

Electrotherapy Muscle Stimulation – We use our ERE (Advanced Electro reflex Energizer)

Most insurance policies will cover this with a prescription from your doctor. Stress reduction or healing – by way of massage or reflexology mode. Deworming by high and low wave frequency. Restoration of electrically and circulation pathways through scar tissue.

Many fibromyalgia sufferers become frustrated at the lack of effective treatment available for their fibromyalgia symptoms. The [chronic headaches](#), muscle weakness and fatigue can often be too much to bear. However, if you are looking to try a new treatment that can help relieve some of these symptoms, then you may want to try electrotherapy muscle stimulation. Electrotherapy muscle stimulation is a safe and effective treatment for the chronic pain and fatigue associated with fibromyalgia.

What is Electrotherapy?

Electrotherapy, or electro-medicine, is a class of treatment that uses electrical impulses to improve symptoms of pain, muscle loss, and depression in patients. It may sound quite scary to you to be treated using an electrical current, but, in fact, electricity has been used in medicine for almost 2,000 years.

Electricity is actually one of the safest and most effective ways of treating pain and other illness, because it is associated with so few side effects. Electrotherapy delivers a small, pulsating current to a person's muscles and nerve endings. This current causes the muscles to contract and then relax. Repeated stimulations allow the muscles to strengthen, relax, and feel less painful.

What are the Benefits of Electrotherapy?

There are different types of electrotherapy but they are all associated with the same benefits. Electrotherapy was introduced to American medicine in the 1950s, and used to treat anxiety, depression, and insomnia. Now, electrotherapy has proven effective in treating other illnesses, including chronic fatigue, multiple sclerosis, and fibromyalgia. Electrotherapy promotes nerve conduction, blood circulation, and also helps the body to heal on its own. It is very similar to a [deep tissue massage](#). The effects of electrotherapy are cumulative, so you will see more benefits after repeated treatments.

Types of Electrotherapy

There are three main types of electrotherapy muscle stimulation available to fibromyalgia sufferers. Before you begin electrotherapy treatment, speak with a licensed professional and find out whether you are suited for the treatment.

Transcutaneous Electrical Nerve Stimulation (TENS)

TENS therapy is a non-invasive and non-addictive way to treat fibromyalgia pain and fatigue. It delivers a current of about 60 milliamperes to muscles and nerve endings that are causing you particular pain. It causes these nerves to contract and relax, allowing for muscle stimulation and strengthening. It also reduces pain and restores mood.

TENS electrotherapy equipment can be purchased and used at home, for private, comfortable treatment. The TENS unit comes with a battery, electrodes, and an electric signal generator. You simply place the TENS electrodes, which are usually rubber or felt pads, over a painful area of your body. An electric current is then delivered to the electrode, stimulating your muscle and blocking pain messages from being sent to your brain. This allows your pain symptoms to improve. TENS units can be used once a week, every other day, or as often as needed to provide relief. They cost between \$400 and \$700.

Percutaneous Electrical Nerve Stimulation (PENS)

PENS is a variant of TENS, only it uses a needle probe to stimulate nerve endings instead of a felt pad. PENS treatments must be done by a licensed professional, either an acupuncturist or general physician, and typically last 30 minutes. The physician first locates sore or painful areas that require treatment. The physician inserts needles that have been attached to electrical impulses 1 to 4 centimeters below the skin. Electrical impulses are then delivered to the needles.

PENS treatments are thought to be more effective than TENS treatments. This is because the needle electrodes are able to bypass your skin, providing less resistance to the electric current. It allows for nerves to be stimulated more accurately and efficiently. PENS treatments will probably only be available to you if TENS treatments have provided you no relief. The procedure is not at all painful, and is associated with few, if any, side effects.

Cranial Electrotherapy Stimulation (CES)

In the past, CES was used exclusively to improve mood and sleeping habits in ill patients. Recently, it has been introduced as a chronic pain treatment for people with illness like fibromyalgia. Cranial electrotherapy can be performed in the privacy of your own home. This treatment delivers a very mild electric current (about a millionth of an amp) through your head. Two electrodes are clipped onto your earlobes and a low electrical current is transmitted back and forth through your head. There is absolutely no pain or discomfort involved in this treatment.

Cranial electrotherapy stimulators work to relieve pain and improve mood by stimulating the hypothalamus. This is the part of your brain responsible for governing mood, cognitive function, and emotions. The electrical impulses stimulates your hypothalamus to produce more neurohormones, helping to regulate your pain symptoms.

Complications **and** **Side** **Effects**
There a few, if any side effects associated with electrotherapy muscle stimulation. If too strong a current is used, there is a risk that you could burn or irritate your skin. Sometimes, people are sensitive to the glue or tape used to affix the electrodes to the skin.

Complications can occur in some individuals, though. You shouldn't use electrotherapy if you:

- are pregnant
- have a pacemaker
- have an implanted defibrillator

Electrotherapy **and** **Fibromyalgia**
Electrotherapy is often recommended to treat the numerous fibromyalgia symptoms. All types of electrotherapy have proven beneficial to fibromyalgia sufferers in one way or another, although more studies need to be done to conclusively prove the benefits of electrotherapy treatments.

