What is the difference between TENS and Scrambler Therapy?

Scrambler Therapy is provided to patients through the use of an innovative, revolutionary MC-5A medical device for the treatment of severe, chronic, neuropathic pain.

There is so much misinformation regarding this technology and TENS that I will try to clarify this issue. First, we need to understand the difference between **ACUTE PAIN** and **CHRONIC PAIN**. We have all felt at some time **ACUTE PAIN** in response to injury or infection etc. Unfortunately many millions of Americans and peoples of the world have been victimized by **chronic** pain.

Acute pain has a beginning, it has an end, and it serves a very useful purpose for evolution of all species. It teaches us to avoid the things that cause us pain and to seek help because we feel pain. It is a "**Red Flag Warning**" that tissue damage has either occurred or is about to. With our normal physiological healing process the pain resolves as the tissue damage is repaired. A lesson has been learned not to leave a finger in the door jamb!

Chronic Pain has a beginning, but no end is in sight. Regardless of physiological wound healing or injury repair, the pain never winds down! Rather the pain develops into an illness in itself. It becomes the problem despite proper repair and healing. When tissue damage is healed **pain is supposed to wind down**. It just does not. In fact, the pain spreads and worsens affecting our social life, personal relations, and our overall enjoyment of life itself. It causes poor sleep patterns. How can we sleep comfortably if we are always in pain? Why would any species benefit from such a condition? It has **no purpose in life.** The pain becomes the disease and cannot shut itself off as it was designed to.

In 1965 two researchers at MIT wrote about their "Gate Control Theory for Pain", (Ronald Melzak and P.D.Wall). To prove that ACUTE PAIN is controlled by a "gatekeeper" they invented the TENS unit. This device bombards the "gatekeeper of pain" with an electrical stimulus at very high speed so that it catches ONLY our "Beta" nerve fibers which only conduct our feeling of touch. These fibers have nothing to do with pain. They are surface touch receptors and conduct touch impulses to the brain at 75 meters per second! This sensation only blocks the pain temporarily at the "gate". The device starts at 30 milliamps of current and has to be continuously adjusted to higher and higher amperage to a max of 150 milliamps. At this level it is quite bothersome to the patient and can cause muscle contraction. The signal itself is not human in form. It is a square or rectangular monotonous pulse wave that the brain eventually recognizes as artificial and outright rejects it. The electrodes are placed directly over the pain site so as to tie up the "gate keeper" from that specific sensory skin site. It was never intended for chronic use. Even its inventors recognized this and merely stated that it does not work for chronic pain because the nerves are injured and do not transmit properly.

For over 15 years researchers at the University of Rome, Tor Vergata, Italy, have been developing a new theory model for CHRONIC PAIN. In a nutshell they believed that chronic pain is a failure to communicate the message of recovery to the Central Nervous System by our pain receptors. We call the receptors of long term pain "C-fibers". These are responsible for the dull, throbbing, aching pain and for temperature (our injury feels hot). After years of research, the team identified 16 waveforms found in humans that have something to do with the perception in the brain of "non-pain". A device was invented that could generate a wave form that is physiologically identical to human waveforms of "non-pain". An algorithm was developed (patented) that could physically assemble these 16 waveforms into every conceivable "string sequence" and transmit them through the surface "C-fibers". These waveforms are transmitted on a dermatome above and below the dermatome determined by the medical doctor to be the epicenter of the malfunctioning pain fibers. By simple probability we expect one of these string sequences will SHUT

OFF the pain maladaptive malfunctioning c-fiber system. This "string sequence" is unique to each of us just like our DNA is. If the brain receives the patient specific "string sequence", it will recognize the signal AS "SELF" AND "NON-PAIN". It is essential for the signal to be perceived as "self and non-pain" or else the brain will reject the transmission as non-human. When the specific string sequence is recognized by the CNS the patient feels immediate relief of the pain. By a concept known as "Neuroplasticity" the device "remodels" the brain center that is responding as "painful" to "**non-pain**". Through daily repetition, much like going to school as children, we memorize the pattern and the pain relief becomes lasting.

Essentially the only thing in common with TENS is electricity. It is not that Scrambler Therapy is more powerful. It is more intelligent, AND it is human. Therefore it does not get rejected like a TENS. There is no adaptation to it. There is no need to increase the amperage as the brain does not try to reject it. THIS IS TRULY AN AMAZING BREAKTHROUGH IN CHRONIC, NON MALIGNANT PAIN RELIEF. PURE AND SIMPLE…IT SHUTS OFF THE PAIN, IT FLIPS THE SWITCH!

Above I mention the milliamps of the TENS as 30 to 150 milliamps. That is quite a wallop. The MC-5A SCRAMBLR THERAPY device MAXES OUT at only 5.5 milliamps. And it transmits through C-fibers, the fibers responsible for chronic pain, NOT beta fibers of touch that have nothing to do with pain in any form.

To date, after treating thousands of patients with Scrambler Therapy, there have been NO known side effects. Frankly, with proper use of the device, I don't think there ever will be because of the pathophysiology of the device. If properly used there is no chance of increasing the pain. It is possible that one could feel a "**relative**" feeling of increase in pain temporarily after a treatment. This is due to the fact that when the pain returns after the first few sessions, the brain now knows what the absence of pain felt like before and will have a new gauge to compare the returned pain to. So a 4/10 Pain Score (VAS) may seem like an 8/10 because the brain has felt a "zero" for the first time in years! This is actually a good thing! It will do no harm and will be very transient.

[This is the opinion of Stephen J. D'Amato, MD FACEP]