

Erasing Pain

Using Bioelectric Medicine:

Microcurrent Biofeedback

Neuromodulation Therapy



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- 25+ years in healthcare: EMT, Cardiology, Oncology, Pediatrics, Infusion Therapy, Telemetry, Emergency, Pain Management, Holistic Healing
- Masters Degree in Nursing Education 2010
- 6+ years CRPS/RSD Specialist, charge RN at DeBruin Infusion Center in Sacramento
- Certified by Dr. John Hache in Microcurrent Therapy 2015
- Co-founder/National Trainer for Academy of Applied Bioelectrophysiology
- Owner/Practitioner Erasing Pain Holistic Health and Wellness Center
- Owner Electro Massage Supply
- Founder/Executive Director CRPS Clubhouse non-profit



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Session Goals

- Provide a general overview of the current field of Bioelectric Medicine
- Define terminology to navigate choosing between different types of devices
- Functional vs allopathic medicine: root cause resolution vs symptom management
- Focus on microcurrent biofeedback neuromodulation therapy: why it is different, how it works and how to access care
- Identify treatment barriers and solutions



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What you are about to learn...

will sound TOO GOOD TO BE TRUE

So here are a few real results:



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NERVE REGENERATION

Severed facial
Nerve

4 treatments
over 7 weeks



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WOUND HEALING

3 treatments
over 16 days

G., aged 36, Electric arc burn, 20 % of body



Day 2
(Tx #1) 24.10.05.



Day 6 28.10.05.



Day 16 7.11.05



24.10.05.



28.10.05.



7.11.05



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SCOLIOSIS CORRECTION

One 20 min session

Before: Purple
After: Green



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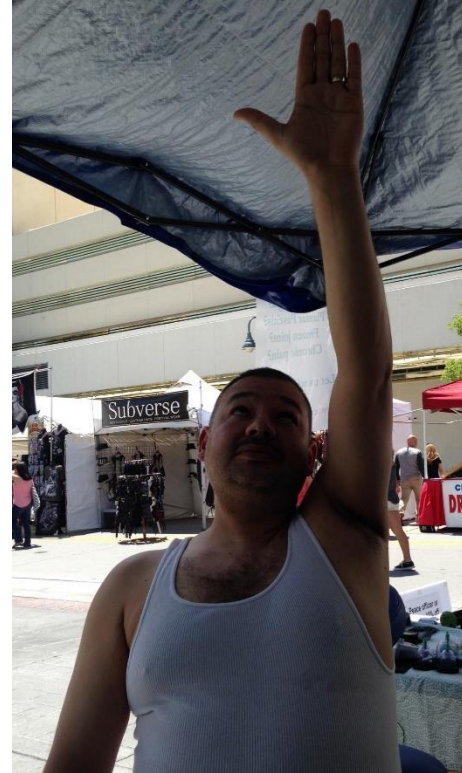
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MOBILITY



Before



After One Treatment



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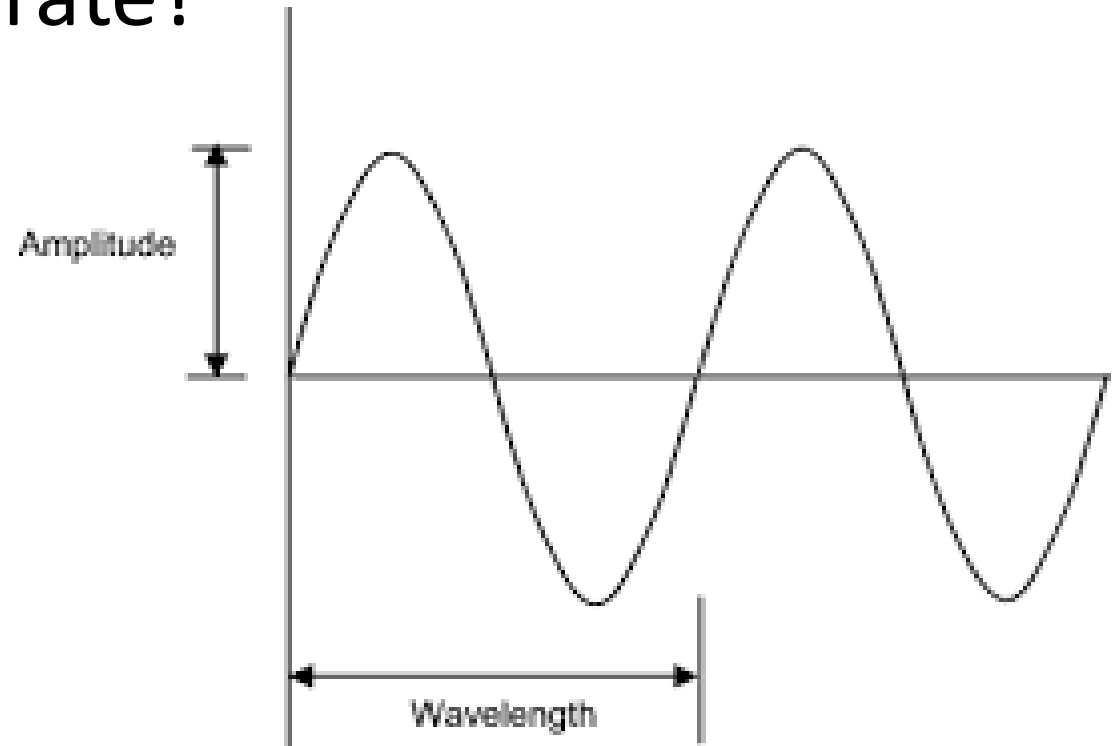
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Understanding terminology

Pulse width/amplitude/*frequency* (hertz)-
How deep does it penetrate?

