children with Birth Trauma: Effects of Ultra-High-Frequency Electric Fields on Central Hemodynamics and the Shoulder Plexus," Vopr Kurortol Fizioter Lech Fiz Kult, (4),1992, 35-38.

**ENDOMETRIOSIS**

This study found that a combined treatment consisting of magnetic-infrared-laser therapy (10-15 min/day ever other day over a period of 10-14 exposures, then repeated in 2-3 months) and conventional drug therapy proved highly effective in women suffering from endometriosis.
M. Damirov, et al., "Magnetic-Infared-Laser Therapeutic Apparatus (MILTA) in Treatment of Patients with Endometriosis," Vrach, 12, 1994, . 17-19.

**ENDOMETRITIS**

Results of this study found that the administration of constant magnetic field in combination with other treatment modalities led to significant beneficial effects in patients suffering from acute
endometritis following abortion.
V.M. Strugatskii, et al., "A Permanent Magnetic Field in the Combined Treatment of Acute Endometritis After an Artificial Abortion," Vopr Kurortol Fizioter Lech Fiz Kult, (6), November-December 1996, 21-24.

**EPILEPSY**

This article reports on the cases of three patients with partial seizures who received treatment with external artificial magnetic

fields of low intensity. Such treatment led to a significant attenuation of seizure frequency over a 10-14- month period.
P.A. Anninos, et al., "Magnetic Stimulation in the Treatment of Partial Seizures," International Journal of Neurosci, 60(3-4), October 1991, . 141-171.

Experimental results indicated that the administration of modulated electromagnetic fields of 2-30 Hz suppressed epilepsy in rats.
G.D. Antimonii & R.A. Salamov, "Action of a Modulated Electromagnetic Field on Experimentally Induced Epileptiform Brain Activity in Rats," Biull Eksp Biol Med, 89(2),February 1980.

This review article cites one study in particular in which results showed that pretreatment with 30 minutes of exposure to a 75-mT pole strength, DC-powered magnetic field significantly prevented experimentally induced seizures in mice.
M.J. McLean, et al., "Therapeutic Efficacy of a Static Magnetic Device in Three Animal Seizure Models: Summary of Experience," Second World Congress for Electricity and Magnetism in Biology and Medicine, 8-13 June 1997, Bologna, Italy.

This double-blind, placebo-controlled study examined the effects of 2- hour exposure to weak magnetic fields (0.2-0.7 G, irregularly oscillating 0.026-0.067 Hz) produced 3 pairs of orthogonal Helmholtz coils on pain perception in healthy subjects. Results showed that magnetic treatment significantly reduced the perception of pain.
F. Sartucci, et al., "Human Exposure to Oscillating Magnetic Fields Produces Changes in Pain Perception and Pain-Related Somatosensory Evoked Potentials," Second World Congress for

Electricity and Magnetism in Biology and Medicine, 8-13 June 1997, Bologna, Italy.

This article reports on the case of a severe epileptic who experienced a significant lessening of behavior disturbances and seizure frequency following treatment with low-frequency, external artificial magnetic
fields.
R. Sandyk & P.A. Anninos, "Magnetic Fields Alter the Circadian Periodicity of Seizures," International Journal of Neurosci, 63(3-4), April 1992, . 265-274.

**ERECTILE DYSFUNCTION**

Combined treatment with local negative pressure and pulsating magnetic field conducted in 116 patients with erectile dysfunction aged 20-60 years produced optimal treatment results. Recovery and improvement of the erectile function were achieved in 85.7% patients given local vacuum magneto-therapy. - Vopr Kurortol Fizioter Lech Fiz Kult PMID: 17882824

An effect was studied of appliances for magneto-therapy on sexual function of 105 men presenting with sexual problems. A total of 96 sexological patients were examined according to a general program, to study placebo-effect. The magnetic field beneficial effect was recordable in 70-80 % of the patients, that of placebo in 33 % men. It is suggested that augmentation of sexual activity is associated with an increase in cavernous blood flow. - Lik Sprava PMID: 8819933

**FIBROMYALGIA**

Exposure to a specific pulsed electromagnetic field (PEMF) has been shown to produce analgesic (antinociceptive) effects in

many organisms. In a randomized, double-blind, sham-controlled clinical trial, patients with either chronic generalized pain from fibromyalgia (FM) or chronic localized musculoskeletal or inflammatory pain were exposed to a PEMF (400 microT) through a portable device fitted to their head during twice-daily 40 min treatments over seven days. PEMF may be a novel, safe and effective therapeutic tool for use in at least certain subsets of patients with chronic, nonmalignant pain. -
Pain Research & Management PMID: 18080043

**GASTRODUODENITIS**

Results of this study indicated that treatment with decimeter-band electromagnetic fields improved motor function of the stomach and reduced dyspepsia and pain in children suffering from chronic gastroduodenitis. Treatment made use of the "Romashka" apparatus (a cylinder applicator, 100 mm in diameter, power of 6-8 W) applied to the gastroduodenal region, and consisted of 6-12 minute exposures every other day for a total of 8-12 exposures.
L.M. Petrukhina, et al., "Effect of a Decimeter Wave Electromagnetic Fields on the Motor Function of the Stomach in Children with Strong Gastroduodenitis," Vopr Kurortol Fizioter Lech Fiz Kult, (1),1987, . 54-56.

This controlled study examined the effects of sinusoidally modulated currents (100 Hz) coupled with conventional therapy in children suffering from chronic gastroduodenitis. Children received 8-10 exposures lasting between 6 and 10 minutes. Results showed that the treatment reduced inflammation in 72 percent of patients relative to just a 45-percent rate among controls. About 77 percent of treatment patients experienced elimination of gastro-esophageal and duodeno-gastral refluxes, compared to 29 percent of controls.

O.V. Bukanovich, et al., “Sinusoidally-Modulated Currents in the Therapy of Chronic Gastroduodenitis in Children,” Vopr Kurortol Fizioter Lech Fiz Kult, 2, 1996, . 22-26.

