MyoSpare™ StimuHeal Inc.

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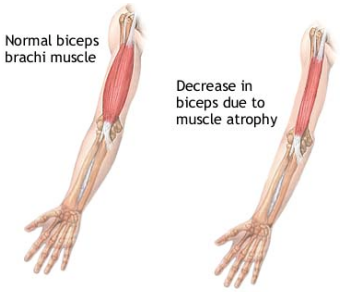
Right before removing a cast after a major injury the doctor turns to the patient with a concerned expression and informs that the encased area may look "a little funny" after the cast is removed. This is a very common occurrence known as muscle atrophy. The doctor often suggests a simple muscle rehabilitation exercise in order to re-strengthen the, now weakened, muscles.

Although there are two types of muscle atrophy, the most common is disuse atrophy. This is a gradual decrease of muscle tone often due to a lack of physical exercise. This is most common in bed-ridden patients, astronauts and patients undergoing a healing process within a cast. Muscle atrophy can also be a general sign of aging. Disuse atrophy can be reversed with vigorous exercise.



An Israeli company, StimuHeal Inc., is working on embedding electrical stimulators inside casts in order to exercise the immobile muscles, hence creating little muscle atrophy when the removal of the cast occurs. This product, known as MyoSpare™, is now available in Europe and Israel, but is still working to receive FDA approval. MyoSpare™ uses the time the human body is healing from injury or completely inactive to its benefit by using Neuromuscular Electrical Stimulation (NMES).

NMES is most often used for muscle rehabilitation by applying electrical stimuli on a specific group of muscles. This is done by passing an electrical impulse from a device through electrodes that are placed on the skin of an affected muscular area. This ultimately stimulates the nerves in the muscle. This activity is in no way unnatural as communication in a normal human body between the brain and the muscular system is accomplished in the same way. NMES is thought of as simply "retraining" the injured muscles to function properly again.

When creating MyoSpare™, StimuHeal was presented with a few obstacles. Since their objective was to create a product having electrodes inserted under a cast, they realized prolonged sweating could be a problem. They were also concerned with the fact that lactic acid and CO2 may build up in the muscles since they are inactive. This could cause major pain and discomfort. In order to overcome these issues, StimuHeal developed a microprocessor which calculates a cycle for the muscles to rest.

MyoSpare™ is the only device developed that can be used under a cast during the time the body is healing. Not only can the product minimize muscle atrophy and muscle spasm, but it also allows for continuous stimulation of muscles without inducing fatigue. MyoSpare™ provides patients with equipment allowing them to self-adjust the stimulation intensity to their individual comfort level. Their product uses the patented DuraLect™ electrodes which are designed for long term applications and made especially for situations where frequent replacement is impossible. They are very thin and coated with biocompatible gel that minimizes reactions by sensitive skin. With these characteristics, no intervention by a clinician is necessary. MyoSpare™ is non-invasive and safe. The device is battery-operated and allows the patient to have complete mobility due to its compact size.

StimuHeal made this device with goals of cutting down on physiotherapy costs and can help speed the healing process, allowing people to return to their original form after a serious injury. MyoSpare™ can be used in patient's homes, office and even during recreation and resting time. This device also is equipped with a monitor that records cumulative treatment time and stimulation intensities which were applied during treatment.

References:

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- **http://www.stimuheal.com/**
- **http://www.umm.edu/ency/**
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