Pulse wavelength (rate)-
How fast does it go?

“constant” misnomer



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Understanding terminology

Output- Amperes (amps)/Volts- How strong is it?

milliamps- one one-thousandth of an amp

microamps- one one-millionth of an amp



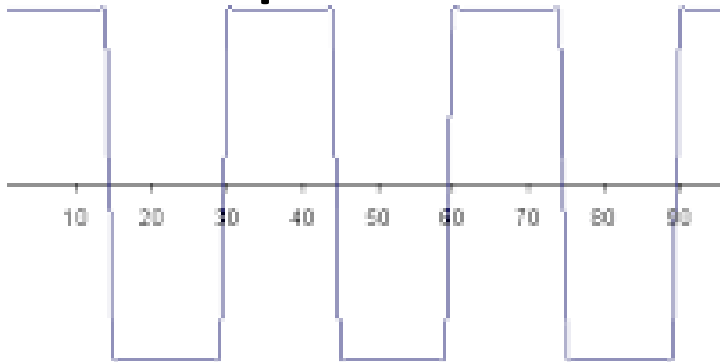
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Understanding terminology

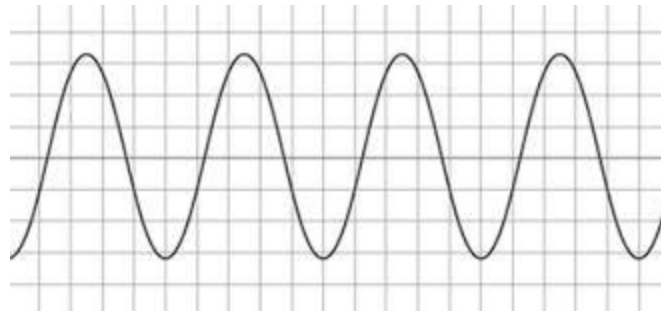
Waveform pattern- What does it feel like?

Shape (slope):

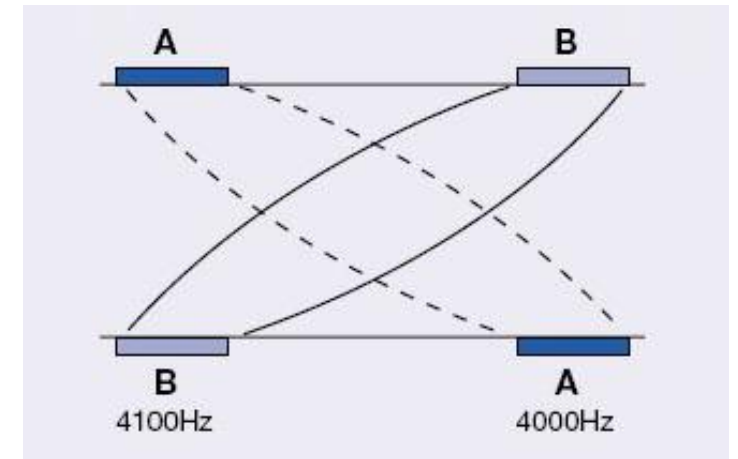
Square



Sinusoidal



Interferential
(2 channels)



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Understanding terminology

Directionality: Monophasic or Biphasic (biofeedback)

Contact: Active/Direct or Passive/Indirect



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Summary: questions to ask about devices

Frequency

Output (channels)

Waveform

Directionality

Contact & accessories



Categories of Frequency Based Devices/Healing

PEMF*	(non-bioelectric)	
Scalar/Quantum*	ultrasound	music
Transcranial	laser	light
Estim: TENS	infrared	touch
Estim: EMS	meridian analysis	homeopathy
Microcurrent	crystals	essences
	essential oils	Energy
	EMF shields*	grounding*



Categories of Devices: PEMF

Examples: Bemer, Oska, Parmeds, Teslafit, Magnapulse, Ampcoil, (Rife)

Frequency: low to high, 1-1000 hz

Output: magnetic field/gauss. Low to high

Waveform: highly variable

Directionality: in only

Contact: passive/indirect



Categories of Devices: PEMF

- Pros:** easier, deeper penetration into the body
treat through clothing, no touch required
larger surface areas, can use on head
anti-EMF protection, no accommodation
- Cons:** no biofeedback capability, rarely felt
highly device specific on choice/effectiveness



Categories of Devices: Scalar/Quantum

Examples: Qi, Auror, Bioresonance, Nano Wand, QSB

Frequency: alpha, Shumann

Output: n/a

Waveform: scalar/helix

Directionality: mono

Contact: indirect/passive



Categories of Devices: Scalar/Quantum

Pros: long-term effectiveness
prepares the body for other modalities also

Cons: new, less understood
indirect- nothing felt, hard to measure



Categories of Devices: transcranial

Examples: Calmare, Scrambler, DBS

Frequency: low, proprietary

Output: 5 milliamps

Waveform: ?