General Results of this study indicated that the optimal frequency of pulsed magnetic fields ranges between 10.0 and 25.0 Hz in the treatment of chronic inflammatory conditions of the locomotor apparatus, ischemia of the blood vessels of the lower extremities, dyspeptic syndrome, lactation mastitis, and other diseases. Treatment proved best when the therapeutic cycle was repeated after a 2-3 month period.
L. Navratil, et al., “Possible Therapeutic Applications of Pulsed Magnetic Fields,” Cas Lek Cesk, 132(19),October 11, 1993, . 590-594.

This article reviews the use of magnetotherapy in Czechoslovakia. Noting that this modality has been used for more than a decade, the author states that magnetotherapy has been shown to be effective in treating rheumatic diseases, sinusitis, enuresis, and ischemic disorders of the lower extremities. Positive findings have also been shown with respect to multiple sclerosis and degenerative diseases of the retina.
J. Jerabek, “Pulsed Magnetotherapy in Czechoslovakia–A Review,” Rev Environ Health, 10(2), April-June 1994, . 127-134.

This review article notes that pulse-type electromagnetic fields (PEMF) are the most frequently used type of electromagnetic therapy. Another form is pulsed radio frequency; PRF therapy generally includes daily sessions of 30-minute exposure and is primarily used in cases of pain and edema, with results being apparent quickly when the therapy is effective. PEMF treatment

is most successful when used in bone healing, with results occurring over a longer period of time.
A.A. Pilla, "State of the Art in Electromagnetic Therapeutics: Soft Tissue Applications," Second World Congress for Electricity and Magnetism in Biology and Medicine, 8-13 June 1997, Bologna, Italy.

This study examined the effects of electromagnetic fields administered over a period of 10 days on 354 patients suffering from various orthopedic conditions. Results showed the effects to be positive, with the greatest benefit experienced among patients with acute lesions.
G. Annaratone, et al., "Magnetotherapy in Clinical and Ambulatory Practice," Minerva Med, 74(14-15), April 7, 1983, . 823-833.

**GLAUCOMA**

In this study, patients with primary open-angle glaucoma with compensated intraocular pressure were administered magnetotherapy using an ATOS device with 33-mT magnetic field induction. The procedure was administered to a patient in a sitting posture with a magnetic inductor held before the eye. Sessions lasted 10 minutes and each course included 10 sessions. Following 4-5 months of therapy, results showed improved vision acuity 0.16 diopters, on an average of 29 out of 30 eyes with vision acuity below 1.0.
Bisvas, et al., "Possibilities of Magnetotherapy in Stabilization of Visual Function in Patients with Glaucoma," Vestn Oftalmol, 112(1), Jauary-March 1996, p. 6-8.

**HAIR LOSS**

This double-blind, placebo-controlled study examined the effects of pulsed electromagnetic fields on hair loss in men

suffering from male pattern baldness. PEMF exposures were administered to the head for 12 minutes and were given weekly or twice weekly over a period of 36 weeks. Results found the PEMF treatment both prevented hair loss and promoted regrowth without side effects.
W.S. Maddin, et al., "The Biological Effects of a Pulsed Electrostatic with Specific Reference to Hair: Electrotrichogenesis," International Journal of Dermatology, 29(6), 1990, p. 446-450.

**HEADACHE**

Results of this double-blind, placebo-controlled study demonstrated that the administration of a pulsed magnetic field for less than one hour to headache patients produced significant beneficial effects, as shown subjective patient reports, as well as EEG activity.
O. Grunner, et al., "Cerebral Use of a Pulsating Magnetic Field in Neuropsychiatry Patients with Long-term Headache," EEG EMG Z Elektroenzephalogr Verwandte Geb, 16(4),December 1985, p. 227-230

This article reports on the case of an acute migraine patient who was successfully treated with external magnetic fields.
R. Sandyk, "The Influence of the Pineal Gland on Migraine and Cluster Headaches and Effects of Treatment with picoTesla Magnetic Fields," International Journal of Neurosci, 67(1-4),November- December 1992, p. 145-171.

This article examined the effects of millimeter wave therapy in the treatment of 107 patients suffering from headaches of varying causes. Treatment consisted of the Nao-Hu, Bai-Huei, and Hua-Chai acupuncture points being exposed to 5.6- and 4.9-mm wavelengths via the use of "Yav'-1-5.6? or

"Electronka-KVCh" devices, respectively. Exposure lasted up to 60 minutes per day over a course of 10 days. All patients experienced positive results following 3-5 exposures. After one year, 48 percent of patients remained free of headaches, with a significant decrease in another 41 percent.
B.M. Popov & T.A. Al'shanskaya, "Use of Traditional and Non-traditional Methods in the Treatment of Headache," Millimeter Waves in Medicine and Biology. Digest of Papers of the 11th Russian Symposium with International Participation,April 21-24, 1997, Zvenigorod, Moscow Region, Russia, p. 68-71.

In this study, 90 headache patients were treated with pulsating electromagnetic fields via large coils to the body for 20 minutes per day for a total of 15 days. Results found the treatment to be either excellent or good for those patients suffering from migraine, tension, and/or cervical headaches. Patients experiencing post-traumatic or
cluster headaches did not experience such benefits.
A. Prusinksi, et al., "Pulsating Electromagnetic Field in the Therapy of Headache," Journal of Bioelectr., 7(1), 1988, p. 127-128.

**HEART DISEASE**

Results of this study found that the addition of magnetotherapy to the treatment of patients suffering from ischemic heart disease and osteochondrosis led to clinical improvements.
I.Rodin, et al., "Use of Low-Intensity Eddy Magnetic Field in the Treatment of Patients with Skin Lymphomas," Voen Med Zh, 317(12), 1996, . 32-34.

