Treating Nerve Pain –

New Technique Solves Old Problems

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Good afternoon and welcome to today's Advanced News Magazines webinar. Today's presentation is titled Treating Nerve Pain New Techniques Solves Old Problems. Today's presenter is Dr. Carolyn McMakin. Dr. McMakin is clinical director of the Fibromyalgia and Myofascial Pain Clinic of Portland. She developed Frequency Specific Microcurrent in 1996. Dr. McMakin has a part time practice. She conducts clinical research and teaches FSM seminars in the United States and abroad. She consults with and treats professional teams and elite athletes and has lectured at the National Institutes of Health and at conferences on fibromyalgia and the differential diagnosis and treatment of chronic pain syndromes. She has authored eight peer reviewed articles, four book chapters and two abstracts in the areas of chronic pain and differential diagnosis. Her textbook Frequency Specific Microcurrent and Pain Management is published by Elsevier in 2010.

Hi there. This is Carol McMakin. And this presentation. Is about treatment of neuropathic pain and. Which for which we all know in physical medicine is very. Difficult. So narcotic pain is. Difficult to treat with traditional therapies because medication is mainly effective. The Neurontin. And Gabapentin usually have problems with side effects that. Limit. Effective dosage. Opiates shouldn't be used in. Neuropathic pain, in. Part because. They're not. Useful. And then physical medicine approaches are. Often limited. By patient pain tolerance. Most therapies are palliative to help the patient deal with the pain. If you can heal a disc injury, that. Will help, and. Then we just wait for the. Neuropathic pain to go away.

The cost. Of neuropathic pain can't be underestimated. The U.S. spends close to $1,000,000,000 treating. Neuropathic pain annually. Another billion. $1.3 billion is spent in amputations. For diabetic neuropathies. There is the cost of human suffering, patient. Disability and then the. Practitioner frustration can't be underestimated. A lot. Of us have difficulty. Treating neuropathic. Pain because it's so frustrating. Frequency Specific Microcurrent has pretty much solved all that. Just a brief review for most of you. I'm sure

acute physiologic pain is caused by direct transduction of stimulation into action potentials.

In. Primary nociceptive neurons. The immune system isn't. Involved. In physiologic acute pain, but persistent and. Empathic pain is generated by. Inflammation in the nerves and is. Mediated by. Inflammatory cytokines. Prostaglandins and such sensory. Neuropathic pain is not. Prolonged acute pain. The original injury may have started because of discogenic inflammation and mechanical traction injuries a. Viral. Insult as in post traumatic. Myalgia or autoimmune. Insults and vascular or nutritional insufficiency. Anything that creates immune system activation and inflammation in the nerves is going to produce neuropathic pain. So persistent. Neuropathic pain. Is immune modulated activation of glial cells, mast cells, neutrophils and macrophages. Release inflammatory. Cytokines and activate the. Prostaglandins. Like. Oxygenation cyclooxygenase. The nerve inflammation has the effect of reducing ATP production. And it. Opens sodium and potassium voltage gated ion channels. Creating. A nociceptive action potential that travels up the spinal cord, up the nerve to the spinal cord, to the pain processing centers in the. Brain.

This is a close up. Of the cytokine and. Immune system cells. Involved in neuropathic pain mast. Cells. Neutrophils and. Macrophages. Activate TNF-alpha. And that opens the channels so. Considerations in treating. Neuropathic pain in our day to day. Practice has to do with the mechanism of injury. Is it a traction injury? Is it a disc bulge? Was it. Viral? How did the nerve get injured? There's a relationship between the nerve and the associated tissues. What's happening in the tissues around it? General state of health of the patient. A diabetic patient is in. General very inflammatory. And so their general state of health will contribute to both the. Severity. And subject of an objective state. Of neuropathic pain. Their emotional status is involved because the sympathetics. Are involved. In pain perception. There is the additional feature in. Neuropathic pain. Of spinal cord facilitation and central sensitization, which are equally challenging to treat.

Neuropathic pain involves interleukin one, interleukin. Six. Tnf-alpha. The prostaglandins and a reduction in ATP production and an opening. Of a sodium. And. Potassium. Vick's voltage gated ion channels. So any therapy for neuropathic pain should, in a. Perfect world increase. Atp production and nerves. Provide current flow and. Voltage close voltage gated ion channels or help the patient's nervous system in

that process reduce sleep oxygenation cyclooxygenase mediated inflammation, reduce immune system activation and reduce cytokines as well. As it turns out, Frequency. Specific Microcurrent. Does all of that.

Microcurrent for those of you. That are not. Familiar with it, it's physical therapy. Equipment that. Was introduced in 1979. Roughly in the U.S. and in Europe. It provides currents in millions of an amp. It is physiologic. It's substance. It's the. Same kind of. Current that your body produces on its own if you were able to measure it. The devices are approved in the category of TENS devices, even. Though the current that. They produce is a thousand times less than tens because it's approved, the devices are approved in the category of TENS. It is billable as. If it was a TENS device. It's battery operated. Which makes it acceptable for inpatient as well as outpatient use because it doesn't plug into the wall. Microamps, which current has been studied for. About. 30 years. A study done by Not Chang in 1982, he. Found that current of the. Levels of TENS of. 500. Microamps increased ATP. Production in RAT scan by. 500%. That. Increased protein synthesis by 70%. And that. Was associated with an increase in amino acid transport 40%. Seegers in 2001 and 2002 found that microamps current once again 10 to. 500. Microamps increased cyclic ANP and human lymphocytes activated signal transduction. And it is. Worth noting that current levels above 500 microamps leveled off. Atp production and not chains work. And above a thousand. Microamps which takes you into the milli amp range that we associate with other kinds of electrical stem. Kind of above a. Thousand microamps actually reduced ATP production.