Directionality: mono

Contact: direct



Categories of Devices: transcranial

Pros: long-term effectiveness

Cons: no biofeedback capability
office use only
20+ sessions required



Categories of Devices: Estim-TENS

Examples: TENS, Empi, Quell, most implanted stimulators

Frequency: variable, usually under 100 Hz

Output: 0-300 milliamps, 0-40 volts

Waveform: mostly square, interferential

Directionality: mono (except Quell)

Contact: direct, many accessories available



Categories of Devices: Estim-TENS

Pros: pain relief

Cons: short acting, temporary

no biofeedback capability, prescription only

accommodation- long term nerve damage

black box/safety concerns-brain, interactions

confusion with EMS and mixed devices



Categories of Devices: Estim-EMS

Examples: Healthmate, Compex, Ireliev, HiDow, Walgreens, Hwave*

Frequency: variable, usually under 300 Hz

Output: milliamps

Waveform: mostly square, *

Directionality: mono

Contact: direct, many accessories available



Categories of Devices: Estim-EMS

Pros: Effective: massage or rehab
OTC

Cons: no biofeedback capability
accommodation
black box/safety concerns especially overuse
device specific: quality, feature choice



What is Microcurrent?

- Microcurrent refers to the waves of electric current that **our own cells generate**. The current or frequency is so small that it is measured in one millionth of an amp (microamperage μA). This electricity runs sub sensory, meaning it is so faint that it does not stimulate our sensory nerves and cannot be consciously felt.
- When using the Microcurrent units at higher power levels for therapy purposes, a slight tingly feeling is felt and sometimes results in muscle movements.



Types of Microcurrent Devices

Microcurrent EMS- Beauty and cosmetic

Microcurrent TENS- Dolphin Neurostim, NeuroMD, Compex, InTensity, etc.

Frequency-Specific Microcurrent

Uses the difference between 2 frequencies on 2 channels to perform a specific frequency treatment, combination with interferential

Has a slope setting to change the waveform between square & sinusoidal

Microcurrent Biofeedback Neuromodulation- Scenar, BioModulator, Avazzia



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Categories of Devices: Avazzia Microcurrent

Frequency: programmable 0.5-2500 Hz, 53 built in

Output: 0-12 microamps, 0-450 volts

Waveform: damped asymmetrical sinusoidal

Directionality: biphasic

Contact: direct, many accessories available *including PEMF and Scalar*



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Categories of Devices: Avazzia Microcurrent

Pros: no accommodation or habituation

long-term effectiveness as little as 1 treatment

USA produced, easy support and maintenance

continuous research and new protocols

root cause repair not symptom mask

Cons: prescription only, higher cost



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Power Units- Microcurrent



How does the body communicate?

- Chemical

- Timing varies- IV, sublingual, IM, oral, topical
- Blood flow is only 3mph

- Electrical

- Nervous system
- 100 to 268mph
- Fascia/Collagen fiber network
- instantaneous
- the difference between dial-up & fiber optic internet



How does the body communicate?

- Energy pathways

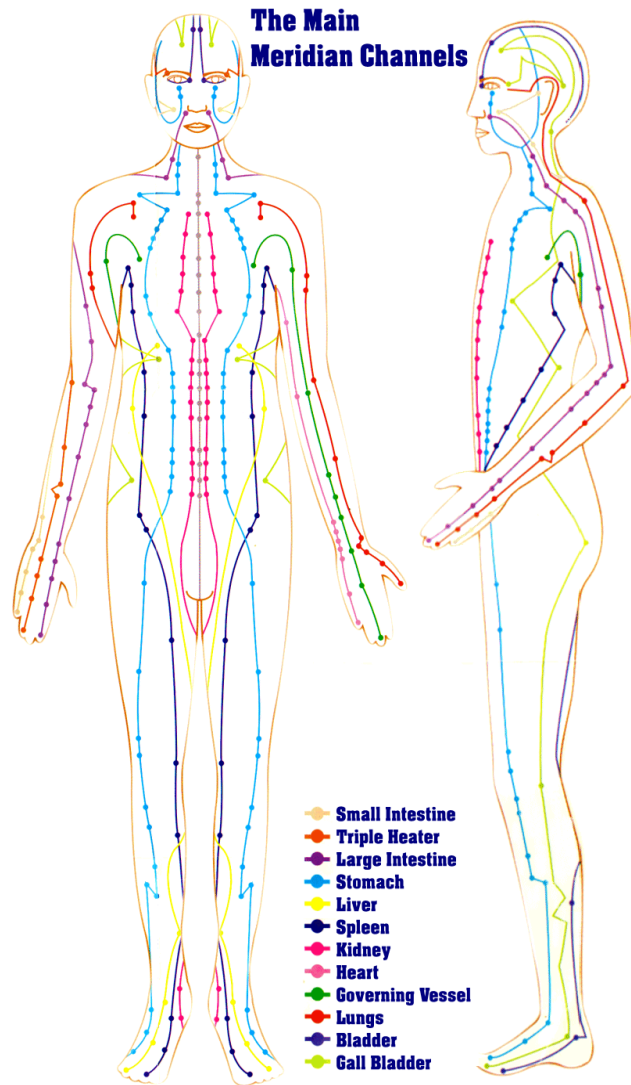
- Based on embryology: tissues developed simultaneously creating **FASCIA** tubes that form the basis of the collagen matrix of the “Body Electric”
- Living matrix to all 70 trillion cells in the body
- Not every cell is attached to a nerve but every cell is connected to the fascia network

- Aka Meridians or Chakras

- Acupressure points are useful gateways



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FREQUENCY- the language of the body electric

- Different body cells/tissues communicate at different frequencies
- Talk to specific groups of cells directly! Just like tuning a radio.... The brain generates these specific frequencies, also known as nerve impulses or action potentials, in order to communicate with the nervous system

02 Hz	07 Hz	9.6 Hz	13.6 Hz	15 Hz	15.3 Hz	17 Hz	24.3 Hz	35 Hz	77 Hz	90 Hz
Nerves	Bone	Ligaments	Muscle	HBP & Trauma States	Capillaries Lymph	Blood Flow & Circulation	Fluid retention in joints & tissues	Clearness of Mind & Mental Function	Scar Tissue	Soft Tissue & Mucous Membranes

Sisken and Walker

- General: frequencies >100 Hz = anti-inflammatory
frequencies <100 Hz = Regenerative/repair



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ATP : the “currency” of the body electric

- ATP (adenosine triphosphate) is a high-energy molecule that resides in every single cell of our body. ATP is our power supply, our battery. Without it, we die.
- “The difference between life and death is VOLTAGE” – Dr. Robert Becker
- ATP is the fuel we use to heal, regenerate, fight off infection, regulate hormones, digest food, transmit signals, move muscles, and every other body process.