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**HEART RATE VARIABILITY**

Exposure to PEMF for 20 minutes resulted in more rapid recovery of heart rate variability, especially in the very low frequency range after physical strain. The study also showed the moderating influence of the subjects' constitutional VLF power on their response to PEMF treatment. These findings have since been replicated in a clinical study and should be taken into consideration when PEMF treatment is chosen. - European Journal of Applied Physiology PMID: 17674028

**HERNIATED DISK**

This double-blind, placebo-controlled study examined the effects of magnetotherapy in patients following herniated disk surgery. Results showed that 52 percent of patients receiving the treatment compared to 30 percent of controls reported being free of symptoms at the time of hospital release.
K. Perjes, et al., "Effect of Magnetotherapy on Recovery After Herniated Disk Surgery," Hungarian Symposium on Magnetotherapy, 2nd Symposium, May 16-17, 1987, Szekesfehervar, Hungary, p. 159-162

**HIP PROBLEMS**

This double-blind study examined the effects of pulsed electromagnetic fields on loosened hip prostheses. Results showed an increase of bone density in all patients receiving PEMF treatment compared to only 60 percent of controls. The authors argue such findings suggest PEMF elicits early bone reconstruction, which enhances early weight bearing.
G. Gualtieri, et al., "The Effect Pulsed Electromagnetic Field Stimulation on Patients Treated of Hip Revesions with Trans-Femoral Approach," Second World Congress for Electricity and Magnetism in Biology and Medicine,8-13 June 1997, Bologna, Italy.

**JOINT DISEASE**

Results of this 11-year study involving 3014 patients found pulsed magnetic field treatment at low frequencies and intensities to be a
highly effective, side-effect free therapy for joint disease.
E. Riva Sanseverino, et al., "Therapeutic Effects of Pulsed Magnetic Fields on Joint Diseases," Panminerva Med, 34(4), October- December 1992, p.187-196.

**KIDNEY PROBLEMS**

This review article notes that placebo-controlled studies have shown positive results concerning the use of pulsed magnetic field therapy in the treatment of secondary chronic pyelonephritis.
V.A. Kiyatkin, "Pulsed Magnetic Field in Therapy of Patients with Secondary Chronic Pyelonephritis," Second World Congress for Electricity and Magnetism in Biology and Medicine,8-13 June 1997,Bologna, Italy.

**INFLAMMATION**

It is well known that electromagnetic fields (EMFs) can induce repair of non-healing bone fractures. It is generally believed that non- invasive, EMF therapy might have a broad, albeit currently unrecognized clinical potential. Since T cells are key modulators of inflammation, the development of EMF based therapeutic devices to regulate their activity can be expected to provide important tools to treat numerous human inflammatory diseases such as psoriasis and arthritis. - Biomedical Sciences Instrumentation PMID: 10834201

**KNEE PAIN**

Low-amplitude, extremely low frequency magnetic fields are safe and effective for treating patients with chronic knee pain due to osteoarthritis. Reduction in pain after a treatment session was significantly greater in the magnetic field-on group (46%) compared to the magnetic field-off group (8%). - Alternative Therapies in Health and Medicine PMID: 11565402

**KNEE ARTHRITIS**

In patients with symptomatic osteoarthritis of the knee, PEMF treatment can reduce impairment in activities of daily life and improve knee function. - Wiener Klinische Wochenschrift PMID: 12602111

**LUMBAR FUSION**

Sixty-one randomly selected patients who underwent lumbar fusion surgeries for discogenic low back pain between 1987 and 1994 were retrospectively studied. All patients had failed to respond to preoperative conservative treatments. Forty-two patients received adjunctive therapy with pulsed electromagnetic field (PEMF) stimulation, and 19 patients received no electrical stimulation of any kind. Average follow-up time was 15.6 months postoperatively. Fusion succeeded in 97.6% of the PEMF group and in 52.6% of the unstimulated group. The use of PEMF stimulation enhances bony bridging in lumbar spinal fusions. Successful fusion underlies a good clinical outcome in patients with discogenic low back pain. - Advances in Therapy PMID: 11010056

**LUNG DISEASE**

This study examined the effects of low-frequency magnetic fields coupled with conventional therapies in rats suffering from inflammatory lung disease. Results showed that rats receiving the magnetic fields experienced significant reductions in lung

abscesses and associated symptoms, and similar beneficial effects were seen among a group of 165 human patients receiving comparable treatment.
L.V. Iashchenko, "Low-Frequency Magnetic Fields in the Combined Therapy of Inflammatory Lung Diseases," Probl Tuberk, 3, 1988, p.53-56.

**LUPUS ERYTHEMATOSUS**

This review article examined the data concerning impulsed magnetic fields in the treatment of lupus erythematosus. Studies indicate that the treatment can be beneficial due to its anti-inflammatory and analgesic effects, its positive action on microcirculation, and immunological reactivity.
I.V. Khamaganova, et al., "The Use of a Pulsed Magnetic Field in the Treatment of Lupus Erythematosus," Ter Arkh, 67(10), 1995, p. 84-87.

**MIGRAINE/HEADACHES**

In the active-treatment group, all assessed criteria were significantly improved at the end of the migraine/headache study. 76% of active-treatment patients experienced clear or very clear relief of their complaints. Only 1 placebo-patient (2.5%) felt some relief; 8% noted slight and 2% reported significant worsening of symptoms. No side effects were noted. - Advances in Therapy PMID: 11571822

Ten of the 22 subjects who had actual exposure received 2 additional weeks of actual exposure after their initial 1-month follow-up. All showed decreased headache activity (50% good, 38% excellent). Thirteen subjects from the actual exposure group elected not to receive additional exposure. Twelve of them showed decreased headache activity by the second month (29%

good, 43% excellent). Eight of the subjects in the placebo group elected to receive 2 weeks of actual exposure after the initial 1-month follow-up with 75% showing decreased headache activity (38% good, 38% excellent). In conclusion, exposure to pulsing electromagnetic fields for at least 3 weeks is an effective, short-term intervention for migraine, but not tension headaches. - Headache PMID: 11279973

**MULTIPLE SCLEROSIS**

There is a growing literature on the biological and clinical effects of pulsed electromagnetic fields. Some studies suggest that electromagnetic therapies may be useful in the treatment of chronic illnesses. This study is a follow-up to a placebo controlled pilot study in which multiple sclerosis (MS) patients exposed to weak, extremely low frequency pulsed electromagnetic fields showed significant improvements on a composite symptom measure. Evidence from this randomized, double-bind, placebo controlled trial is consistent with results from smaller studies suggesting that exposure to pulsing, weak electromagnetic fields can alleviate symptoms of MS. - Alternative Therapies in Health and Medicine PMID: 12868251