Theoretically. You should be able to increase ATP production. If you increase ATP production, you should be able to improve nerve function. Historically, in clinical. Settings, the use of nonspecific. Current, it. Does provide. Current, it does provide. Voltage, but it hasn't been particularly useful in the treatment. Of neuropathic pain. If you modulate the current with specific frequencies. It. Changes the effects in a clinical setting for the treatment. Of nerve pain.

Where did these frequencies come from? That sort of a favorite question. They were developed in the early 1900s. Or thousands of physicians in the. U.s.. One of them was. Albert Abram's, but there were. Many, many. Thousands of physicians using. Electromagnetic. Therapies between 1910 and 1934 in the U.S.. In 1934. The

American. Medical Association decreed that drugs and surgery was the way that medicine was going to. Go and that any one. That used electromagnetic therapies would lose their license to practice, which at that time was granted by. The American. Medical Association.

In 1934, roughly, the devices began to fell out of use. Fall out of use. And. The devices were used. Were in. Use from roughly 1910 to 1951 and 1951. The FDA stepped. In and said that. These plug. In the wall. Electromagnetic therapy devices were. No longer allowed. Harry van. Gelder was an osteopath from England who moved to. North. America, moved to. Canada, bought a. Practice in 1946 that came with a machine that was made in 1922. And you could just imagine this machine. Sitting in the back room of this. Practice between about 1934 and 1946.

Van. Gelder. Began using it in 1946, and. A friend of mine. Preceptor with. Him brought. The list. Back, written. On pieces of binder paper and put them in a drawer. In 1987. 1995. That. Preceptor handed me. The list and said, Do you think these would work on Microcurrent? So we began testing them or using them on each other first and then on patients. In 1995. The frequencies appear to do. Exactly and only what they. Are alleged to do. Written. On this list.

There's a frequency that is. Described on. The list as reducing inflammation. There's another frequency. There are frequencies also for tissues. Nerve. Spinal cord. I have no idea. How the frequencies were. Derived. I'm a. Clinician. Probably like you are, and. I was interested. In whether or not they were effective and the. Frequencies appeared to do in. Clinical practice. Exactly. And only. What they were alleged to do as they were described in the piece of. Paper that I got. Uncertain of the mechanisms of action. But I think we're getting a better. Understanding of that as we go forward. I can tell you that the 1920s equipment was. Not Microcurrent it plugged in the wall and was predominantly wall. Current, which at that time was direct current.

Frequency Specific Microcurrent was developed for the use. Of myofascial. Pain in. 1995. 96, 97. The treatment for neuropathic pain was derived. In clinical. Practice in. 1998, when I. Combined the frequency to reduce inflammation with the frequency for the nerve to see if it would be effective in the treatment of neuropathic pain. The current passive sensory, the patient can't feel it. We use. Between 103 hundred. Microamps for

most patients. The current has to be polarized, positive. It's pulsed square wave. It's a ramped square wave. Direct current battery operated. Patient has to be. Adequately hydrated. And the. Results between 1998. And. 2014 show. That. Neuropathic pain is one of the most straightforward and one of the easiest things that we treat with Frequency. Specific Microcurrent. Results are reproducible, very predictable at this point, and it's teachable. We have. About 2000 practitioners worldwide using free Frequency Specific. Microcurrent and a fair number of them. Use it in physical medicine. We have other. Applications, but most of. Them. Are physical medicine practitioners. And we found that the. Units are effective for home care.

There are some patients where. If they have a perpetuating factor that requires ongoing treatment. For neuropathic pain. You can fit that patient. With a home unit and. They can use it as needed for. Treating both. Reticular. Pain. And spinal cord. Mediated. Pain. So have one published paper Collected Case Report. And the treatment of Neuropathic Pain. It was a collective case report of 20 patients with different causation. Of neuropathic pain. Primarily, there were. Discs and or attraction injuries. Average patient was 6.7 years. Chronic. With a range of one week to 44 years took approximately 4.6 treatments. About five treatments. Anyplace between one and 15 treatments was the range. First treatment pain level. Went from a 6.8. To a 1.8. P-value with that is .001. When they returned for the second treatment as an average, their pain. Had gone back up a. Bit to a 4.8 on a 0 to 10 visual analog scale. And at the end of that. Second treatment they were reduced to an average of. 0.9 or pain was about a one out of ten. 65% of this toe had fully. Recovered at the end of an. Average of. About. Six or eight weeks. It was about five visits in six weeks, 65% fully. Recovered and did not need. Any further treatment. There were no significant side effects beyond the fact that the patient tends to. Get pretty relaxed and. Has a significant endorphin response, which some of you would described as just being stoned.

That's the one paper we have published in the area. Of neuropathic pain. So in terms of mechanisms, prostaglandins are associated with neuropathic pain. The study showed an association between the induction of Cox two prostaglandin release and enhanced perception. Along the. Axon that changes the expression of Cox one and Cox two. And primary nerve. Afferents and in the spinal. Cord. That suggested that the study suggested that. Nsaids acts in accord. By inhibiting synthesis of prostaglandins. And that's actually the. Way that. Nsaids work in the treatment of. Pain.

We had a study done in. 2003 at University of Sydney in Australia by. Vivian. Grieve. She's a PhD veterinary science researcher with this group, with this university. And she. There was a standardized. Way to study inflammation. In an. A mouse model. These are hairless mice. They paint arachidonic acid. On the mouse ears, measure the swelling with calipers.

These bar graphs represent mechanical measurements of. Swelling in micrometers. When they treated the. Mice with the frequency of 40 hertz on a and 160 hertz on channel B, there was a significant reduction in inflammation. The reduction was so profound, it was around 70% that after the first trial. Of ten animals, they. Shut down. The experiment, made it a blinded trial and. Inserted a placebo frequency. And the results were pretty striking. They there was a 62% reduction in lip oxygenation mediated inflammation. Where they painted arachidonic. Acid in the mouse ears. There was a 30% reduction in Cox. Mediated. Inflammation where they painted nerve still straight on the mouse ears. And that doesn't sound as impressive, but it's equivalent to injectable Toradol when it was studied in the same. Animal model by. The same researcher. Every animal responded. And what was interesting was that it was a four minute time dependent response.