How do we recharge our battery?

- Exercise and movement

Muscle contraction produces more ATP! When our muscles contract, we generate twice as much ATP as we used in the first place.

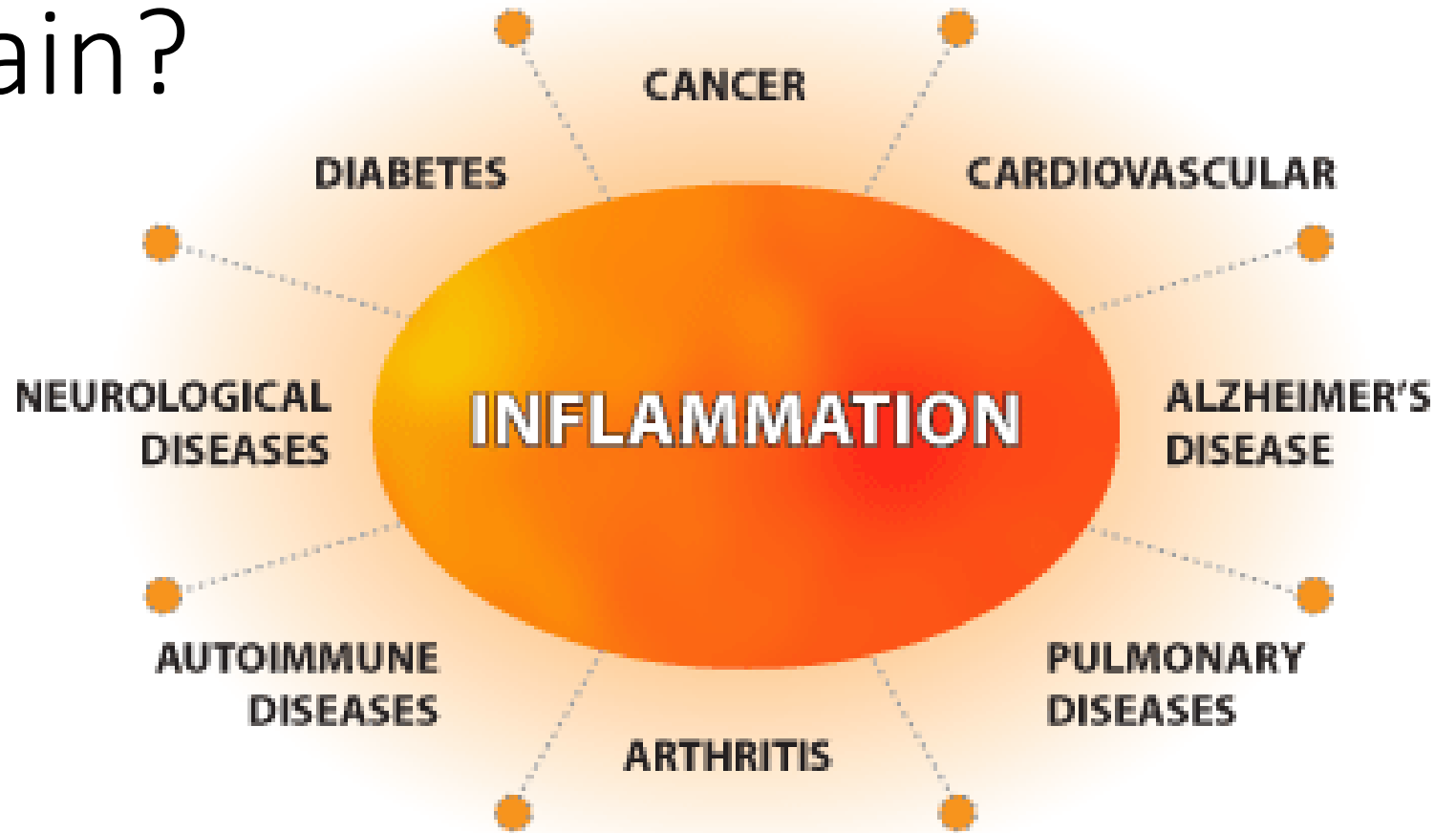
- It also produces another molecule (NADH) that enables your body to store higher amounts of ATP.
- 2 principles: use it or lose it, and you have to spend money to make money.



What causes pain?