Fatigue is the most common symptom of multiple sclerosis. 75%-90% of patients with multiple sclerosis report having fatigue, and 50%-60% describe it as the worst symptom of their disease. Fatigue is significantly associated with reduced quality of life and is also a major reason for unemployment, especially for patients with otherwise minor disability. There is evidence that pulsing electromagnetic fields may improve fatigue associated with multiple sclerosis. - Wien Med Wochenschr. PMID: 12658965

Recent clinical reports have suggested that treatment with extremely weak magnetic fields (MF) in the picoTesla range is an efficacious modality for the symptomatic therapy in patients with multiple sclerosis (MS) during the remission and exacerbation periods of the disease. The report attests to the unique efficacy of extremely weak MF in the symptomatic treatment of patients with MS including those patients with a chronic progressive course of the disease and supports the hypothesis that dysfunction of synaptic conductivity due to neurotransmitter deficiency specifically of serotonin rather than demyelination underlies the neurologic deficits of the disease. - International Journal of Neuroscience PMID: 8063544

**MUSCLE INJURY**

This study examined the effects of pulsed electromagnetic fields on recovery following muscle injury in rats. Results showed that both pulsed and constant magnetic fields were equally effective, with the constant field being more intense.

I.E. Detlav, The Influence of Constant and Pulsed Electromagnetic Fields on Oxidation Processes in Muscle, in I.E. Detlav, (ed.),

Electromagnetic Therapy of Injuries and Diseases of the Support-Motor Apparatus. International Collection of Papers, Riga, Latvia: Riga Medical Institute, 1987, p. 12-16.

**MYOFASCIAL PAIN**

The repetitive magnetic stimulation (rMS) group showed a significant improvement in VAS, NPDVAS, algometry, as well as in the characteristics of the therapy device after conclusion of treatment. Improvements in the ROM were also present in rotation and controlateral bending. This improvement persisted after 1 month. On the other hand, the placebo group did not show any significant improvement in the tests considered. The

results of this study show that peripheral repetitive magnetic stimulation (rMS) may have positive short- and medium-term therapeutic effects on myofascial pain. -
Clinical Neurophysiology PMID: 12559244

**NERVE DAMAGE**

This controlled study found that exposure to pulsed electromagnetic fields enhanced the speed and degree of peripheral nerve regeneration twofold in rats with experimentally severed sciatic
nerves.
H. Ito C.A. Bassett, Effect of Weak, Pulsing Electromagnetic Fields on Neural Regeneration in the Rat, Clin Orthop, (181), December 1983, p. 283-290.

Results of this study indicated that the use of pulsed electromagnetic fields on experimentally divided and sutured nerves in rats sped up regeneration of damaged nerves and the time it took for limb use to be recovered.
A.M. Raji, An Experimental Study of the Effects of Pulsed Electromagnetic Field (Diapulse) on Nerve Repair, Journal of Hand Surg, 9(2), June 1984, p. 105-112.

This study examined the effects of a Soviet Polyus-1 low-frequency magnet therapy device used to administer approximately 10 mT for approximately 10 minutes in patients with optic nerve atrophy. Patients underwent 10-15 sessions per course. Results showed that vision acuity in patients with low acuity values (below 0.04 diopters) improved in 50 percent of cases. It was also found that the treatment
improved ocular blood flow in cases of optic nerve atrophy. Optimal benefits were experienced after 10 therapy sessions.

L.V. Zobina, Effectiveness of Magnetotherapy in Optic Nerve Atrophy. A Preliminary Study, Vestn Oftalmol, 106(5), September-October 1990, p. 54-57

**NEUROLOGICAL DISORDERS**

This article summarizes clinical results obtained the authors in using pulsed electromagnetic fields (Gyuling-Bordacs device) in the treatment of neurological and locomotor disorders among a group of 148 patients in a hospital setting over a period of 3 years. The authors claim that 58-80 percent of such patients experienced benefits of some kind over the course of magnetotherapy.

G. Terlaki, Clinical Experiences Magnetotherapy, Hungarian Symposium on Magnetotherapy, 2nd Symposium, 16-17 May 1987, Szekesfehervar, Hungary, p. 175-179.

This study examined the effects of magnetotherapy on patients suffering from nervous system diseases. Treatment consisted of 10-12 6-minute exposures (10- 20 kG, 0.1-0.6 Hz). Results indicated
beneficial effects in 25 of the 27 patients receiving the treatment.

A.A. Skorometz, Magnetic Impulse Therapy of Patients with Spondylogenic Diseases of the Nervous System, Fizicheskaia Meditzina, 3(1-2), 1993, p. 41-43.

Results of this study found that the use of magnetic fields (30-35 mT, 10 and 100 Hz) produced beneficial effects in 93 percent of patients suffering from nerve problems.

A.G. Shiman, Use of Combined Methods of agnetoelectrotherapy in the Treatment for Polineuropathies, Vopr Kurortol Fizioter Lech Fiz Kult, (5), 1993, p, 38-41.

**NEURALGIA**

Pulsed radiofrequency treatment has been described as a minimal invasive alternative to radio-frequency thermocoagulation for the management of chronic pain syndromes. We present here our first five high-risk patients with idiopathic trigeminal neuralgia who were treated with pulsed radiofrequency after multidisciplinary assessment; with a mean follow-up of 19.2 months (range 10-26). These patients were at high risk due to age, co-morbidities or previous interventional and surgical treatments. An excellent long-term effect was achieved in three of the five patients, a partial effect in one patient and a short- term effect in one patient. No neurological side effects or complications were reported. - International Association for the Study of Pain PMID: 12927617

**NEUROPATHY**

Ilioinguinal neuropathy is a rare but disabling condition. The condition may arise spontaneously or in the setting of pelvic surgery. To date, most therapeutic options have been limited to neuropathic pain medications, anti-inflammatory medications, nerve blocks with local anesthetics, or neurectomy. Long-term results of non-surgical interventions are fair at best. Pulsed radio frequency lesioning may be a good treatment for chronic ilioinguinal neuropathy in cases refractory to conservative management. - Journal of Hernias and Abdominal Wall Surgery PMID: 17273814