Half of the effect was present. At 2 minutes, the full effect was present at 4 minutes. Additional time did. Not seem to produce a significant improvement. In. Reduction and inflammation. A placebo frequency. Didn't produce any. Reduction in swelling. So they additionally studied other frequencies. So was it any frequency that was going to reduce inflammation or was it this one frequency pair and. That one alone? So they did 4 minutes of the frequency, just 1/10 of a hertz, which is all that was required to get the current to move. So no. Reduction in swelling. If all you had. Was current flow modulated by just 1/10 of a hertz. There are. Alternative frequencies in the Frequency Specific. Microcurrent. List and they tried the ones for. Mineral deposits and bone and that.

Likewise gave no reduction in swelling or 4 minutes. Of the intermediate. Injury. Protocol. 200. 94 hertz. 321 hertz. Nine hertz on Channel A gave no. Reduction in swelling. So not. Only. Was 14 116 extremely effective in reducing inflammation prostaglandins, but no other frequency was effective. Then they sunburn. The mice and

sunburn. Yousee and a hairless. Mouse produces a predictable, reproducible amount of swelling in this animal model. This is the swelling that was. Created at 21. 23, 25 and. 27. Hours. When the when the mice were. Not treated.

This is an untreated group. Was a group that was treated. At immediately. After the UV exposure with. Microcurrent. And they had some. Reduction in swelling, but it was not statistically. Significant. There was a group that was. Treated at. 2 hours. And. At 21, 23, 25 and 27 hours, they had statistically significant reductions in swelling caused by the UV exposure or. Sunburn. P value was 0.01, which is respectable. It's nice. At the same time that they sunburned the mice, they. Painted Oxazalone on a hind leg. Oxazalone is a substance to which a normal immune system. Will. Produce a response or an immune system. Response upon. Re-exposure.

In the group, if you look at the purple bar on the bottom and the group. That was not exposed. To. The UV sunlight, and if you. Paint Oxazalone on the hind leg. And two weeks. Later you paint Oxazalone on their ear, a normal. Response is you should. Have 30 micrometres. Of. Swelling. In response to a subsequent exposure to. Oxazalone on the air. If you sunburn the mice, look up at. The light green. Bar at the top. If you. Sunburn the. Mice. And then paint Oxazalone on the ears. Two weeks, two weeks after the original exposure, the sunburn suppressed immune system response by 63.4%. That is stands for immune suppression. The group that was treated at 2 hours that had the best reduction in swelling.

Further their immune system suppression reduced from 63 to 57%. Which is respectable. The group. That was treated. Immediately with Microcurrent. But the Frequency Specific Microcurrent 40 hertz on a 116 hertz on B. They didn't have a. Significant reduction in. Swelling. But they did have their immune system suppression reduced by half. From 63 to 31% two weeks after it was applied.

This is this demonstrates that FSM. Has the. Ability to reduce or reverse. Immune. System activation, which will be. Important in the treatment of neuropathic pain. Fsm Outcomes. We don't have anything. Published. In diabetic. Neuropathy, but this is a pictorial case. Report. This patient was had a seven. Centimeter. Ulcer. He was a 54 year. Old. Va patient. The seven centimeter ulcer. On the medial. Aspect of his left leg. Both feet were. Gray or mottled gray and the. Product tissue on the right side condition

necrotic tissue in the left third digit. Sensation loss in seven out of. Ten plantar foot test areas. All of these were healed in six weeks in between six and 11 treatments.

The patient's pain. Went down. Within the first 2 to 3 sessions. Sensation was restored. In four. Weeks, and I think that was about eight treatments. He was being treated twice a week. By one of our. Practitioners. This left, left leg, seven centimeter wound was healed, skin to skin. In about four. Weeks. The necrotic area on the. Toe was. Healed on. Both toes were healed. The patient. Did not have an. Amputation. So what was interesting is the frequencies for reducing inflammation in the nerves didn't work. That's what I use first in 96 and 97. It was until 1998. That I tried using the frequencies, reducing inflammation in the blood vessels, and that's what produced the. Improvement, because diabetic. Neuropathy has to do with ischemia. In the. Nerves. Caused. By inflammation. And. Blockage and the small peripheral blood vessels. Treatment is. Clinically derived, there's rapid improvement, and the results.

Are the results are reproducible. They are predictable. And 4 to 6 treatments over a 2 to 3 week period, patients pain starts to go down the wounds and start to heal. And this is teachable. I teach seminars in this. And. Our practitioners. All report. Improvements in treatment. Of Noetic. Neuropathies. So far we haven't found anybody that doesn't work on it. There are successful and expensive home. Treatment also. Available, so it doesn't have much to do with the practitioner. Being in the room making. The patient. Feel better about it.

The mechanisms of action. In the treatment of neuropathic pain with. Fsm, the proposed mechanisms have to do with the current flow increasing ATP, the voltage that. Drives the current re. Polarizing or stabilizing the. Membrane. Voltage gated ion channels, the calcium. And. Potassium channels that. Are opened in neuropathic pain. And I believe the. Current and the voltage both place as part of this play a part in this. You want. To be able to reduce. Prostaglandins and cytokines and we appear to be able. To do that too.

If you can reduce. Interleukin one, interleukin. Six. Tnf-alpha. Substance P, you can reduce. Neuropathic pain by eliminating one of the major. Causes of persistent. Neuropathic. Pain. By changing immune system activation. Fsm doesn't appear to.

