

The History of Electronic Muscle Stimulation Therapy

500 BC – Electronic Muscle Stimulation (EMS) has been used for centuries.

The earliest known use was by the Egyptians over 2000 years ago. They discovered the electrical properties in fish. Certain fish emit an electrical impulse. That electrical stimulation was used to treat pain and ailments such as gout. This was later practiced by the Greeks and Romans. Examples of such fish are the torpedo Fish, Numb Fish and Electric Ray.



In 1745 Altus Kratzstein

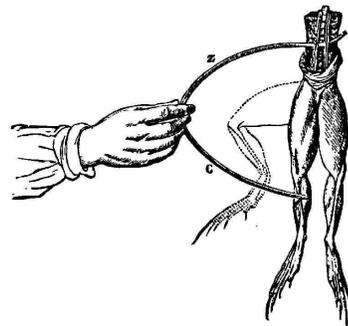
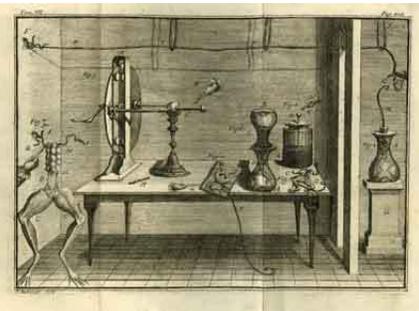
A German physician wrote the first book on electrical therapy. His scientific works and that of others during this time period was the basis for Mary Shelley's book "Frankenstein."

The manipulation of the muscles in the body through electrical current created a controversy over defining the relationship between God, the body and soul.

In the 18th century Luigi Galvani of Italy

Experimented with passing an electrical current through the spine of a frog. This resulted in the contraction of the frog's muscles and an understanding that muscle contractions could be controlled through electronic stimulation.

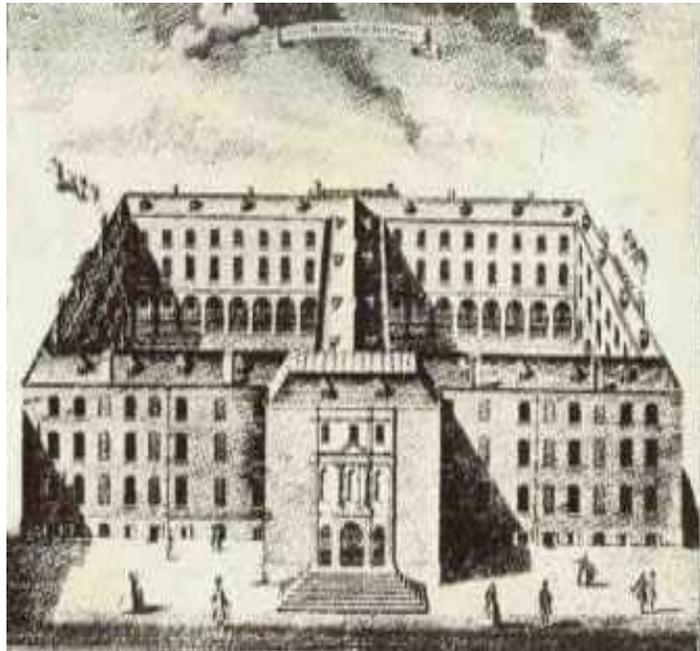
Pictured below are examples of the processes used in this experimenting. These experiments were later done on other animals and even the corpses of executed criminals.



Beginning around 1945, the clinical application of electrical stimulation therapy became less popular owing to remarkable progress in pharmacotherapy.

In 1902, Ludec of France designed an intermittent direct current unit, which became the basis for modern low-frequency intermittent direct current therapy. Ludec's unit was bulky, difficult to transport, and produced strong, unpleasant stimulation. Its effectiveness, however, was recognized, and its use became common in the treatment of a variety of acute and chronic diseases during the period from 1920 to 1940, a period when no other effective therapies were available.

1965, Melzak and Wall wrote a paper after tremendous research, revealing the benefits of electricity uses as a therapy to the people of today.



In the 1970's, EMS salons became popular. There were no regulations on these salons or the processes they used. People were getting injured and the FDA stepped in to control the industry. One popular device during this time was called the Relaxacizor. The unit came in a case with belts and bands that wrapped the body. People were actually getting burned with this device and the government had the units confiscated at the post offices prior to delivery.