One study found that the use of CES improved both the pain and sleep problems caused by fibromyalgia. Participants reported a 28% drop in the number of tender points as well as a 27% reduction in their overall pain after 6 weeks. 90% of participants agreed that electrotherapy had helped to improve their quality of life.

A study on the use of TENS in fibromyalgia patients, found similar results. After 6 weeks of TENS therapy, participants reported a 70% drop in their pain symptoms as well as a 53% increase in their activity levels. Sleep patterns improved by 50%.

Electrotherapy

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This article **needs more [medical references](#) for [verification](#) or relies too heavily on primary sources**. Please review the contents of the article and [add the appropriate references](#) if you can. Unsourced or poorly-sourced material may be [removed](#). *(February 2009)*



Electrotherapy is the use of [electrical energy](#) as a medical treatment^[1] In [medicine](#), the term *electrotherapy* can apply to a variety of treatments, including the use of electrical devices such as [deep brain stimulators](#) for neurological disease. The term has also been applied specifically to the use of electric current to speed wound healing. Additionally, the term "electrotherapy" or "electromagnetic therapy" has also been applied to a range of [alternative medical](#) devices and treatments.

It has not been found to be effective in increasing bone healing.^[2]

History

During 1855 [Guillaume Duchenne](#), the developer of electrotherapy, announced that [alternating](#) was superior to [direct current](#) for electrotherapeutic triggering of muscle contractions.^[3] What he called the 'warming affect' of direct currents irritated the skin, since, at voltage strengths needed for muscle contractions, they cause the skin to blister (at the [anode](#)) and pit (at the [cathode](#)). Furthermore, with DC each contraction required the current to be stopped and restarted. Moreover alternating current could produce strong muscle contractions regardless of the condition of the muscle, whereas DC-induced contractions were strong if the muscle was strong, and weak if the muscle was weak.

Since that time almost all rehabilitation involving muscle contraction has been done with a symmetrical rectangular biphasic waveform. During the 1940s, however, the US War Department, investigating the application of electrical stimulation not just to retard and prevent atrophy but to restore muscle mass and strength, employed what was termed *galvanic exercise* on the atrophied hands of patients who had an ulnar nerve lesion from surgery upon a wound.^[4] These Galvanic exercises employed a monophasic wave form, direct current.

Current use

Although a 1999 meta-analysis found that electrotherapy could speed the healing of wounds,^[5] during 2000 the Dutch Medical Council found that although it was widely used, there was insufficient evidence for its benefits.^[6] Since that time, a few publications have emerged that seem to support its efficacy, but data is still scarce.^[7]

The use of electrotherapy has been researched and accepted in the field of rehabilitation^[8] ([electrical muscle stimulation](#)). The [American Physical Therapy Association](#) acknowledges the use of Electrotherapy for:^[9]

1. [Pain management](#)

- Improves range of joint movement

2. Treatment of neuromuscular dysfunction

- Improvement of strength
- Improvement of motor control
- Retards [muscle atrophy](#)
- Improvement of local blood flow

3. Improves range of joint mobility

- Induces repeated stretching of contracted, shortened soft tissues

4. Tissue repair

- Enhances [microcirculation](#) and protein synthesis to heal wounds
- Restores integrity of connective and dermal tissues

5. Acute and chronic [edema](#)

- Accelerates absorption rate
- Affects blood vessel permeability

- Increases mobility of proteins, blood cells and lymphatic flow

6. Peripheral blood flow

- Induces arterial, venous and lymphatic flow

7. [Iontophoresis](#)

- Delivery of [pharmacological](#) agents

8. Urine and [fecal incontinence](#)

- Affects [pelvic floor](#) musculature to reduce pelvic pain and strengthen musculature
- Treatment may lead to complete continence

Electrotherapy is used for relaxation of muscle spasms, prevention and retardation of disuse atrophy, increase of local blood circulation, muscle rehabilitation and re-education [electrical muscle stimulation](#), maintaining and increasing range of motion, management of chronic and intractable pain, post-traumatic acute pain, post surgical acute pain, immediate post-surgical stimulation of muscles to prevent venous thrombosis, wound healing and drug delivery.^{[[citation needed](#)]}

Some of the treatment effectiveness mechanisms are little understood, with effectiveness and best practices for their use still anecdotal.

Electrotherapy devices have been studied in the treatment of chronic wounds and [pressure ulcers](#). A 1999 [meta-analysis](#) of published trials found some evidence that electrotherapy could speed the healing of such wounds, though it was unclear which devices were most effective and which types of wounds were most likely to benefit.^[5] However, a more detailed review by the [Cochrane Library](#) found no evidence that [electromagnetic therapy](#), a subset of electrotherapy, was effective in healing pressure ulcers^[10] or [venous stasis ulcers](#).^[11]

See also



Wikimedia Commons has media related to: [Electrotherapy](#)

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Electrical muscle stimulation