Palliate neuropathic pain. It eliminates it by treating the causes. That is our observation and hypothesis.

How exactly do we do that? How do I know. That we're reducing inflammatory cytokines? Whereas a paper published in 2005 cytokine changes with Microcurrent treatment. Of. Fibromyalgia associated with spine trauma. This was. Done in fibromyalgia. Patients. We had 54 patients with a history of trauma. I took the first 25 patients. That were. Created in 2019. 99, did a. Grand rounds presentation at NIH and told the group that was. Assembled that I needed objective data, or nobody. Would believe that you could take. Their. Patients pain from averages of 7.3 to an average of 1.3.

In an hour. And Jerry Phillips. Came up and. Offered to. Do blood sample data and micro immuno. Chromatography. And so at the. End of the lecture, he sent me blotter paper. And I collected. The blood sample data that you're going to see. Shortly.

This group. Of fibromyalgia. Patients has a characteristic pain. Pattern, the pain level. As an average of 7.3 and a 0 to 10 scale. They are resistant to narcotics as a group. They have dermatomally, hyperesthesia. And hyperactive. Or patellar reflexes, which suggests that the spinal cord is. Inflamed. Slowing descending inhibitory impulses. Clinically. Only one frequency combination was found to reduce the pain. It has to be 40 hertz on Channel A frequency. Associated with. Reducing inflammation. Ten hertz on channel B. The frequency associated with the spinal cord as a tissue current has to be polarized positive. You have. To set the patient. Up with the. Contacts. Positively to the negative. Means of the fate. Pain is reduced from a 7.4 to a 1.3. In 90 minutes. It's going to last anyplace from 2 hours to two weeks. I've only had.

One patient where it was a single treatment that was. Permanent. Most of the others. Need ongoing. Care, as you'll see if you keep the pain. Below a. Four out of ten for 12 weeks, the neuroendocrine system appears to recover. And the patient. Recovers from fibromyalgia. The recovery is individualized. They every patient's going to be different for him and the office in his. Home, they all got. Physical therapy for reconditioning, for spinal stabilization. Once the centralized pain was reduced, they still. Needed. Spinal stabilization. Reconditioning? We use supplements. I would. Order for set blocks or epidurals if the patient needed. It. And the. Data was this all patients, all 54 patients.

And had their pain. Reduced from an average of a. 7.4 to an average of a. 1.3. 58% of them, 31 out of 53 experienced resolution of. Fibromyalgia within four.

Months. That included. Improved tender point sensitivity, improved sleep. Quality. One patient relapsed from a subsequent entry. We were able to get her. Back to recovery as well. 13 out of 53 discontinued treatment for reasons. Not. Related to treatment side effects. I personally believe. That. These 13 patients had. The. Biggest challenge. With getting. Used to not. Being in pain back in 1999, 1999, 2001. When these cases were collected, I wasn't very. Good at. Helping patients with the transition from. Being. Used to. Having a. Pain level of a seven to. Having. Pain levels of a one or two.

When we got the. Cytokine data. From Terrie Philips, it showed. That interleukin one went from. An average of 392 and. T1 down to T1 in 90 minutes in. That first patient and you see. The graph. Of the five patients we got. Data on who met the. Diagnostic criteria. To be. Included in the study and it's an average and. Only. One went from. 330 down to 80 that P-value. Is 0.004. If you look at it just on. Time points, how. Likely is it for interleukin one to go from. 330 down to 80 in 90 minutes? A P-value. Has 30.0001. Those of you that are. Familiar with cytokine. Chemistry knows. That cytokines in a typical medical or. Research setting are known to be very difficult to change. And when they change, they change very slowly. There is no. Other research. Data anywhere. That shows. Interleukin one dropping. From 392 down to 21. At 90 minutes.

This is this was. Very. Good news for us. In documenting how it. Is that FSMA worked. Tnf-alpha dropped. From. An average of 305 down to 78 and our first patient, it was. 299 down to 20. Tnf-alpha is what is absorbed from the periphery of shift. Retrograde up the. Nerves to the spinal. Cord and activate. Spinal cord sensitization. So if you can demonstrate that you can drop.

Tnf-alpha, you know. That you can reduce or eliminate central or spinal cord sensitization, which is mediated by TNF-alpha in the spinal. Cord pain pathways and. Six can fix one from 284 down to 15 P-value is 0.008. Once again, there is no there is no other setting or cytokines. Drop at. This rate. This patient up here that says she didn't respond, she had a disc compressing her spinal. Cord and her pain level actually went up or dropped. Very. Slowly over the 90 minutes. And her cytokines did not come down the way the rest of the patients. In the other. 12 patients that. Were not included in this

study and in whom. We had. Suttich and data. Had their cytokines drop at this rate. But they had other. Kinds of neuropathic and central. Pain and didn't meet the. Diagnostic criteria to be included in the fibromyalgia paper substance. P is produced in the spinal cord, as you know. And is. Shipped into the periphery by the vascular system. And the nurse. Substance p. Dropped. In this initial patient from one 32. 2 to 10. That P value has 0.0001 and. Reduced as an average of. From 180. Down to. 54.

Substance P drops. This demonstrates that we actually. Are. Changing function and genetic expression and cellular function in the spinal. Cord when. We use this frequency of 40 hertz on a and ten hertz and channel B.

We have data that shows we're able to reduce interleukin. One. Interleukin six. Tnf-alpha and. Substance t cell at the same. Time. These patients have. This is the other data that was. Made. Available to us. By. Nih, Terry Phillips, when he was working there. He's now. Retired. But endorphins goes up even in the patient that didn't respond. The endorphins go up from a from. A by a factor of about. Ten times from 8 to. 7. The index patient whose endorphins went up. From a five to 88 at about the. 30 to 40.