At the 1976 Montreal Olympics, Dr. Yahov Kots of Russia, disclosed his studies and the use of electro stimulation for training his USSR Olympic Athletes. The electric current used was called the Russian current or Kots current. His studies showed that his current was effective in building muscle bulk and increasing fast twitch response for speed. The benefits of Electronic Muscle Stimulation gained world-wide popularity when Dr. Yahov Soviet sport scientists applied EMS in the training of elite athletes, claiming 40% force gains. Kots used a very specific 2500 MHz frequency that became known as "Russian Stim".



EMS has evolved into an industry providing electronic muscle stimulation for home use. It is safe and effective when used following the product's guidelines. EMS devices include units of all shapes and sizes, and battery operated or ac powered options. Wearable units such as ab belts and shorts are also popular for specific spot stimulation on the abdomen, hips and thighs.

Bruce Lee's Transformation



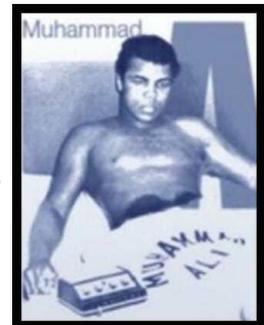
“Three minutes is like doing 200 push-ups” –Bruce Lee

Bruce Lees Electronic Muscle Stimulator: In 1972 Bruce Lee got his first professional muscle stimulator. The **Bruce Lee Legacy** is defined by perfection and unmatched skill as he understood the value of incorporating **EMS** into his training. Bruce's physical gifts were honed by using **EMS** regularly as highlighted by his incredible physical transformation. See for yourself above.

Bruce Lee is arguably the most influential martial artist in history. He was an early proponent of using **EMS (Electronic Muscle Stimulation)** in combination with his weightlifting regimens. He discovered a unique way to use this technology to enhance muscle tone and definition. Bruce Lee was the father of the modern day trend of Ab Muscle Stimulators.

Muhammad Ali using EMS

RARE PHOTO Muhammad Ali using Muscle Stimulation in the 1960's. Muhammad Ali was a big believer in using Electrical Muscle Stimulation for strengthening muscles. Ali used the Muscle stimulator on his abdominal Muscles and his pectoral muscles. This the only known photo of Muhammad Ali using an Electronic Muscle Stimulator Machine.



How Spider-Man Got Superhero Fit

Tom Holland - Spiderman



For the realist in all of us, pounding out two hours of training in 20 minutes seems like an impossible dream. But if pro athletes like Usain Bolt or elite Hollywood stuntmen are to be believed, that's exactly what can be accomplished using old technology in new ways.

It's called EMS, or Electronic Muscle Stimulation, and it has actually been around for centuries as a form of physical therapy. It works by sending low-level electrical currents through your body to stimulate muscles (so following injury, it can help build tone and strengthen muscles). During the past decade, the technology has been making powerful resurgence as a tool in the physical-training realm, primarily in places like Dubai and Germany.

Kotz Current

Dr. Yakov Kots became famous for using electro stimulation in the training program of Russian athletes and his resulting studies were made public at the 1976 Montreal Olympics.

The electrical current used for stimulating athletes was called Russian Current, or Kots current, and was soon also used by the athletes of other countries thus becoming a widespread sports training method.

Dr. Kots defined the characteristics of the current which carries his name after purportedly conducting extensive research and experimentation:

- current form: sinusoidal (it courses through muscle tissue in alternating directions)
- it has a frequency of 2500 Hz when applied to muscle mass (1000 Hz if applied directly to nerves)
- burst stimulation of 10 seconds of electric pulses.

In order to avoid precocious exhaustion of the muscle, which takes place after 12-15 seconds of continuous stimulation, Kots identified the ideal work duration as 10 seconds (pulsed in sets of 10 msec alternated by a 10 msec pause), followed by 50 seconds of rest with a 1:5 Duty Cycle.

With respect to other low frequency motor exciting currents, this type of current seemed to assure a better work-out of the muscle mass, with deeper action, and was also considered more tolerable.

The use of Kots current in the medical field

New scientific discoveries regarding the contraction, or twitching, mechanism in muscle mass as well as new technology which can generate impulses of different forms (square, triangular, trapezoidal) led to the gradual abandonment of the sinusoidal current for the electric stimulation of muscles for sports purposes in favor of the more preformatted current with a square biphasic waves symmetric with frequencies that vary from 30 to 120 Hz. The Kots current, nonetheless, continued to be used in the medical field where it is still had valid applications for its characteristics:

- 1) Good muscular recruitment
- 2) Deep action

The motor exciting effect of the Kots current, as opposed to other types of current, is released deep within the muscle because the puts up less resistance to this current. It has, in fact, been demonstrated that as the frequency increases, the skins resistance diminishes.