The largely unsatisfactory results reported for the pharmacological treatment of diabetic neuropathy has spurred the search for alternative therapies. Frequency-modulated

electromagnetic neural stimulation (FREMS) induced a significant reduction in daytime and night-time VAS pain score (all $p<0.02$). Furthermore, FREMS induced a significant increase in sensory tactile perception, as assessed by monofilament; a decrease in foot vibration perception threshold, as measured by a biothesiometer; and an increase in motor nerve conduction velocity (all $p<0.01$). No significant changes were observed after placebo. Comparison of measurements at the 4-month follow-up with those at baseline revealed that a significant benefit persisted for all measures that showed an improvement at the end of treatment, with an additional improvement in quality of life (Short Form-36 questionnaire) No significant side effects were recorded
during the study. Frequency-modulated electromagnetic neural

stimulation (FREMS) is a safe and effective therapy for neuropathic pain in patients with diabetes and is able to modify some parameters of peripheral nerve function. - Diabetologia PMID: 15834546

Clinical and electroneuromyographic studies were performed in 121 patients with diabetic polyneuropathy (DPN) before and after courses of treatment with pulsed electromagnetic fields with complex modulation (PEMF-CM) at different frequencies (100 and 10 Hz). The earliest and most significant electroneuromyographic signs of DPN were found to be decreases in the amplitude of the H reflex and the Hmax/Mmax ratio in the muscles of the lower leg. Application of PEMF-CM facilitated regression of the main clinical symptoms of DPN, improved the conductive function of peripheral nerves, improved the state of la afferents, and improved the reflex excitability of functionally diverse motoneurons in the spinal cord. PEMF-CM at 10 Hz was found to have therapeutic efficacy,

especially in the initial stages of DPN and in patients with diabetes mellitus for up to 10 years. - Neuroscience and Behavioral Physiology PMID: 14635988

Neuropathic pain (NP) from peripheral neuropathy (PN) arises from ectopic firing of unmyelinated C-fibers with accumulation of sodium and calcium channels. Because pulsed electromagnetic fields (PEMF) safely induce extremely low frequency (ELF) quasirectangular currents that can depolarize, repolarize, and hyperpolarize neurons, it was hypothesized that directing this energy into the sole of one foot could potentially modulate neuropathic pain. These pilot data demonstrate that directing PEMF to refractory feet can provide unexpected short term analgesic effects in more than 50% of individuals. The role of placebo is not known and was not tested. The precise mechanism is unclear yet suggests that severe and advanced cases are more magnetically sensitive. Future studies are needed with randomized placebo-controlled design and longer treatment periods. - Neurorehabilitation and Neural Repair PMID: 15035963

**OSTEOARTHRITIS**

An average improvement of 23-61% occurred in the clinical variables observed with active treatment, while 2 to 18% improvement was observed in these variables in placebo treated control patients. No toxicity was observed. The decreased pain and improved functional performance of treated patients suggests that this configuration of PEMF has potential as an effective method of improving symptoms in patients with OA. This method warrants further clinical investigation. - Journal of Rheumatology PMID: 8478852

**OSTEOARTHRITIS – KNEE/CERVICAL SPINE**

We conducted a randomized, double blind clinical trial to determine the effectiveness of pulsed electromagnetic fields (PEMF) in the treatment of osteoarthritis (OA) of the knee and cervical spine. Matched pair t tests showed extremely significant changes from baseline for the treated patients in both knee and cervical spine studies at the end of treatment and the one month follow up observations, whereas the changes in the placebo patients showed lesser degrees of significance at the end of treatment. PEMF has therapeutic benefit in painful OA of the knee or cervical spine. –

Journal of Rheumatology PMID: 7837158

**OSTEOCHONDROSIS**

This study examined the effects of alternating magnetic fields (50 Hz, 10-50 mT) combined with conservative therapy in patients suffering from spinal osteochondrosis. Treatment consisted of 20-minute exposures over a total of 20- 25 such exposures per course. Results showed clinical benefits in 95 percent of patients receiving the combination treatment compared to just 30 percent among controls.

L.L. Butenko, The Use of Alternating Magnetic Fields in Spinal Osteochondrosis, Mechanisms of Biological Action of Electromagnetic Fields, 27-31 October 1987, Pushchino, USSR, USSR Academy of Sciences, Research Center for Biological Studies, Inst. of Biological Physics, Coordination Council of Comecon Countries and Yugoslavia for Research in the Fields of Biological Physics, p. 183.

**OSTEONECROSIS**

An average improvement of 23-61% occurred in the clinical variables observed with active treatment, while 2 to 18%

improvement was observed in these variables in placebo treated control patients. No toxicity was observed. The decreased pain and improved functional performance of treated patients suggests that this configuration of PEMF has potential as an effective method of improving symptoms in patients with OA. This method warrants further clinical investigation. - Journal of Rheumatology PMID: 8478852

**OSTEOPOROSIS**

The objective was to understand the effects of low-frequency pulsed electromagnetic fields (PEMFs) on chronic bony pain, bone mineral density (BMD), bone strength and biochemical markers of bone metabolism in the patients of osteoporosis. Low-frequency PEMFs relieves the pain of primary osteoporosis quickly and efficiently, enhances bone formation and increases BMD of secondary osteoporosis. - Chinese Medical Journal PMID: 19080282

Results of this double-blind, placebo-controlled study indicated that exposure to pulsed electromagnetic fields had beneficial effects in the treatment of patients suffering from painful osteo arthritis of the knee or cervical spine. PEMF therapy consisted of 18 exposures lasting 30 minutes and administered 3-5 times per week.

D.H. Trock, The Effect of Pulsed Electromagnetic Fields in the Treatment of Osteoarthritis of the Knee and Cervical Spine. Report of Randomized, Double Blind, Placebo Controlled Trials," Journal of Rheumatology, 21(10), 1994, p. 1903-1911.