Minute mark. The patients experience a degree of euphoria that is roughly equivalent. To getting about. A half a c c over. Said. They can open their. Eyes if you ask them to. But they will not willingly open their eyes. They will not willingly speak.

The one side effect that is significant with this treatment. And it. Applies to all treatments, most treatments for neuropathic pain is the patient gets euphoric. It's an induced euphoria. The patient in this initial. Sample at about 1130, looked up and. Asked me, is this legal? So she was pretty stoned at that point. So the endorphin response is pretty consistent. It wears off after about 30. To 60 Minutes, and the patients are usually safe to. Drive by the time they get ready to leave the clinic. Cortisol goes up. By a factor of about. From five factor of about ten times p value has 0.03, but it's not a stress response. Cortisol follows the endorphins because when you're going to increase endorphins, you're increasing beta lipotropin and the other half of. Proopiomelanocortin. Is acetic acid. Ph goes up and that raises cortisol, if you notice from the previous slide. Endorphins go up and the curve looks like this and the cortisol. Curve lags behind it by about. 15 to 20 minutes.

Neuropeptide Y goes down. And or peptide. Y is associated with stress response. So it's not a stress response. It's just that when the endorphins go up so. Quick. Act is. Bound to go up. And that's going to drive adrenal cortisol pain levels went down from 7.3 to a 1.3. That P value actually has six zeros. It's 0.0001 is what you publish. So they all leave. The office feeling pretty comfortable. Control patient didn't respond to the study protocol. The fibromyalgia was misdiagnosed. She was treated for myofascial trigger point and that reduced your pain. And we have two papers in the area of myofascial trigger points, cervical myofascial. Pain. Average of five years. Chronicity took about 12. Visits in eight weeks to get the pain from 6.8.

To 1.5. And that was because I wasn't very. Good at treating the. Perpetuating factors which for distance assess. Lumborum. Of actual pain. We got lucky it was. Mostly it was mostly. My. Strictly my official. Lumbar. Paraspinals and the psoas. It took. About. Six visits and six weeks with an average of eight years chronicity to get their pain from a 6.8 to 1.8. This was a collective case report that in some sense the patients in both the. Cervical and. Lumbar series. Acted. As their own control because 88% of the cervical patients in 87%. Of the lumbar. Patients had. Failed, with one or more. Conventional therapies. Including. Manual trigger point therapy, trigger point injections, massage, physical. Therapy, acupuncture and medical. Management. With. Medications. I'm going to do a. Quick case report in there. Traction injuries just because they are so difficult to. Treat from a. Medical perspective. We're going to go through this rather quickly. The mechanism of injury. Involves. A stretch injury to the. Nerve that. Creates moderate to intense pain that is worse with movement that stretches the. Nerve. The pain is generally constant. There is no position of relief.

If you have a ridiculous apathy. Created by a dish, you can get the patient into extension. And usually. That will quiet down the. Peripheral. Pain and the nerve pain. Nerve traction injuries are non responsive to narcotics and may. Help be helped by gabapentin. The sensory exam will. Be normal, but because. It's simply a traction injury, sensory exam. Will be abnormal. Showing hyperesthesia or numbness. But there will be normal reflexes. The nerve tends to. Heal in time. Although sometimes it takes years and sometimes they do not. Heal well at all. And there. Are no successful physical medicine treatments that. That I'm aware of. So this is a case report and attraction injury

and a 58 year. Old female who had a. Severely slender she was held tight in a mammogram for 2 hours to direct needle placement for a biopsy.

During the mammogram, she had intense, immediate chest pain that persisted. For a year after the mammogram. I got her at 12. To 14 months. She had one year of physical therapy and medication with no chance of symptoms. The day that she presented her. Pain level. Was a six or seven pain touch. Her movement was. Benign. Average pain was a five. The worst was in eight. Roughly. As long as she didn't touch it. Pain an examination. The day she presented was about a69. If I touched her reflexes were brisk and equal bilaterally. She had a ten by 11 centimeter area in the. Middle of her chest. That. Was exquisitely hyper esthetic. When you checked. Into the pinwheel and I drew. Margins on the outside of her skin palpation, she had trigger points in the PEC major. And minor. It was difficult to evaluate because of the pain she had exquisite tenderness to touch.

The diagnosis was the thoracic nerve traction injury. Created by the. Pressure on the super ocular nerves and in the anterior cutaneous branches of the intercostal nerves. To render these six treating with FM, you put the positive leads along the. Spine, the negative. Leads along the front. You use 40 hertz on Channel A 396 hertz on channel. B polarized. Positive current. For the first. Treatment at. The end of 60 Minutes, your pain was down to a zero to a. To bottom one. Down from 6 to. 7. And the sensation in the area was normal. She came back the next day or. Pain level had only gone. Back up to three or four Hyperesthesia was. About four. Centimeters near the sternum, so I treated for nerve pain for 6 minutes. Her pain level went to zero, but the hyperesthesia was still present, which suggested that the. Spinal cord and the brain spinal cord. At least had sensitized probably because of TNF-alpha.

We hooked her up from neck to feet and ran 40. Hertz on Channel A ten hertz and channel. Which we know from the preceding study, reduced inflammation hyperesthesia was gone.

If she was to resume exercise. And come. For treatment as needed, she lived in Seattle. And. Drove 3 hours for. Care. So at two weeks she came back. She found that. Increasing. Exercise increased the pain. Or pain. Levels of six to a seven. She had a. Ten centimeter area of. Hyperesthesia. And. To palpation the intercostal spaces

between two and five. Were very. Tender, plus three or four. So we treated her. Once again for a. Channel. A. And 396 on channel. B for the neuropathic pain. And then because swimming increased the pain, you have the presumption that the nerves are adhered to the surrounding fascists. So ran. The frequency for. Scarring in the nerve while immobilized the. Ribs and the soft tissue. With my what's my hands? This is an adjunct to mental therapy. It's not a substitute.