Symptoms:

- Rubor (Redness)
- Dolor (Pain)
- Calor (Heat)
- Tumor (Swelling)
- Decreased Range of Motion



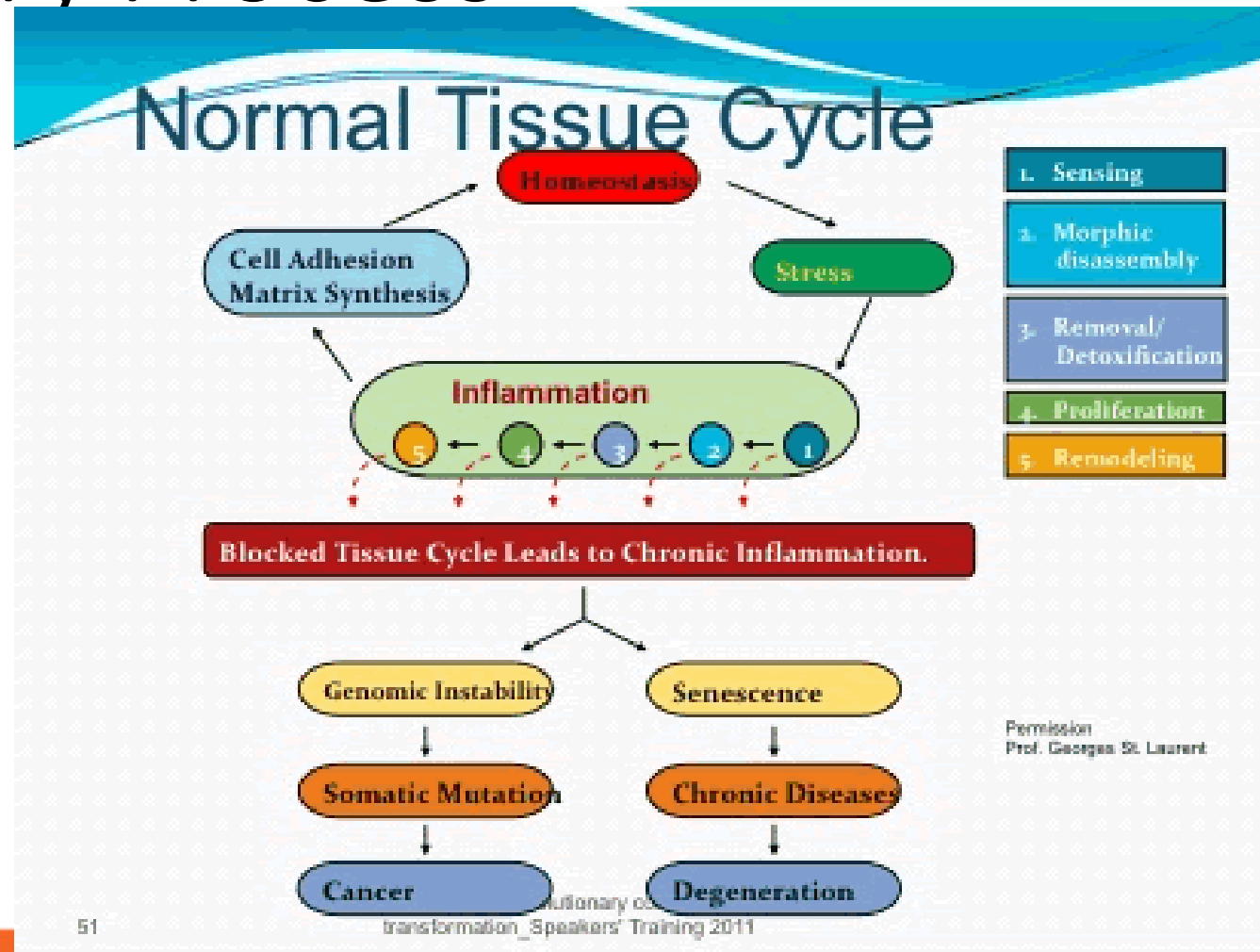
When our body experiences injuryour *natural flow of bioelectric frequency becomes disrupted*. It's like a **cellular power outage**. Those cells of the injured area lose their ability to conduct electricity and communicate effectively with the rest of the body, resulting in tissue damage, pain, and more



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Inflammatory Process



Inflammation

- The brain sends white blood cells, chemicals, proteins, etc to the injured area
- Creates molecular bonds that need to be broken.
- Produces an oxygen reaction that generates heat.
- Like a beaver dam in a river, it is all walled off forming a Selye pouch.
- Cells behind the wall and in the area go 'out of tune'
- Eventually the area is repaired and the materials are absorbed, the pouch dissipates and balance is restored



Chronic Inflammation

- Free radicals and other toxins leak out, contaminating nearby structures
- Sometimes the pouch bursts sending accumulated toxins into the bloodstream resulting in sepsis. Sepsis is friendly fire. The brain over-reacts (perception becomes reality!) and initiates a cytokine storm of tumor necrosing factors
- These tumor necrosing factors block the small blood vessels, which then kills the surround cells causing a chain reaction leading to systemic organ failure and death.



Inflamm-aging

- Chronic inflammatory processes are the precursor to over 4000 different diseases, virtually all of them. “It’s looking like there are no chronic diseases, only chronic inflammation” Dr. James Oshmann
- Recent studies have linked inflammation to depression
- Source of aging. It has been estimated that eliminating inflammation will increase life expectancy up to 35 years.
- CRP (C-Reactive Protein) blood test indicates low-level inflammation in the body but no test or scan can determine precisely WHERE



Inflamm-aging

- Natural losses: (slow energy leak like a battery losing its charge)
 - Muscle mass replaced by fat
 - Connective tissue thins out, loss of flexibility
 - Decrease in muscle strength
 - Slowing in muscle reflexes
- Knowing that muscle contraction generates ATP, which supplies our entire system with energy, it's understandable that the older we get, the more tired and weak we become...we are literally running on low energy!