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Electrical muscle stimulation (EMS), also known as **neuromuscular electrical stimulation** (NMES) or **electromyostimulation**, is the elicitation of [muscle contraction](#) using electric impulses. EMS has received increasing attention in the last few years, because it has the potential to serve as: a strength training tool for healthy subjects and athletes; a rehabilitation and preventive tool for partially or totally immobilized patients a testing tool for evaluating the neural and/or muscular function in vivo; a post-exercise recovery tool for athletes.^[1] The impulses are generated by a device and delivered through electrodes on the skin in direct proximity to the muscles to be stimulated. The impulses mimic the [action potential](#) coming from the [central nervous system](#), causing the muscles to contract. The electrodes are generally pads that adhere to the skin. EMS is cited by renown sport scientists^[2] as complementary technique for sport training, and published research is available^[3] on the results obtained. In the United States, EMS devices are regulated by the [U.S. Food and Drug Administration](#) (FDA).^[4] The [XVIII Congress of the International Society of Electrophysiology and Kinesiology](#) (ISEK 2010), which took place in Aalborg, Denmark on 16–19 June 2010, had a dedicated session on the subject: Electrical stimulation for testing and training in exercise and sports. As part of it, numerous research papers and reviews have been published.^{[5][6]}

History

[Luigi Galvani](#) (1791) provided the first scientific evidence that current can activate muscle. During the 19th and 20th century researchers studied and documented the exact electrical properties that generate muscle movement.^{[7][8]} It was discovered that the body functions induced by electrical stimulation caused long-term changes in the muscles.^{[9][10]} In the '60s Soviet sport scientists applied EMS in the training of elite athletes, claiming 40% force gains.^[11] In the '70s these studies were shared during conferences with the Western sport establishments. However, results were conflicting, perhaps because the mechanisms in which EMS acted was poorly understood.^[12] Recent medical physiology research^{[13][14]} pinpointed the mechanisms by which electrical stimulation causes adaptation of cells of muscles, blood vessels^{[15][16][17]} and nerves.^[18]

Theory

EMS causes adaptation, i.e. training, of muscle fibers.^[19] Because of the characteristics of [skeletal muscle](#) fibers, different types of fibers^[20] can be activated to differing degrees by different types of EMS, and the modifications induced depend on the pattern of EMS activity.^[14] These patterns, referred to as protocols or programs, will cause a different response from contraction of different fiber types. Some programs will improve fatigue resistance, i.e. endurance, others will increase force production.^[18]

Use

EMS can be used both as a training,^{[21][22][23]} therapeutic,^{[24][25]} and [cosmetic](#) tool.

In medicine EMS is used for rehabilitation purposes, for instance in [physical therapy](#) in the prevention of disuse muscle atrophy which can occur for example after [musculoskeletal injuries](#), such as damage to bones, joints, muscles, ligaments and tendons. However, this should not be confused with TENS ([Transcutaneous Electrical Nerve Stimulator](#)): the use of electric current in pain therapy.

Because of the effect that strengthened and toned muscles have on appearance (a stronger muscle has larger cross-section^[26]), EMS is also used by a niche of practitioners for aesthetics goals.^{[27][28][29]} The FDA rejects certification of devices that claim weight reduction.^[30] EMS devices cause a calorie burning that is marginal at best: calories are burnt in significant amount only when most of the body is involved in physical exercise: several muscles, the heart and the respiratory system are all engaged at once.^[31] However, some authors imply that EMS can lead to exercise, since a person toning his/her muscles with electrical stimulation is more likely afterwards to participate in sporting activities as the body is ready, fit, willing and able to take on physical activity.^[32] In EMS training few muscular groups are targeted at the same time, for specific training goals.^[32] The effectiveness of the devices for sport training has been debated. A niche of coaches regularly use professional EMS devices as integral part of the training of their athletes; some of these are high profile coaches, such as track coach [Charlie Francis](#), who used the technique to supplement the training of Olympic-level athletes.^[33] Non-professional devices target home-market consumers^[34] with wearable units in which EMS circuitry is contained in belt-like garments (ab toning belts) or other clothing items.

FDA certification in USA

The [U.S. Food and Drug Administration](#) (FDA) certifies and releases EMS devices into two broad categories: over-the-counter devices (OTC), and prescription devices. OTC devices are marketable only for muscle toning; prescription devices can only be purchased with a medical prescription for therapy and should be used under supervision of an authorized practitioner, for the following uses:

- Relaxation of muscle spasms;
- Prevention or retardation of disuse atrophy;
- Increasing local blood circulation;
- Muscle re-education;
- Immediate post-surgical stimulation of calf muscles to prevent [venous thrombosis](#);
- Maintaining or increasing range of motion.

The FDA mandates that manuals prominently display contraindication, warnings, precautions and adverse reactions, including: no use for wearer of pacemaker; no use on vital parts, such as carotid sinus nerves, across the chest, or across the brain; caution in the use during pregnancy, menstruation, and other particular conditions that may be affected by muscle contractions; potential adverse effects include skin irritations and burns

Only FDA-certified devices can be lawfully sold in the US without medical prescription. These can be found at the corresponding FDA webpage for certified devices.^[35] The FTC has cracked down on consumer EMS devices that made unsubstantiated claims;^[36] many have been removed from the market, some have obtained FDA certification.

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