

MOUTHING OFF!

Jackson Therapy Partners-- Lori M. Saunders-Rodgers M.A. CCC-SLP

Electrical stimulation and the appropriate candidates



Electrical stimulation is when current is applied to the living body to stimulate nerves or nerve endings that are sensory or that innervate muscles. The electrode can be applied directly into muscle tissue. A less-invasive way would be TES (transcutaneous electrical stimulation), meaning that electrodes could be applied by way of or through the skin. When TES is used, the electrical stimulation will mostly be to the sensory nerve endings within the skin. This sends action potentials to the sensory cell bodies, which in turn, relay signals to either the spinal cord or the brain stem and then to the cortex. It is important to remember that when stimulating muscles with TES, it is only those muscles which are closest to the skin that will have their nerve endings stimulated. Deeper muscles may be stimulated if a higher amplitude current is used and if the overlying muscles and fat are thin. Proper positioning for the greatest effects is essential.

Transcutaneous electrical stimulation is a common form of treatment in physical and occupational therapy. It is believed to support muscle performance and strength development. It has also been used to increase muscle size, and improve range of motion, circulation, and muscle endurance by increasing aerobic capacity of the muscle. As mentioned above, it is the application of

electrical current across the skin to excite nerve or muscle tissue during a functional task.

There are different variants of electrotherapeutic intervention. TES supports circulation to the muscle and is primarily used to control pain. TES is used on atrophied or denervated muscle. TES does not cause muscle contraction. Neuromuscular electrical stimulation (NMES) is used on innervated muscle. It is used to recruit motor units and increase muscle strength. NMES helps promote a muscle contraction and works on a “Fittest Fibers Fire First” paradigm. NMES does not always stimulate atrophied or denervated muscle. It selectively targets healthy innervated muscle fibers. In some cases, NMES promotes muscle contraction during functional activities. There is research of animal and human models that suggest a positive effect of NMES on muscle recovery after an injury or disease.

When using electrical stimulation, the therapist strategically places four electrodes (on adults) or two electrodes (on children) on the front portion of the neck. Along with the electrical stimulation, the therapist uses compensatory safe swallow strategies (e.g. chin tuck, small sips, small bites, and alternating foods with liquids) during therapy sessions.

Electrical stimulation is not appropriate to use for all patients. Appropriate candidates should be considered carefully. It should only be considered for persons with healthy sensory and motor nerves. A favorable candidate would be someone who has had an injury to the central nervous system, such as following a stroke, a traumatic brain injury, or excision of a brain tumor. Cortical control may be lost or cortical inputs may be blocked, which interferes with voluntary or automatic firing of the motor neurons in the brain stem for important musculature during swallowing (craniofacial, laryngeal, and pharyngeal musculature). The electrical stimulation will bypass that block by stimulating the axons from the motor neurons to fire the muscles; it bypasses the central control abnormalities.

With electrical stimulation of muscles, the axons that are innervating the muscle fibers are stimulated (not the muscle fibers). The effects of electrical stimulation are blocked when a person has a motor neuron disease (amyotrophic lateral sclerosis) because the person has a

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loss of muscle fiber innervation. Additionally, in persons with peripheral injury or neuropathies (e.g. spinal muscular atrophy) the axons die back and the muscle fibers are no longer innervated and will not be accessed by electrical stimulation. Also, persons with myasthenia gravis have antibodies that block acetylcholine receptors on muscle fibers, thus preventing muscle fiber activation. In sensory peripheral neuropathies, the sensory nerve endings are lost and are not able to be stimulated. TES should not be used with individuals who have peripheral sensory and/or motor impairments.

There continues to be uncertainty in the field regarding the use of Vital Stim Therapy. There is an article from the ASHA Leader

(<http://www.asha.org/Publications/leader/2012/120424/E-Stim-for-Dysphagia--Yes-or-No.htm>) that presents two views of electrical stimulation in therapy, from two speech-language pathologists. It is important to remember to research and learn about different therapy methods. It is not wise to simply use a new technique because it is new. Learn the pros and cons and if the technique is evidence based.