**PAIN**

PEMF exposure in refractory CTS provides statistically significant short- and longterm pain reduction and mild improvement in objective neuronal functions. Neuromodulation appears to

influence nociceptive-C and large A-fiber functions, probably through ion/ligand binding. - Pain Medicine PMID: 18777606

**PANCREATITIS**

This study found that sinusoidal and continuous low-frequency alternating magnetic field generated a Polius-1 apparatus exhibited beneficial effects in patients suffering from chronic pancreatitis.
A.A. Fedorov, The Use of a Low-frequency Magnetic Field in the Combined Therapy of Chronic Pancreatitis, Vopr Kurortol Fizioter Lech Fiz Kult, (5), September-October 1990, p. 28-30.

**PARKINSON'S DISEASE**

Since brief, extracerebral applications of pico-tesla (pT) range flux intensity electromagnetic fields (EMFs) of low frequency have been shown to produce rapid improvement in motor and cognitive symptoms in PD, it is expected that application these EMFs would lead also to an increase in the amplitude of visual evoked potential (VEP) response. The study demonstrates that in Parkinsonian patients extracerebral application of these EMFs rapidly increases in amplitude of the VEP response and, by inference, cerebral dopamine levels presumably by increasing dopamine release. - International Journal of Neuroscience PMID: 8707479

This article reports on the case of a 73-year-old male Parkinson's patients suffering from disabling resting and postural tremors in the right hand, as well as other symptoms. Two successive 20-minute treatments with AC pulsed electromagnetic fields of 7.5-picotesla intensity and 5-Hz frequency sinusoidal wave led to improvements in visuospatial performance and a legible

signature. Significant improvements in Parkinsonian motor symptoms were also seen following additional treatments.
R. Sandyk, Brief Communication: Electromagnetic Fields Improve Visuospatial Performance and Reverse Agraphia in a Parkinsonian Patient, International Journal of Neurosci, 87(3-4), November 1996, p. 209-217

This article reports on the case of a medicated 61-year-old Parkinson's patient who experienced rapid reversal of symptoms following a single external application of picotesla-range magnetic fields.
R. Sandyk R.P. Iacono, Reversal of Visual Neglect in Parkinson's Disease Treatment with picoTesla Range Magnetic Fields,International Journal of Neurosci, 73(1-2), November 1993, p. 93-107.

This article reports on four Parkinson's patients who experienced significant improvement in symptoms following treatment with picotesla-range magnetic fields. Two additional patients suffering from Parkinson's-related dementia experienced significant improvements in visuospatial impairment.
R. Sandyk, Magnetic Fields in the Therapy of Parkinsonism, International Journal of Neurosci, 66(3-4), October 1992, p. 209-235.

Noting that transcranial magnetic stimulation (TMS) is a new and noninvasive method of direct cortical neuron stimulation, this review article discusses recent studies showing that TMS has led to improvements in symptoms associated with Parkinson's disease and depression.

M.S. George, et al., "Transcranial Magnetic Stimulation: A Neuropsychiatric Tool for the 21st Century," Journal of Neuropsychiatry Clin Neurosci, 8(4), Fall 1996, p. 373-382.

This article reports on the cases of two Parkinson's patients who experienced improvements in motor symptoms following treatment with external application of weak electromagnetic fields in the picotesla range.
Parkinsonian Micrographia Reversed Treatment with Weak Electromagnetic Fields, International Journal of Neurosci, 81(1-2), March 1995, p. 83-93.

**PELVIC PAIN**
Unusually effective and long-lasting relief of pelvic pain of gynecological origin has been obtained consistently by short exposures of affected areas to the application of a magnetic induction device producing short, sharp, magnetic-field pulses of minimal amplitude to initiate the electrochemical phenomenon of electroporation within a 25 cm2 focal area. Treatments are short, fasting-acting, and economical and in many instances have obviated surgery. - European Journal of Surgery PMID: 7531030

**PERIPHERAL NEURITIS**
In this study, patients suffering from peripheral neuritis were exposed to high-frequency electromagnetic radiation on acupuncture points. EMR was generated Electronica-EnF, Aria, and Porog devices with tunable frequencies ranging between 53 and 78 GHz. Treatments were daily and lasted 25 minutes. Results showed full restoration of nerve function in 87 percent of patients.
O. Vassilenko and N.F. Vassilenko, Use of Extremely High Frequency Electromagnetic Radiation for Treating Peripheral

Neuritis, Second World Congress for Electricity and Magnetism in Biology and Medicine,8-13 June 1997, Bologna, Italy.

**PERIPHERIAL NEUROPATHY**

The efficacy of different types of electrotherapy for painful diabetic peripheral neuropathy has been evaluated in 15 studies; the effects of transcutaneous electrical nerve stimulation are consistent. The beneficial effects of prolonged use have been reported in three large studies and one small study. The effects of frequency-modulated electromagnetic neural stimulation were assessed in one large study, and a significant reduction in pain was reported. Treatment with pulsed and static electromagnetic fields has been investigated in two small and three large studies, and analgesic benefits have been
reported. PMID:20461329

**PNEUMONIA**

Results of this study showed that magnetic laser therapy decreased the severity of acute respiratory insufficiency and treatment course, and prevented destructive complications in children with infiltrative acute destructive pneumonia between the ages of 1 and 12 years.
E.A. Gaidashev, An Evaluation of the Effect of Magnetic-laser Therapy on External Respiratory Function in Complicated Forms of Acute Pneumonia in Children, Vopr Kurortol Fizioter Lech Fiz Kult, (3),May-June 1995, p. 2-14.