Electrosmog

- We are surrounded by Electromagnetic fields
 - Wi-fi
 - LED lights
 - Radio waves
 - Power lines
 - These bombard our cells and can counteract our own body's electrical signals, knocking us 'out of tune' & causing hypersensitivity reactions
- Electronics
Cellular waves (4G vs 5G)
Smart Meters
Barometric pressure changes



How does Microcurrent heal?

- Locates the Selye pouches and removes them allowing electrical flow to resume
- Breaks the molecular bonds into pieces the body can deal with easier
- Cancels out the oxygen reactions
- Reverses the brain's stimulation of the cytokine storm and tumor necrosing factors.
- Calms the over-reaction, prevents and reverses sepsis.
- Stimulates angiogenesis- formation of new blood vessels to replace the blocked/dead ones.
- Introduces electrons to neutralize free radicals



How does Microcurrent heal?

- Stimulates the body's own natural healing process, re-starting it or speeding it up
- Matches and then 're-tunes' the frequency of the disrupted tissue back to the 7.83 Schumann resonances (like earthing/grounding)
- Frequencies >100 Hz neutralize inflammation
- Frequencies <100 Hz repair and regenerate damaged tissue once inflammation is removed
- Increases the production of ATP by an estimated 500%



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Biofeedback- Getting the brain's attention

- The brain pays attention to something new / different, but the attention span is very short among the millions of input signals processing every second.
- It identifies the sensation, then assimilates it to a memory and doesn't pay attention anymore. (like startling someone)
- When using a TENS unit, the power must be increased constantly to overcome the body's adaptation/ habituation/ accommodation
- Avazzia's biofeedback system gets and keeps the brains attention while preventing the body from adapting (neuromodulation) In fact, the body opens up to it and the power levels need to be decreased as the barriers are broken down and the sensitivity increases.



Two nervous systems in the body

- Fight or flight: (sympathetic nervous system)
 - Increase blood pressure, heart rate, blood sugar, decrease pH, decrease extremity circulation (cold hands), dilate eyes, intimacy.
 - Brain's Beta Waves (12-38 Hz)
- Homeostasis: Zen mode (parasympathetic nervous system)
 - Eat, sleep, digest, assimilate information, process emotions
 - Brain's Alpha Waves (7-12 Hz)



The chronic pain/sleep connection

- During REM sleep (delta waves, 0.5-4 Hz) the brain recalibrates, takes out the trash, drops cortisol levels & does general repair & regeneration.
- The longer you spend in the stress zone/ sympathetic nervous system the more the other body systems shut down and the harder it is to slow the brain down enough to reach REM sleep.
- The less sleep you get the more the pain/stress takes over: a vicious cycle very difficult to break and one key element of chronic pain relief.