At the end of it, the patient. Had no pain. Good range. Of motion. She went to exercise in the hotel. Came back the next day. Once again, movement increased the pain. But she came in at about a three or. Four, again. Treated for. Neuropathic pain. Adhesions in the nerve and this time treated. The. Myofascial trigger points. At the. End of it. Her pain was. A zero. Increase exercise as tolerated was the plan of returning two weeks. Two weeks later she. Returned and said, I feel like I had my life. Back or she had no pain. She was able to swim and exercise. The examination was completely normal. She had no. Areas of Hyperesthesia left pectoral muscles and Subscap feelers were tight. This radius is tight. And. Adhered to the latissimus. Those would be the shoulder. Know what I'm talking about? Where the facet just seems to get glued.

I treated for adhesions between the nerve, the fashion and the muscle. Mobilize the anterior ribs did manual soft tissue therapy. Pain was a zero, and I followed up with her. One year later, she was still pain free with full function and able to. Exercise completely.

It should be asking how is the specific frequencies could influence conditions and specific tissues? I mean, if. Only 40 hertz on Channel A and 396 hertz on channel B reduces nerve. Pain, how is that? If only. 40 hertz on Channel A and 116 hertz on. Channel B. Reduces swelling and inflammation in the mouse's ears. How does that happen? Well, it's a different view of biological systems. We usually have a Newtonian view of biological systems. This is a quantum view. It is a micro view. Of living tissue. If you look at living tissue and think of it as. Biochemicals, you can. Get your head around the concept that. Your. Biological system is biochemicals. And those biochemicals, if you look them. On at them. In a microscopic. Level as a biological. Quantum system, which consists of molecules. Which are. Made up of. Atoms which are made up of subatomic particles. But what are molecules. And atoms and subatomic. Particles? Well, effectively, they are bits of energy whirling. At close to light. Speed held together

by electromagnetic bonds. Held. Together in an. Energetic relationship. Living tissue is biochemicals. Every biochemical. Especially in living tissue, is a bioelectric system.

The short version. Is that. Cells are semiconductors. Your body is a biochemical bioelectric system. Your cells are filled with a gel lattice. Water molecules. Line this gel lattice. The gel lattice connects the intracellular. Organelles. With the outside. Membrane. And integrins are connected from the. Outside of the membrane to the inside. Of the. Cell. Water molecules line these structures and. Vibrate. In such a. Way that there are little holes in the outside. Shells that form structures that turn. The membranes. Into semiconductors.

The water molecules forms a structure that is. Not unlike silicon or. Germanium that you find is a computer chip. This allows. For rapid flow of current and. Information. The membrane proteins inside the cell reconfigure in response to information delivered to the outside of the cell in the form of. Emotions, biochemicals, drugs and frequencies.

The literature background if you want to pursue it. Albert St George We wrote papers in the eighties. And. He said molecules do not have to touch each other in. Order to interact. Water form structure that transmits energy. Jim Oshman wrote Energy Medicine a scientific basis. He's a PhD biochemist working at Woods Hole in 2000. Across the hall from St George. He, by the way, all parts of the living matrix set up vibrations. These are not subtle phenomena. They are. Large, even gigantic and. Scale.

Robert Becker is. An MD. Who wrote The Body Electric. And Eighties. He explored how it was that salamanders were able to grow back a leg when you cut it off. And what you discovered was that the perineum is a direct current DC system that conveys the information about. How to grow back a leg throughout the body and. Creates healing. The parallel neuron system is sensitive to electromagnetic fields and DC current in particular. He was able to amputate the. Leg of a rat and get that leg to grow back completely. Normally by going a battery. To the rat's head and. Maintaining. Specific current flow to the severed. Limb with the battery. He was unable to get that paper published and instead of. Giving him a Nobel Prize, they cut off his funding and his. Lab ended up shutting down, which is why he published the Body Electric. If you haven't read it recently or haven't read it at all. I highly recommend the Body Electric. It's fascinating book. So short version.

The Body is in fact an electromagnetic system. That looks. Solid but functions as a semiconductor. Network. That network. Conveys and stores current. Charge and. Vibrational information. So. Resonance explains the effect of the frequencies. So how is it that 14 116 reduces LOX and COX inflammation in the mice? How is it that. Only. 40 and 396 reduces. Neuropathic pain and with the key. Allopathy nerve traction injuries?

How is it that only 40 and 62 reduces the inflammation that causes diabetic neuropathy? Resonance is the tendency of a system. Or a bond. To. Oscillate at large. Amplitudes in response to some frequencies. And not others. At the resonant frequency. Very small forces can produce very large amplitude vibrations so that the. Common neural. Bridge is that videotape. We're all. Familiar with from the 1950s. Where the. Bridge was placed across the Tacoma Narrows. The supports in the bridge were equally spaced. The bridge was flexible. It was more flexible. Than. Other bridges at the time, so. That when the wind came around the corner, it didn't blow the wind, the. Bridge down by force. This wasn't a. 200 mile an hour typhoon. It was a throw or 4 million. Mile. An hour storm. What happened was that the bridge began to oscillate. The frequency. Of. The oscillations reached the resonant frequency. Of the. Bridge. You could see a standing. Wave and the equally. Spaced supports. And the bridge came apart because of resonance, not because of the force of the wind. When Julie Andrews sings. The note. That shatters like crystal glass is because of the precision of her voice, that matches the frequency, that holds the lead atoms together. The lead. Bonds vibrate because the frequency that she. Is singing. Resonates with the frequency that holds the lead atoms. Together. And the crystal comes apart because of resonance, not because of volume.