**POST-HERPETIC NEURALGIA**

This study found both pulsed magnetic field treatment (20-30 minutes per day) and whole body alternating current magnetic field treatment (30 minutes per day) to be effective therapies for post-herpetic neuralgia in older patients. Pulsed magnetic field treatment consisted of 0.6-T (6-kG) samarium/cobalt magnets

surrounded spiral coils generating a maximum 0.1-T pulse. Pads were pasted on the sensory

**PROSTATE**

Therapeutic use of pulsed electromagnetic field therapy reduces prostate volume and lower urinary tract symptoms in benign prostatic hyperplasia.
Tenuta M, Tarsitano MG, Mazzotta P, Lucchini L, Sesti F, Fattorini G, Pozza C, Olivieri V, Naro F, Gianfrilli D, Lenzi A, Isidori AM, Pofi R. Andrology. 2020 Sep;8(5):1076-1085. doi: 10.1111/andr.12775. Epub 2020 Mar 16. PMID: 32090492

**PSYCHIATRIC DISORDERS**

Noting the well-established dangers associated with electroconvulsive therapy, the author, in this theoretical article, argues that transcranial magnetic stimulation should be looked at as an alternative psychiatric treatment. The author asserts that TMS has several advantages over ECT in that it is painless, noninvasive, and more effective on deep structures of the brain.
T. Zyss, Deep Magnetic Brain Stimulation - The End of Psychiatric Electroshock Therapy? Medical Hypotheses, 43(2),1994, p. 69-74.

**RESPIRATORY PROBLEMS**

Results of this study showed that the use of low-frequency magnetic fields helped to prevent and treat critically ill patients suffering from pyoinflammatory bronchopulmonary complications, and to prevent such complications as well.
G.A. Mozhaev IIu Tikhonovskii, The Prevention and Treatment of Suppurative-inflammatory Complications in the Bronchopulmonary System During Prolonged Artificial

Ventilation, Anesteziol Reanimatol, (4), July-August 1002, p. 47-51.

**ROTATOR CUFF TENDONITIS**

The value of pulsed electromagnetic fields (PEMF) for the treatment of persistent rotator cuff tendonitis was tested in a double-blind controlled study in 29 patients whose symptoms were refractory to steroid injection and other conventional conservative measures. At the end of the study 19 (65%) of the 29 patients were symptom-less and 5 others much improved. PEMF therapy may thus be useful in the treatment of severe and persistent rotator cuff and possibly other chronic tendon lesions. - The Lancet PMID: 6143039

**SACRAL PAIN**

Magnetic stimulation of the sacral nerve roots is used for neurologic examination. However, no one has reported therapeutic efficacy of pain relief from pudendal neuralgia with sacral magnetic stimulation. Sacral magnetic stimulation immediately eliminated the pain. The pain relief lasted between 30 minutes and 56 days (median, 24 hours). Adverse effects were not observed. This pilot study indicates that magnetic stimulation of the sacral nerve roots may be a promising therapeutic modality for pain relief from pudendal neuralgia and sciatica. Further studies should be performed to determine the appropriate intensity and frequency, as well as the utility of a second course, of magnetic stimulation treatment. - Diseases of the Colon
and Rectum PMID: 11852346

**SEXUAL DISORDERS**

Results of this placebo-controlled study showed that magnetotherapy exhibited beneficial effects with respect to cavernous blood flow in male patients suffering from sexual problems.
I.I. Gorpinchenko, The Use of Magnetic Devices in Treating Sexual Disorders in Men, Lik Sprava, (3-4),March-April 1995, p. 95-97.

This study examined the effects of a combination pulsing magnetic field (PMF)/vacuum therapy in the treatment of impotence. Vacuum therapy consisted of the penis being placed into a hermetic cylinder with a negative pressure of 180-260 mmHg for 10-12 minutes per exposure for a total of 12-15 exposures. PMF therapy consisted of the same length and number of exposures, with 6 Hz, 30mT being applied to the penile area at the same time as vacuum therapy. Results showed that, following the combination therapy, sexual function was restored in about 71 percent of patients, was improved in 17 percent, and did not change in 17 percent. For those patients receiving vacuum therapy only, the numbers were 51, 24, and 24 percent, respectively.
I.V. Karpukhin V.A. Bogomol'nii, Local Vacuum-Magnetotherapy of Impotency Patients, Vopr Kurortol Lech Fiz Kult, (2), ` 1996, p. 38-40.

This double-blind, placebo-controlled study examined the effects of weak magnetic fields in men suffering from various sexual disorders, including decreased erection and premature ejaculation. The three different magnetic stimulators used included the BiopotenzorEros, Bioskan-1 devices. All patients wore one of the three devices for a 3- week period. Results showed full restoration of sexual function in 38 percent of patients in the Biopotenzor group, 31 percent in the Eros group,

36 parent in the Bioskan-1 group, and in just 15 percent of the controls. Improvements in sexual function were seen among 42 percent, 39 percent, 47 percent, and 18 percent, respectively. I.I. Gorpinchenko, The Use of Magnetic Devices in Treating Sexual Disorders in Men," Lik Sprava, (3-4),1995, p. 95-97.

**SLEEP DISORDERS**

Results of this double-blind, placebo-controlled study indicated that low-energy emission therapy significantly improved sleeping patterns among patients suffering from chronic psychophysiological insomnia. Therapy was administered 3 times per week, always in late afternoon and for 20 minutes, over a period of 4 weeks.
R. Hajdukovic, Effects of Low Energy Emission Therapy (LEET) on Sleep Structure, First World Congress for Electricity and Magnetism in Biology and Medicine, 14-19 June 1992, Lake Buena Vista, FL, p. 92.

This double-blind, placebo-controlled study examined the effects of low-energy emission therapy (27 MHz amplitude-modulated electromagnetic fields) in patients suffering from insomnia. Treatment consisted of 3 exposures per week over a 4-week period. Results showed significant increases in total sleep time among patients in the treatment group relative to controls.
M. Erman, Low-Energy Emission Therapy (LEET) Treatment for somnia," Bioelectromagnetics Society, 13th Annual Meeting, 23-27 June 1991, Salt Lake City, UT, p. 69.

**SPINAL CORD INJURY**

The use of oscillating field stimulator treatment in patients with spinal cord injury is safe, reliable, and easy. Compared with the outcomes obtained in compliant National Acute Spinal Cord

Injury Study III plegic patients, the results of the present study indicate efficacy, and the FDA has given permission for enrollment of 10 additional patients. - Journal of Neurosurgery: Spine PMID: 15658119

Results of this study found that exposure to constant magnetic fields improved healing in rats with experimentally induced spinal cord injury, and in human patients suffering from spinal cord trauma as well.
E.V. Tkach,Characteristics of the Effect of a Constant Electromagnetic Field on Reparative Processes in Spinal Cord Injuries, Zh Nevropatol Psikhiatr, 89(5), 1989, p. 41-44.