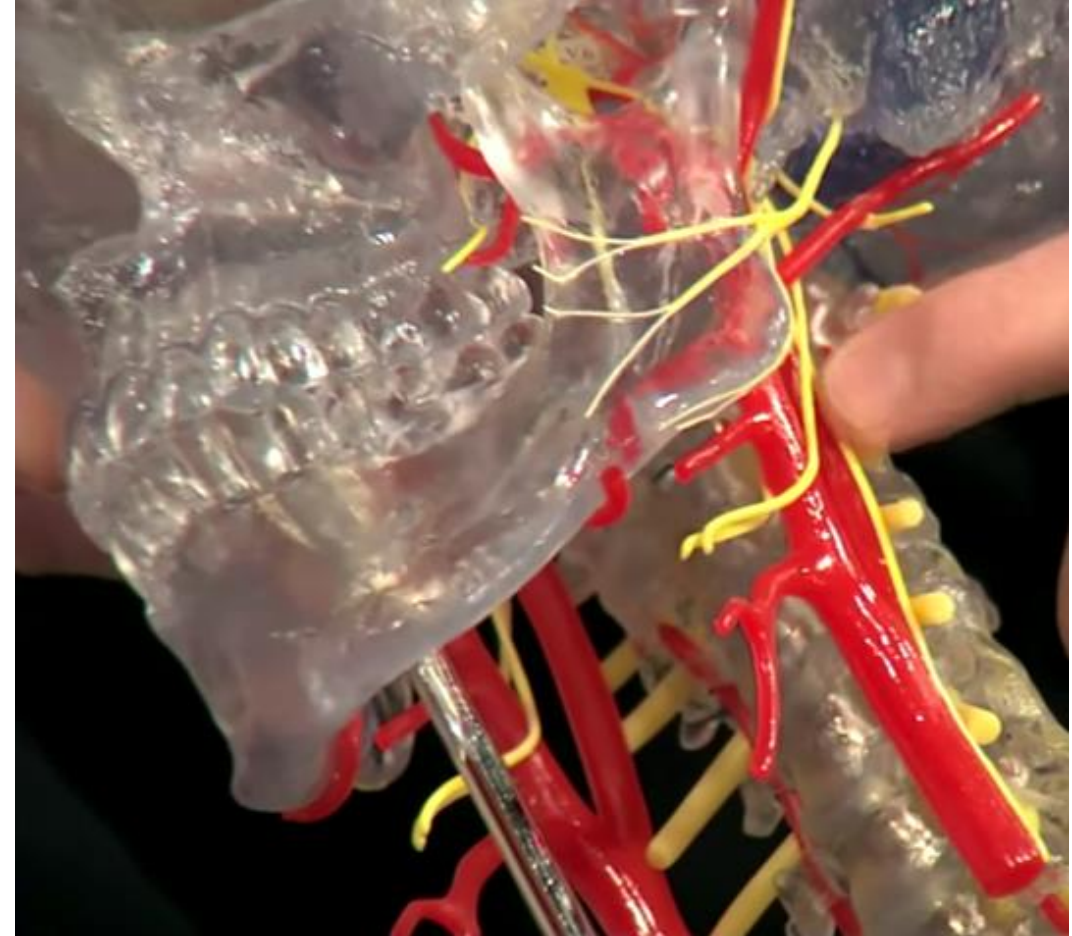
Stress

- **Stress stimulates inflammation** up to and including sepsis
- The brain can't see any difference between physical stress and mental stress, it reacts the same!
- Any man-made electrical wave is not recognized by the body which causes stress that triggers the fight or flight system. ALL pulse square wave and other types of units trigger the body's stress response so must DOMINATE and overcome the resistance.
- The biofeedback, sinusoidal wave of Avazzia Microcurrent is recognized by the body, being the same as the communication from the brain and the heart so it COMMUNICATES/RESONATES. No resistance and no stress!



Vagus Nerve

- The Wandering Nerve, longest cranial nerve
- Connects brain stem to heart, diaphragm & gut
- Branches out to all organs
- Control center for parasympathetic system
- Controls inflammation body-wide
- Manages and processes emotions



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Vagus Nerve Stimulator (VNS)

- Can do a gentle re-tune or a hard emergency stop depending on the frequency and duration used.
- Automatically by implanted device or externally with more control/fewer complications.
- **Turns off the inflammatory process** and puts the brakes on sympathetic response.
 - See Scientific American, google “Hacking the Nervous System”
- Treats:
 - Sepsis- Stops and reverses systemwide inflammatory process
 - Anxiety- Calms the brain stress response
 - Stroke- Brings down the blood pressure, opens closed blood vessels
 - Migraine- 95%+ of the time, migraines cease within minutes



A philosophical question...

- *When every cell in our body replaces itself about every month, WHY then do we have scars?*



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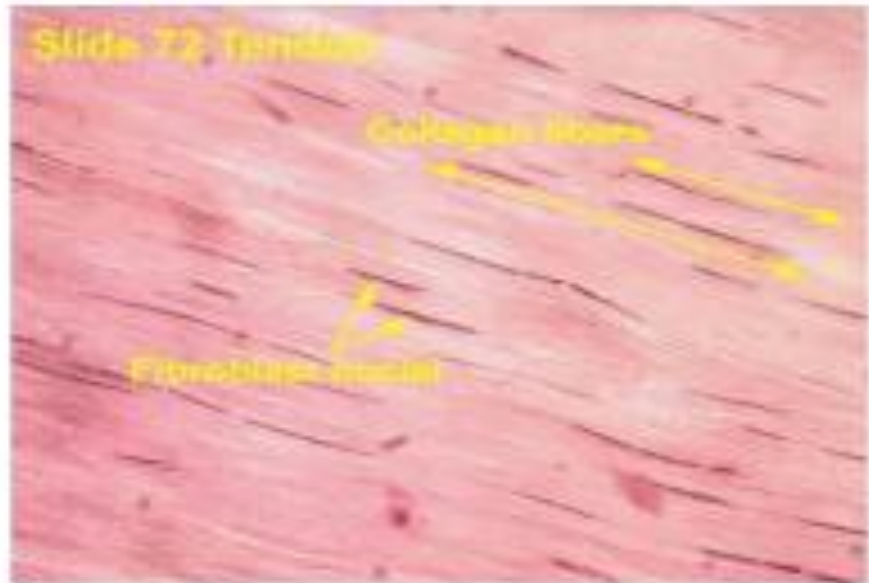
Scar Tissue

- Individual cells remember being traumatized and duplicate the damage
- Scar cells have lost the ability to send and receive the body's electrical signals so they build up, up to 1.5 volts creating an increasing large area of interference
- These “black holes”/blockages may be interpreted by the body as PAIN and are much much larger than Selye pouches
- Scar cells have blown-out sodium-potassium pumps in the mitochondria and are incapable of producing ATP
- Scars disrupt the meridian system when they cross channels of energy flow through the fascia, sending PAIN signals in all directions (Referred pain)
- *A good percentage of post-op pain, especially chronic can be almost completely attributed to the scar tissue from the surgical incision*

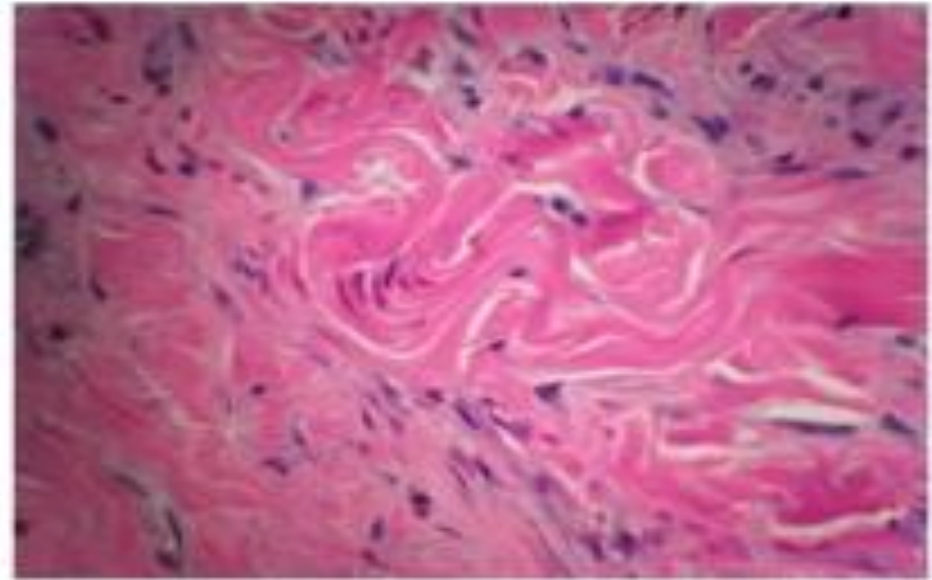


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Healthy Tissue



Scar Tissue



Communication Breakdown!
Severs collagen matrix



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First Rule of MCT: Neutralize Scar Tissue