Biologic. Resonance as much the same. Thing. I think living. Matter responds to coherent signals. We're surrounded by signals. All the time, but they're like. White noise, right? Drugs are nutrients. We're used to those acting on cell membrane receptors. They act like. Keys in a lock to change membrane protein configuration and thereby change cell function well. The frequencies that are administered, if they are coherent. Act like. Your key. Beeper that. Opens that same. Lock with an electromagnetic signal. We think that what's happening. With Frequency Specific Microcurrent is that the electromagnetic.

Pattern created by. The two signals in the. Field. Changes membrane, protein configuration and function electromagnetically. So biological. Resonance changes appears to change cell signaling. And that. Appears to change cell function. Dramatically. So in order for this data. To be true. Inflammation is present in the tissue. Not only as a biochemical phenomenon. Inflammation can be changed. Is changed by applying an electromagnetic pattern. Like a key beeper that changes cell function. Electromagnetically.

There's an FM textbook. It's available at Amazon.com. It's only $16. It's a good introduction. And chapter one is the history of FSM. Chapter two has. The. Mechanism described. And then. The other chapters are actually how to treat neuropathic pain in central. Pain. I teach this in a seminar. The frequencies of protocols at this point, after 17 years, are reproducible, predictable. They're teachable. It's three days. It's like. Learning language. In three days it's two and a. Half days of. Physical medicine, including differential diagnosis, the lecture, and 6 hours of hands on practicum. So a lot. Of individual attention is usually one instructor. For each of ten. 8 to 12 students. By Sunday night. When you leave, there is immediate competence. You're overwhelmed but. Safe. When you leave Sunday. Night to begin using it on Monday. Morning to treat patients, there's a 3 to 6. Month learning curve that. Goes up until. Forever. In the. Last year or two, I've used frequencies. That I've never combined. Before in 17 years, but it's it's what the situation called for.

The learning curve is three months to six months is pretty steep. And then. After that it's a little flatter. Because you learn what works. The equipment. Is inexpensive. It's U.S. made. It's pretty. Reasonable profit. Practice effects. For those of you that for whom this is. A. Question, it starts earning money because it's available. So it's insurance reimbursable because it's. Approved and the. Devices are. Approved in the category of TENS devices.

You all know that the FDA does not approve. Techniques and they. Don't have an opinion about. Resonance therapy or Frequency Specific Microcurrent. But the devices are approved in the category of TENS devices. They're positive outcomes. Every patient you treat with. Neuropathic pain or diabetic. Neuropathy knows about six people just like them.

The practice grows from patient referrals. You get your chronic frequent fliers better. By and large, nothing is 100%. And then there's long term growth from both practitioner and patient satisfaction. You get a lot less frustrated with treating neuropathic pain and come to assume that you're able to help these people. This is a chiropractor assistant who worked in her husband's office in a small suburban practice. She started out doing both insurance. And and. Cash reimbursement, and she went from 25000 to 50000 a year to 100,000. Starting in. 1999 through about 2007, she was experiencing. About $100,000 in. Revenue from a use. Of. And she started with one machine. And one. Room and she ended up. With. Three machines in three rooms because you can treat patients especially for. Neuropathic pain and unattended. Fashion, because everything changes. As you can see, when you can treat nerve pain and central sensitization, you increase ATP production with the. Current. By 500% and reduced inflammation. By reducing both. Cytokines and. Lipo oxygenation cyclooxygenase prostaglandins you can treat myofascial trigger points and myofascial. Pain and you. Use frequency specific Microcurrent as an adjunct to manual. Therapy. To replace what you do as a. Manual therapist. If if that is your specialty. It is an adjunct. That allows you to. Quiet the. Nerve pain so the patient can be touched. It allows you to. Mobilize. The nerves so you can relieve adhesions. And. Allows you to treat myofascial pain and trigger points with your hands. While allowing. The tissue to. Soften. In response to the frequencies.

If you have any questions. I'll be happy. To answer them. Now I suggest that you go. To the website w www.Frequency specific. Com that's. A frequency. Specific Microcurrent website. Download the published. Papers and the fax frequently asked questions. Precision Distributing is an unassociated. Company. That distributes the. Microcurrent. Devices that are used in frequency specific. In order to purchase a piece of equipment for precision distributing, you have to have read the textbook. Or. Have taken one of the FSM courses. That's W WW. Precision distributing. Dot com. And I can. Answer any questions now if anybody's there. Okay. Thank you so much, Dr. McMakin. And we do have a few minutes here. I'd encourage anybody with a question to go ahead and send it in at this time. And we have had a few come in.

The first question I'm actually going to handle, we've had a couple of questions on viewing this presentation. Again, I wanted to let everyone know that the webinar was recorded and an archived version will be available within the next couple of days. Keeping Keep an eye on your email for details on when that's available and how you

can access it also. Handouts. If you'd like a copy of the handouts to today's presentation, I'll give you an email address. It's advance events at Advanced. Web.com Again, that's advance events at Advanced. Web.com And we will get a copy of the handouts out to you. Dr. McMakin we have had a few questions come in related to the presentation, the first one, and these came in kind of all through.

If you've already addressed sure, then then let us know. But the first one is from Clarissa and she asks, Has FSM been tested on patients with idiopathic small fiber neuropathy? I don't have any data on. That particular condition in general. Idiopathic small fiber neuropathy isn't probably idiopathic. It has probably. More to do. With a genetic defect and the ability to methylated B12 and folic acid. In my. Experience, and when you give these patients intravenous. Or even oral methylated, methyl cobalamin and. Methylated. Folate. It takes about 2 to 4 weeks. And this small fiber. Neuropathy goes away.