This study examined the effects of functional magnetic stimulation used to treat spinal cord injury in seven male patients. Results showed the treatment to be an effective noninvasive approach.
M.K. Sheriff, Neuromodulation of Detrusor Hyper-reflexia Functional Magnetic Stimulation of the Sacral Roots, British Journal of Urology, 78(1), July 1996, p. 39-46.

**STROKE**
New methods of rehabilitation should be introduced in order to reduce disability resulting from stroke. During the twelve months of follow-up, effect of low frequency magnetic field on the course of patient rehabilitation following ischemic stroke was evaluated on in-patient (acute and subacute period of the stroke) and outpatient (chronic period) basis. The results obtained indicate beneficial effects of groups of patients. - Przeglad Lekarski PMID: 17892036
There is evidence that electromagnetic stimulation may accelerate the healing of tissue damage following ischemia. We undertook this study to investigate the effects of low frequency

pulsed electromagnetic field (PEMF) exposure on cerebral injury. Exposure to pulsed electromagnetic field attenuated cortical ischemia edema on MRI at the most anterior coronal level by 65% On histologic examination, PEMF exposure reduced ischemic neuronal damage in this same cortical area by 69% and by 43% in the striatum. Preliminary data suggest that exposure to a PEMF of short duration may have implications for the treatment of acute stroke. - Bioelectromagnetics PMID: 8074737

Results of this study pointed to the efficacy of magnetic field therapy in the treatment of patients suffering from a variety of conditions associated with different brain vascular diseases. N.Y. Gilinskaia, Magnetic Fields in Treatment of Vascular Diseases of the Brain, Magnitologiia, 1, 1991, p. 13-17.

**TENDONITIS**

Results of this double-blind, placebo-controlled study indicated that pulsed electromagnetic field therapy exhibited significant beneficial effects in the treatment of patients suffering from persistent rotator cuff tendonitis. PMID: 6143039

**TINNITUS (Ringing or buzzing in ears)**

At the end of one week of treatment, each patient noted whether their tinnitus had completely disappeared, was improved, unchanged or made worse by the treatment. 45% of the patients who completed the trial were improved by the active device, but only 9% by placebo). We suggest that electromagnetic stimulation may be an effective treatment in some tinnitus sufferers. - Clinical Otolaryngology and Allied Sciences PMID: 8877185

**TMJ**

The experimental group showed a significant increase in mouth opening (mean = 34.95 to 41.70 mm, p = 0.002), right lateral movement (mean = 7.85 to 10.80 mm, p = 0.001) and left lateral movement (mean = 7.65 to 10.85 mm, p < 0.0001). No significant (p > 0.1) change in the control group occurred for mouth opening (mean = 38.50 to 39.65 mm), right lateral movement (mean = 8.60 to 8.75 mm) and left lateral movement (mean = 8.50 to 8.80 mm). No side effects were reported during the treatment and the two week follow-up. These results suggest strongly that PRFE is a safe and effective treatment for TMJ arthralgia as well as for increasing mandibular range of
motion. - Cranio PMID: 14964334

**ULCERS (GASTRIC AND DUODENAL)**

Results of this study showed that the administration of mill metric electromagnetic waves helped to normalize blood properties, subsequently improving the effectiveness of more conventional gastric and duodenal ulcer treatment.
M.V. Poslavskii, Treatment of Peptic Ulcer Electromagnetic Irradiation of the Millimetric Range, Sov Med, (1),1989, p. 29-31.

**ULCERS (TROPHIC)**

This study examined the use of magnetotherapy coupled with galvanization and intratissue electrophoresis in 86 patients suffering from trophic ulcers. A “Potok1? apparatus with a density of current equal to 0.05-0.1 mA/cm2 was used to create an electrical field. The “MAG-30 apparatus for low-frequency magnetotherapy with induction of 30 mT and area of exposure of 20 cm2 was applied to a trophic ulcer site at the same time. Results led the authors to conclude that magnetogalvanotherapy is the recommended treatment for trophic

ulcers of the lower extremities.
A.V. Alekseenko, Use of Magnetic Therapy Combined with Galvanization and Tissue Electrophoresis in the Treatment of Trophic Ulcers, Klin Khir, (7-8), 1993, p. 31-34.

**VENOUS INSUFFICIENCY (CHRONIC)**
This study examined the effects of alternating magnetic fields (15-20 minutes per day over a period of 20 days) in patients suffering from chronic venous insufficiency, varicose veins, and trophic shin ulcers. Results showed good effects in 236 of the 271 patients receiving the treatment. Thirty-four patients reported satisfactory effects. Only one patient experienced no effects.
E.I. Pasynkov, et al., "Therapeutic Use of Alternating Magnetic Field in the Treatment of Patients with Chronic Diseases of the Veins of the Lower Limbs," Vopr Kurortol Fizioter Lech Fiz Kult, 5,1976, . 16-19

**WOUNDS**
Treatment for wounds included two modalities: standard medication and alternating or pulsating magnetic field. Magnetic therapy proved highly effective: wound healing was 3-3.5 times faster while duration of treatment-2-3 times shorter than in standard procedure. Clinically- verified partial adhesion-related intestinal obstruction was eliminated by magnetic procedure in 18 children after combined treatment for lymphosarcoma involving the ileum. - Volpr Onkol PMID: 11147428

Pulsed radio frequency energy was used as an adjunct to basic wound care of 3 large, long-standing (6 years) stage III and IV pressure ulcers that were unresponsive to conventional therapy. The ulcer on the right foot healed within 4 weeks, the left heel ulcer reduced in size by 95% at 7 months, and the large sacral

ulcer healed to closure in 11 months. Conclusion: Pulsed radio frequency energy treatment with basic wound care, if administered early in the course of pressure ulcer therapy, might avoid the lengthy hospitalizations and repeated surgical procedures necessary for treatment of uncontrolled ulcers, reducing the overall cost of treatment and improving the quality of life for chronically ill or injured patients. - Journal of Plastic and Reconstructive Surgery PMID: 19008935