- Like pulling a magnet through metal filings and watching them line up, the collagen fibers of scar tissue can be realigned using Microcurrent therapy at 77 Hz.
- Removes the cellular memory of the trauma so duplication normalizes
- Neutralizes the 1.5 volts residual
- Restores the ability to send electrical signals
- Restores the function of the sodium-potassium pumps and ATP production
- Removes interference interpreted as pain
- Appearance of scars will improve also, initially and accumulative effect over time.



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Second Rule of MCT: Stop Inflammatory Process

- Using biofeedback mapping, locate and remove Selye pouches, opening the blocked pathways
- Eliminate Free Radicals
- Signal neuropeptide release (endorphins)
- Increase perfusion, remove swelling



Third Rule of MCT: Stimulate Self-Healing

- Provide ATP for cellular regeneration-
 - up to 500% more!
- Get the brain's attention and start programming for healing
- Symptoms continue to progress for 24-48 hours as body responds to stimulus
- Effects are accumulative and progressive



Fourth Rule of MCT: Clear the toxins

- Removing Selye pouch “beaver dams” releases built-up debris.
- Hyperhydrate after therapy sessions to flush out debris
- Drain lymph- remove toxins. Body brushing or mini tramps work well.
- Epsom Salt soaks (full bath or foot soak) &/or magnesium oil/spray
- Activated charcoal for gastrointestinal type treatments (capsule)



General pain-relief and treatment principles

- Referred Pain: Where it's felt isn't necessarily where it's caused (example: left arm & heart attack)
 - Find the actual source using biofeedback diagnostics to remove the cause of the pain, not just 'treat' or 'mask' it
- Compensatory Mechanisms
 - When pain is in the left knee, the body tries to compensate by re-allocating the stress to the right knee, or left hip, or.... Can be chicken/egg conundrum. Backtrack to source.
- Body Symmetry & Mirror Principles
 - Treat contra-laterally. Even if pain is only on one side of the body, treat the other. Or if you can't reach where it hurts (a cast), treat the opposite side.



Treatment Barriers

- Dehydration *Our body's are 80% water particularly fascia.*
- Smoking *Systemic inflammation makes identifying specific areas very difficult.*
- Chemical masks like pain medications. Pain signals must be present to be located and neutralized. *When you are at your worst, microcurrent works the best.*
- Malnutrition or missing elements. *We can program and stimulate healing, but the building blocks are required.*
- Advanced age and body deterioration *Prone to dehydration/malnutrition, more areas of chronic buildup*



Barrier: Dehydration

- Both water and electrolytes are required! Water is highly electroconductive, but distilled water missing electrolytes is not conductive at all
- Calcium, Sodium, Potassium, Fluoride, Magnesium
 - MG++: 90% are deficient by estimates-topical not internal absorption)



Barrier: missing elements

- Nutritional building blocks: pay particular attention to body cravings.
 - “Bone on bone” is a misnomer- lack of synovial fluid, ie hyaluronic acid/collagen 3. Bone broth is one source.
 - Chocolate cravings are not for sugar, they are for endocannabinoids (CBD)!
 - Consider spore probiotics to rebuild a healthy biome
 - Not putting in more garbage is just as important as removing what’s there- eliminate artificial flavorings/sugars, glutens, nightshades, chemicals.
 - Heavy metal toxicity builds up from mercury and aluminum adjuvants- beware vaccines.



Solution: Take the Zeal Challenge

The most advanced Wellness drink on the planet!

Patented, Stabilized Rice Bran is the foundation

- All 93 essential nutrients a body needs daily
- 39 Superfoods for worldwide biodiversity
- 8 anti-inflammatories 6 brain function enhancers
- Whole food nutrition, no interactions, no synthetics
- Cell-ready/pre-digested for 100% absorption
- Just add water, shake and drink, 85% **feel a difference** in 20 min

No other supplement or combination of supplements anywhere can match it for convenience, cost and results!



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Final Thoughts: Build a Toolbox

- No single tool achieves 100% relief: 5s & 10s add up
- Use the right tool for the right job
 - accessorize appropriately
- Read the instructions! Use tools properly.
- Re-evaluate your tools periodically
- Functional and allopathic medicine both have their place. Build a team willing to work together

Credit Dr. Pradeek Chopra



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Technicalities

- *Avazzia devices are FDA approved for Pain Management Only.* (Wound healing in process)
- Healing any other disease removes the pain caused from it. No body system is isolated. All cells are connected.
- Health Canada recently approved new neurostim protocols for PTSD/stroke
- “Off-label” uses- we are only beginning to discover what is possible with this “Star Trek” technology. Continuing advancements in frequencies, harmonics, PEMFs, programs and protocols are happening constantly and shared through educational and support groups for both patients and practitioners.



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Questions?



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Contact Information

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Shop: www.electromassagesupply.com

Zeal Challenge: www.zurvita.com/ErasingPain



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