



## RS-OA Knee System™ Sequential Stimulator

### Relieve Osteoarthritis pain without drugs or invasive surgery

The RS-OA Knee System is a new adjunctive treatment option for the 20 million Americans that suffer from pain due to osteoarthritis (OA) of the knee. Unlike traditional treatment options, the RS-OA Knee System addresses the muscle dysfunction and atrophy commonly developed by patients OA of the knee. Several published studies on the relationship between disuse atrophy and OA conclude that slowing or reversing muscle atrophy will benefit OA patients.

The RS-OA Knee System is a non-narcotic, non-invasive treatment option that allows patients to take treatments in the comfort of their own home with a one hour treatment time and self-adhesive, reusable electrodes. In a single sequential treatment the RS-OA Knee System delivers Interferential current, Patterned Muscle Stimulation and a unique TENS (TESA<sup>1</sup>) modality. Together the different treatment modalities provide superior pain relief, muscle re-education and prevention of atrophy in the upper leg muscles associated with osteoarthritis of the knee.

#### Treatment Modalities

Interferential current provides pain relief to the upper leg and by decreasing sensitivity allows patients to take a more beneficial Patterned Muscle Stimulation treatment.

Patterned Muscle stimulation is unique and differs from traditional muscle stimulation that simply contracts and relaxes muscles. Patterned

muscle stimulation re-educates muscle and prevents disuse atrophy by mimicking the natural gait movement of the leg during high level activity, such as running. This provides for greater stability, reduces pain and improves knee function in a non-traumatic, non-weight bearing treatment option.

The TENS (TESA) modality is delivered directly through the knee joint and is specifically indicated for reducing the level of pain associated with OA of the knee.

A published clinical study conducted specifically on the use of Interferential and Patterned Muscle stimulation used in the RS-OA Knee System showed decreased pain, increased function and a reduction in stiffness for patients with osteoarthritis of the knee in as little as four weeks<sup>2</sup>.

The RS-OA Knee System is reimbursed by Medicare, Workers Compensation and some Private Insurance companies for patients who have disuse atrophy of their leg muscles.



#### Features

- New, proprietary technology, available only from RS Medical
- Non-narcotic, non-invasive, adjunctive therapy
- Relieve pain, improve function, greater stability in two weeks<sup>2</sup>
- Easy to use, portable, one hour a day at home treatment
- Reimbursement supported by Medicare



<sup>1</sup>TESA is Transcutaneous Electrical Stimulation for Arthritis

<sup>2</sup>Burch, et al., Evaluating the benefits of patterned stimulation in the treatment of osteoarthritis of the knee, *Osteoarthritis and Cartilage* (2008), Vol. 16, (8) pages 865-872.

## RS-OA Knee System Features

- Sequential Stimulation combines interferential, patterned muscle stimulation, and TENS (TESA) modalities in a single treatment.
- Inclusive TENS (TESA) indication
- Comprehensive muscle stimulation indications
- Muscle stimulation waveform produces alternating, bi-phasic, asymmetrical, balanced pulses
- Tri-phasic, patterned muscle stimulation mimics the natural agonist/antagonist muscle firing sequence of high level physical activity such as running.

- Fully programmable treatment plans

- Independent, programmable channels

- Personal stimulator designed for unsupervised patient use at home

- Large, push button controls

- LCD displays settings, operations, status

- RS Medical provides patient support

- Personal instruction, initial fitting
- On-going support via toll-free Customer Service
- At-home instruction with Operation Manual
- Billing handled by RS Medical