Charles Gage van Riper– A Pioneer in Speech Pathology

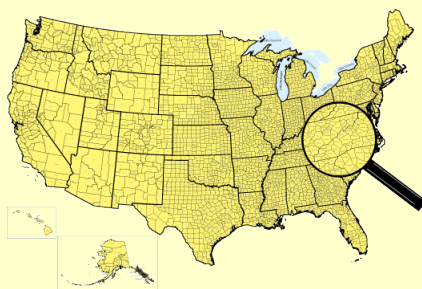


Charles van Riper is a name that every Speech-Language Pathologist has heard. He is considered a pioneer in the field of speech pathology. Charles began stuttering at the age of two. Although Riper had a “miserable childhood” because of his stuttering, he performed well academically. He was an excellent writer and graduated from the

University of Michigan with a Masters of Arts in English. After graduating, he taught high school English. During this time, he developed many different techniques to deal with his stuttering while teaching. He was unhappy teaching because of his frequent fear of speaking because of the stuttering. Van Riper attended the Bogue Institute of Stammerers in Indianapolis, and the Millard School in Milwaukee. Not a lot was known about stuttering at the time, therefore, no one knew how to cure it. He joined a graduate program for speech pathology in Iowa. This is where he and other graduate students worked on developing practical ways of treating stuttering. Charles eventually received his Ph.D. from Iowa in Speech Pathology.

Charles attempted every form of therapy, including rhythmic control, relaxation, slow speech, breathing exercises, psychoanalysis, and hypnosis. He continued to stutter throughout his career. Instead of avoiding and hiding his stuttering, Charles realized that maybe he should have sought a way of stuttering that was more tolerable for him and to others. Charles came to this realization after working on a farm, pretending to be deaf and mute. His stuttering had become so severe that he could not find any other employment. He was hitchhiking home, after a month of working on this farm, when he met an old stutterer who shared that he was, “too old and tired to fight myself now so I just let the words leak out.”

Travel destinations for January 2013



1. Fellsmere Frogleg Festival in Fellsmere, FL. The third weekend of January every year. (January 17-20, 2013)
<http://www.froglegfestival.com/>
2. Gasparilla Pirate Festival in Tampa, FL on January 26, 2012
http://gasparillapiratefest.com/GPF_home.html
3. The Golden Globe Awards Los Angeles, CA January 13, 2013
<http://www.goldenglobes.org/>
4. The Great Fruitcake Toss in Manitou Springs, CO every January. For more info, call 800/642-2567
5. The International Snow Sculptures Championship in Breckenridge, CO January 22- February 3, 2013
<http://www.gobreck.com/events/international-snow-sculpture-championships>
6. The Mummers Parade is celebrated every New Year's day in Philadelphia. The parade makes its way up Broad Street.
7. New York Guitar Festival January 6-21, 2013
<http://www.newyorkguitarfestival.org/>
8. No Pants Subway Ride in San Francisco annually, every January. (It will also take place in New York City on January 13).
9. North American International Auto Show in Detroit, MI January 14-27, 2013
<http://www.naias.com/>
10. Oregon Truffle Festival in Eugene, OR January 25-27, 2013
<http://www.oregontrufflefestival.com/>
11. Pasadena Tournament of Roses January 1, 2013
<http://www.tournamentofroses.com/>

If you want something to do where you are, don't forget about Martin Luther King Jr. Day of Service on January 21, 2013. <http://mlkday.gov/> There are sure to be events in your area!



DEAL OF THE MONTH

Are you getting your CEUs? A super easy way to get your CEUs (without traveling and paying for hotels) is to use www.speechpathology.com. The cost is only \$99 per year for unlimited courses. This is definitely within the budget that Jackson Therapy Partners allows for Continuing Education reimbursement (and you will have money to spare)! If you refer a friend, you will receive \$25 off of your next year's cost; so do not forget to let them know that Lori Saunders-Rodgers referred you for this great deal, then start inviting all of your friends!

There are almost 600 courses to choose from, with varying topics. New courses are added each week. The courses will meet your learning style. The course formats include: live webinar; video, text; or audio. You are able to print the ten question exam prior to taking the course. This makes completing the exam easy! The site will maintain a transcript for you so that you will never have to wonder, "How many CEUs have I done this year?" Not only that, they are capable of reporting directly to ASHA. This is definitely carefree learning.

The site offers so much for \$99! There is a tab for SLP State Licensure Boards. This is very helpful as a traveler. Simply scroll to your state of choice to learn what is required for that state. The professional associations for each state are also listed on the site.

There are often times when you have a professional question and you are not certain where to find the answer. Look no further! There is an article database (not for CEUs) and an Ask the Expert section that will surely provide helpful information.

Start the new year with this amazing deal! I have used this site for the past three years and I love it! It is so convenient and I honestly learn a lot from each course.

5 yakety-yaks out of 5