Maximum tolerance among the motor exciting currents, the sinusoidal currents with medium frequencies are better tolerated by the patient. This happens because when the frequency of the current is increased a discrepancy is created between the thresholds of muscular contraction and that of feeling pain.

At a frequency of between 3.000-8.000 Hz the pain sensitivity threshold is higher than the motor exciting one. At these frequencies the electric impulses stimulate the nervous motor fibers more and those of sensitivity to pain less and, therefore, provoke practically painless muscular contractions.

Applications of Kots currents, the Kots sinusoidal current has, however, found an important field of application in orthopedics, in the treatment of scoliosis according to the SPES (Surface Paravertebral Electro Stimulation) method. Paravertebral Electro Stimulation is a relatively new method and its worth is still the subject of discussion, but it must be recognized that in certain well selected cases it can actually postpone the use of a corset without any risk to the patient. Another sector in which the electro-therapy of innervated muscle can be applied is Functional Electrical Stimulation (FES).

Numerous scientific experiments exist which describe electro stimulation of hemiplegics through the electric stimulation of non-nervously controlled non-spastic muscles with the aim to provoke a muscular contraction which can then produce a functional movement. It must be remembered that hemiplegics do not have muscular paralysis due to lesions of the peripheral nerves, just as the contraction abilities of their muscles are not altered; therefore there are conditions for the application of electric stimulation.

Electro therapy with Kots currents is also put to good use in muscular transplants, to insure adequate trophism for the newly transplanted muscle's function, as well as to help the patient gain knowledge about his new functional condition, thanks to the afferent produced by the induced muscular contraction.



Electrical Stimulation for Killing Infections & Cellular Regeneration done the right way

Joanna Taylor
May 28, 2018

Conventionally, Electrical stimulation is used by Physiotherapists mainly for stimulating muscles using Electrical Muscle Stimulation (EMS) machines.

Electrical stimulation is a therapeutic treatment for helping recovery from muscle spasms and pain. EMS can prevent atrophy and build strength in patients with injuries. It is also helpful in keeping muscles active especially after any type spinal cord injury or strokes.

Physical therapists and other medical practitioners use Electrical stimulation machines on the patient's skin, causing the target muscles to contract. The way EMS machines work is that they improve blood flow to the region by inducing electric currents. The increased blood flow then enhances recovery.

Electric stimulation can be [muscular](#), general and transcutaneous electrical nerve stimulation (TENS). The muscular type of electric stimulation seeks to strengthen the muscles by reducing muscle spasms. Also known as EMS, this stimulates the skeletal muscle using electric impulses to cause muscle contraction.

That is all good and there are hundreds of Electrical Muscle Stimulation in the market today. However, what I'm excited about is the new, more powerful and faster acting electrical stimulation techniques.

The new technology uses AC/DC currents, delivered through regular TENS machine pads. What's different is the carrier frequency and the amplitude of the this method discovered by [Dr. Bob Beck](#). According to his research and developments, AC/DC current is useful in killing almost any kind of infections. Dr. Royal Rife also professed the same, and we all know the controversies of their career and how they never found success in their life-time in spite of having amazing powerful cures for a huge variety of issues that acts on the mitochondrial level.

[Electrotherapy](#) for Pain Relief has been around for decades, but now we are at a point where we stop symptomatic treatment and go for transhuman-like regenerative medicine.

Electrical Stimulation Use will expand to other practices such as sports medicine, orthopedics, psychiatry, homeopathy and many more!

Should You Use E-Stim Devices At Home Without A Doctor? The answer is no and yes. Always go to a professional when you're in doubt. You also get insights from their experience. However, if you're good at research and don't mind thoroughly reading user documentation and having a few round of questions with the electrical stimulation machine's support staff, you can take baby-steps. In most cases, either the solution suits you or doesn't. The systems come with amplitude so you can get the buzz going as per comfortable level.

Sports Care, Physical Therapy Electrical Stimulation, Neuromuscular Electrical Stimulation practices can now adopt something revolutionary. You can join the movement by spending time in trying and then incorporating these [new electrical stimulation machines](#) in your practice or content for followers. It's good to share knowledge based on self-experience and many are able to thrive while doing a great service to humanity!