- Hand-held (4"W x 7.5"D x 2.1"H), powered by rechargeable battery

## Benefits

- Non-invasive and non-narcotic alternative
- TENS relieves pain associated with OA of the knee
- Patterned muscle stimulation re-educates thigh muscles and provides other benefits of muscle stimulation
- Offers rehabilitative treatment at a lower cost than alternative therapies
- Adjunctive therapy in reducing the level of pain associated with osteoarthritis of the knee
- Prevents or retards disuse atrophy
- Re-educates muscles
- Maintains or increases range of motion
- Reduces muscle spasms
- Increases local blood circulation
- Phase duration: variable 0-415  $\mu$ Sec, pulse interval 6.6 mSec.
- Cycle frequency: 50 Hz
- Flexible settings enhance patient compliance and convenience
- Accommodates thigh musculature and knee joint in one treatment protocol
- Non bifurcated, a potentially hazardous practice of simulating four channels in a two-channel device by splitting cables
- With 1 hour treatment time, patient fits treatments into daily schedule
- May increase the amount of therapy patient receives
- Can be used in conjunction with physical therapy
- self adhesive, reusable electrodes for easier treatments
- Easy to use functions
- User can confirm proper operation by reading display
- No physician staff time required for patient support
- Easy for patients to learn to use; mini-treatment provided in physician office
- Patients get additional assistance with a free phone call
- Full patient support can increase patient confidence and use, speeding recovery
- Convenient portability; designed for home use
- Low operating cost; no batteries to buy

**WARNING: FEDERAL LAW RESTRICTS THE SALE OF THIS DEVICE ON THE ORDER OF A LICENSED DOCTOR OR PHYSICIAN, UNDER THE LAWS OF THE STATE WHERE LICENSED TO PRACTICE. Contraindications: Muscle Stimulation, TENS, and Interferential Currents.** These are the conditions under which an electrical stimulator should not be used. Do not use the device if you use a cardiac demand pacemaker. Do not use the device if you have any form of cancer. **Pain Relief, TENS, Interferential Current.** Do not use the device if you use a cardiac demand pacemaker. Do not apply current over the carotid sinus (neck) region. Do not apply electrodes such that current flows transcranially (through the head). Do not use this device whenever pain syndromes are undiagnosed, until etiology is established. **Warnings: Muscle Stimulation, TENS, and Interferential Currents.** Adequate precautions should be taken in the case of patients or persons with suspected heart problems or persons diagnosed or suspected as epileptics. Do not stimulate over the carotid sinus nerves, especially in patients with a known sensitivity to the carotid sinus reflex. Severe spasm of the laryngeal and pharyngeal muscles may occur when electrodes are positioned over the neck or mouth. The contractions may be strong enough to close the airway or cause difficulty in breathing. Stimulation should not be applied transcranially. The long term effects of chronic electronic stimulation are unknown. The safety of electrical stimulation during pregnancy has not been established. Electronic stimulation should not be used over swollen, infected, or inflamed areas or skin eruptions, e.g. phlebitis, thrombophlebitis, varicose veins. Caution should be used in the transthoracic application of electronic stimulation. The introduction of electrical current into the heart may cause arrhythmias. Keep this device out of the reach of children. Do not use an electrical stimulator while driving, operating machinery, or doing any activity in which involuntary muscle contraction may put a person at undue risk. **Pain Relief, TENS, Interferential Current.** The safety of electrical stimulation during pregnancy has not been established. This device is not effective for pain of central origin (including headache). The device should be used only under the continued supervision of a physician. The device has no curative value. Current is symptomatic treatment that suppresses the sensation of pain, which would otherwise serve as a protective mechanism. Keep this device out of the reach of children. Electronic monitoring equipment (such as ECG monitors and ECG alarms) may not operate properly when stimulation is in use. Electrical stimulation must not flow through the thorax because it could cause cardiac arrhythmia. Stimulation delivered by the device may be sufficient to cause electrocution. **Precautions: Muscle Stimulation, TENS, and Interferential Currents.** Precautions should be observed in the presence of the following: When there is a tendency to hemorrhage following acute trauma or fracture. Following recent surgical procedures when muscle contraction may disrupt the healing process. Over the menstruating uterus. Where sensory nerve damage is present by a loss of normal skin sensation. Patients may experience skin irritation or hypersensitivity due to the electrical stimulation or electrical conductive medium. The irritation can usually be reduced by the use of an alternate conductive medium, or alternate electrode placement. **Pain Relief, TENS, Interferential Current.** Isolated cases of skin irritation may occur at the site of electrode placement following long-term application. Effectiveness is highly dependent upon patient selection by a person qualified in the management of pain. **Adverse effects:** Skin irritation and electrode burns are potential adverse reactions. Patents granted and pending.