If the neuropathy is associated with chemotherapy. We do well with the. Vincristine neuropathies. Cisplatin is less successful because the cisplatin kills. The neuronal cell body DNA and we. Can't put tissue back. That's not there. So those are the two. That I'm familiar with and comfortable with. If it's a B12 deficiency. Or methyl, if you're unable to methyl eight B-12 or methyl eight folate. What you need is methylated B-12. Fsn will. Help quiet the pain, but it won't. Produce any permanent change until you get the patient the nutritional support that. They need in a way that they. Can utilize it. Okay. And we had we had two people ask a similar question, Linda. Actually, both the name Linda, but different spellings. They are both asking about the use of this mobility modality with regional sympathetic dystrophy.

We actually have. A portion of the core. Seminar. On treating. Rcd. Reflex sympathetic dystrophy complex regional pain. Syndrome. When you treat RCD. You run. The frequency to reduce the. The. Setup 40 and 10 to reduce spinal cord sensitization. This allows the patient to be touched. You run that. For about 10 minutes and then with the second device, you treat the affected. Peripheral nerve. You treat for inflammation in the nerve, inflammation in sympathetics. When the. Pain is down to a zero, to a. Two. And the patient can be touched. Then you start. Driving the. Nerve to reconnect with the peripheral sympathetics. If the patient has centralized RCD where it spread from, let's say. A lower limb to the upper. Limbs and hands where they've become hypersensitive.

There are frequencies for the sensory cortex. And. If you treat the sensory cortex with the unit that's running from neck defeat, at the same time that you're treating the. Peripheral nerve. It responds quite dramatically. The 2014 Core Seminar. We actually have a patient. Treated in real time at the end of the day that we got on videotape and. It shows resolution of the RCD. In. I think it was about a 75.

Or 80 minute treatment. And at the. End of it, sensation is normal. Motor function has returned, the pain is zero. That response lasted. About two weeks. And we didn't. Obviously get the two. Week follow up on videotape, but. Subsequent treatments each last a little bit longer. So the patient. Dig recover. So Reid is not a slam dunk. If they've cut the nerve or removed the. Nerve, we can't put tissue back. That's not there.

Patients who've had. Deep burns. With a nerve has. Been removed as part of the dividing. Process. That is effectively phantom limb pain. It's a it's a central process and we can palliate it that can't fix it. Rcd Recovery from our study as. Around. I'd say, 60 to 70%, but that's in a selected patient. Group that will. That is well enough to. Come. To an alternative practitioner. Like a chiropractor. But we have quite a few practitioners that treat RCD and it's it's pretty successful. I'd like to get something published in. That arena, but. We're still working on. That.

Okay. And a question just came in from Mary. Would this technique be recommended for decreased sensation in the extremities without pain? Yeah. Actually, it seems to be useful. It depends on what's causing the decreased sensation. But by and. Large, the only side effect is that the patient gets stoned, which is not. Unpleasant. I'll try it on anybody. So it can't hurt you much to drop the machine on their foot or something. And it's got a pretty good chance of helping. So it's it's always worth a try. I can't say that I've treated. Maybe one. Or two. Probably. With just reduced sensation, not associated. With pain, but. It's definitely. Worth worth. A try. Right. And Julie asks, We have an ACP unit. I'm not sure what that is, but we have one of these at my facility.

Can this treatment be performed on our unit? And if yes, what would the protocol be? Okay. Well. The challenge that you have with most of the combination units, and if you're a physical therapist, most of. The combat units like. It'll do in a differential. Galvanic and Microcurrent, they're either. One. Channel or they have, they don't. Have two channels. Or they have. Only certain preselected frequencies like 3/10, 6/10, 30.

40, 100. The devices that precision distributing provides. Provide the resources that you need to treat with this. You need to channels if you have a device that do two channels, each of them to three digit specific.

You can run 396 hertz on one of the channels where you can set the pads up to the. Current. Crosses in the field. The current can be run polarized, positive. It's a square wave sign. Waves don't work so well. Don't know why, but. If the square root pulse is more effective, so you need a two. Channel unit with the ability. To select 40 hertz on channel A, 396 hertz and channel. B with my current hertz current around a hundred. 150 microamps. And polarize a. Positive.

If that. Unit will do that and I'm with John, I'm not familiar with that unit. I'd say give it a try. Otherwise go to frequency specific go to precision distributing the devices vary from. 2200 to $6500. So as professional electrical stim devices go. They're really. Pretty inexpensive. Okay. And just ask a couple more here. Is there a master list of trained practitioners Linda wants to know? There is. On a frequency specific. Dot com website. There is a practitioner list to find a practitioner. They go clear. Back to. Probably. 2000 and 2003. And so some. Of them may. Still be using. It. Some of them may not. But there is a practitioner list on the Web site. And it can. Go to those practitioners. We have the phone number, the city. And you're. Welcome to. Call a. Practitioner or refer a patient to a practitioner. Okay. And Patrice asks, other than the Body Electric, which you mentioned, are there other books, articles, references that you would recommend for especially a layperson to better understand the biology behind this modality?

I'd say The Biology of Belief by Bruce Lipton. And. Jim Oshmans. Book. Energy Medicine The Scientific Basis is those two are. Probably my favorite. And the most. Readable. And the most and the most relevant. I'm trying to think of what else. There are lots of articles. The bibliography that is found on my head handout. Is useful. And then in. The form textbook. And that's available on Amazon. Each chapter has a bibliography, so the chapter on treating. Neuropathic pain and fibromyalgia. Associated with spine trauma. Those two chapters have bibliographies on the use of electrical system. In Microcurrent and. And treating neuropathic pain. So the bibliographies are there for specific peer reviewed articles. That that's going to do it for our time. There are a few more questions here that I'm going to compile and just send you through email and we can make those available to the attendees. I just wanted to thank you again for

your time, Dr. McMakin. We've had several complimentary comments coming in. One person said, Just want to thank you for the presentation. The case study was excellent, especially the positive outcomes. So we've been getting a lot of good feedback on the presentation. We do appreciate your time. Thank you again, Dr. Mcmeekin and for everyone to who attended today and have a great afternoon.