

Electrical Muscle Stimulation: Manduu's Gym of the Future Is Here

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There is a fitness revolution beginning in America that is quite amazing. For the first time, advanced technology has been adapted to provide a direct workout to the human body. When we think of technology and fitness, wearable devices immediately come to mind. These devices, however, are passive and depend upon us to move or run or cycle so that data can be gathered and analyzed. Bottom line: a wearable cannot deliver a workout.

The concept of electrical muscle stimulation (EMS) has been around for a few decades, but only recently have hardware and software advances allowed this type of strength-training option to become reality. Early limitations included inadequate electrodes, significant safety issues and a basic lack of understanding of frequencies and electrode placement. These obstacles are now eliminated and 2018 is heralding the bold arrival of EMS in America. Already **well established in Europe with over 2,000 EMS fitness studios** and growing at 20% per year, EMS is an organic force.

The United States has no shortage of companies that provide fitness products to the general public. The problem is that **only about 26% of the population that could work out actually does**. Almost everyone knows someone who “used to work out” but cannot because they were injured while exercising, they don’t have enough time, don’t like the gym environment, couldn’t afford a personal trainer or didn’t see results over time. Now, EMS is available in the United States using the only FDA-cleared device to deliver an effective, targeted workout.

EMS exercise is a powerful alternative to traditional strength training. It is suitable for a wide range of clients over the age of 18. Since there is **no joint loading or spine loading** as there would be with weights, even clients who have had back, shoulder or knee issues can benefit. Manduu has a 92-year-old client in Europe... in fact, the only people who *can't* use EMS would be those with a pacemaker, epilepsy, severe hypertension, kidney disease or a coronary stent.

EVIDENCE OF EFFECTIVENESS

Many clinical studies have demonstrated the effectiveness of EMS exercise, in well clients, in athletes and in patients in the hospital setting. Our first discussion looks at strength gains. **A study done in 2000¹ on a group of basketball players found that after just 8 weeks of EMS training, the players' jump heights increased by 17%**. This is a significant strength and power increase in just a short period of time with a minimal time investment.

A study done in 2013² involving 43 elderly women with abdominal obesity demonstrated significant decreases in abdominal fat and gains in muscle mass. Furthermore, the study identified EMS exercise as a viable alternative for those who are simply unable or unwilling to participate in traditional exercise modalities. The significance of that conclusion means that even elderly, sedentary people can reduce their health risk by using EMS exercise.

Even those who have had surgical intervention for hip replacement can benefit. In 2011³, **a study of females who underwent hip replacement and EMS therapy during rehab showed four particular areas of improvement including a 95% improvement of pain relief, increase in femoris muscle strength,**

increased hip range of motion, and enhanced activities of daily living such as climbing stairs and walking.

In 2005⁴, a group of **17 hockey players received a short-term EMS training program that demonstrated significant gains in isokinetic strength and short skating performance.** The dramatic results are consistent with gains seen in athletes in many other sports that have participated in an EMS based study.

Cardiovascular exercise, often termed “cardio” can also be accomplished with EMS exercise especially for those who cannot participate in traditional cardio-type exercise due to various physical limitation. **A study done in 2005⁵ demonstrated that EMS exercise produced a physiological response that was consistent with mild to moderate cardiovascular exercise intensity.** Once again, the versatility and application of EMS appears to be able to accommodate a variety of individuals, and can be scaled from elderly, sedentary individuals to young athletes.

HOW DOES EMS WORK?

Electrical muscle stimulation has been around for quite some time. The Romans and Greeks used electric ray fish to treat pain. The Greeks were so pleased with the results that they called the electric fish the “narka,” which is the root of the word “narcotic.” In the 1950s and 1960s, much work was done around strength training and EMS. The limitations were that the equipment was sometimes dangerous to use, and usually only weight lifters were using EMS. It wasn’t until more studies were conducted on wider applications that the benefits of EMS became apparent.

Manduu EMS works by providing a **physiologic, machine-generated electrical impulse** through the skin and into the muscle. Several things happen when this occurs. Muscle contractions occur in response to the stimulation. About 80% of the muscles in the body contract at one time. Agonist and antagonist muscles contract at the same time. Clients perform stretching movements while the muscles are contracted, and this enhances the stimulation and subsequent muscle destruction. The frequency utilized stimulates both the Type 1 and Type 2 muscle groups, resulting in a greater workout efficiency.

Not only does Manduu EMS provide gains in muscle mass and strength, but it also has a secondary effect on pain. **Manduu EMS stimulates the brain to produce endorphins, much like a TENS unit.** The difference is that Manduu EMS stimulates the motor sensory pathway. Many of our clients report a dramatic decrease in chronic musculoskeletal pain. Although Manduu EMS is not primarily advertised for pain relief, we can understand how this mechanism works and how beneficial this side-effect can be.

WHO CAN PARTICIPATE?

Almost any reasonably healthy adult can do Manduu! The only exclusions would be clients with a pacemaker, seizure disorder, cardiac stent, kidney disease, or another implanted electronic device. Professional athletes choose Manduu because **the electric current penetrates more than 90% through the muscle compartment**, which makes all the muscle fit and prepared to handle the loads associated with professional competition. Non-athletes prefer Manduu because of the efficiency, privacy and ease of use.

HOW MANDUU IS DIFFERENT

Manduu is a lifestyle company specializing in providing the **highest technology and cutting-edge fitness and nutritional products**. The EMS component of Manduu is the only technology-based solution that actually provides the workout.

Manduu nutritional supplements were created for people who desire a higher-quality product that provides better absorption with premium ingredients. Our protein powder utilizes science to assure breakdown in the body and the highest bioavailability available. The Manduu liquid multivitamin is a custom formulation that is designed to complement each Manduu workout and supply critical nutrients essential for better health. The Manduu protein bar is locally sourced from non-GMO, organic components with absolutely no preservatives. Even the water that you drink at a Manduu studio is pH adjusted toward alkalinity and given an ionic charge to facilitate absorption.

THE FUTURE

Based on the nature of technology advances and a desire for people to have more leisure time, Manduu is poised to become the leader in strength training. The risks associated with exercise can be daunting for the average person. Almost everyone knows someone who was injured working out in one of the latest fitness trends. Manduu offers **ultra-low-impact fitness, avoiding weights to lift that can tear muscles or aggravate a back condition**. Every time a client works out at Manduu, a certified trainer guides the session so there is no need to pay extra. Gym clothes are not necessary since Manduu provides the clothing. Manduu is truly the gym of the future backed by clinical evidence, and with an amazing bandwidth for fitness clients.

SOURCES:

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