



August Newsletter

Mert Versus Standard TMS Protocol

"What is the difference between Mert and Standard Protocol?" If I had a dime for every time I have been asked this, I could take each reader to dinner, somewhere quite nice.

Standard Protocol

To keep it quite brief, Standard Protocol is the protocol that we use that is FDA approved for the treatment of certain kinds of diagnosed, and previously treated, resistant depression, that is directed exclusively in the left dorsolateral prefrontal cortex (DLPFC). If our patient meets the requirements for their individual insurance plan, this highly effective protocol is often fully or partially covered by insurance. We use the best equipment available, Nexstim, with precision known in neurosurgical circles, to conduct TMS accurately and effectively.

Mert

Mert is a unique and very specially designed treatment that can address more than one area of the brain. Mert,

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I Sing the Body Electric

"What does TMS do to my brain?" is a question we are often asked.

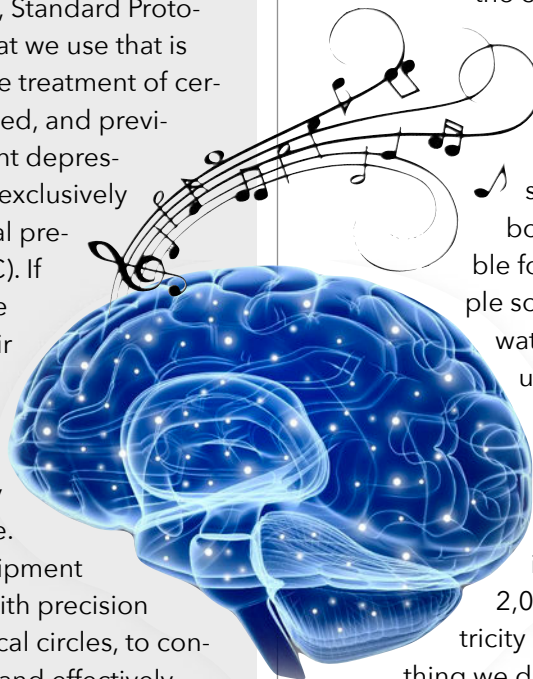
Transcranial Magnetic Stimulation (TMS) is a very thoughtful treatment conducted by caring practitioners that uses a magnetic field generated by an electromagnetic coil to gradually stimulate over time a very specific and targeted area of the brain to help heal weakened neural pathways. Our brains run on electricity, and so minor changes in electric fields allow different brain regions to communicate with each other, through something called "depolarization", or, "firing". TMS activates the chemical communicators, and thus, neurons.

Electricity is part of our lives, have you ever "felt electric"? You bet!

Electricity is required for the nervous system to send signals throughout the body, and to the brain, making it possible for us to move, think and feel. The simple sound of an exhale can generate 0.8 watts of power, the motions of the arms, up to 60 watts. Stanford University has noted that: The average human, at rest, produces around 100 watts of power. . . and in the case of very short bursts of energy, such as sprinting, some humans can output over 2,000 watts. That is a lot of watts! Electricity is in everything we do - it is everything we do.

Sometimes when a patient asks me for a simple, easy to understand, explanation, I say that getting TMS is rather like having a terrifically good electrician rewire a house properly to get things to work when and how you would

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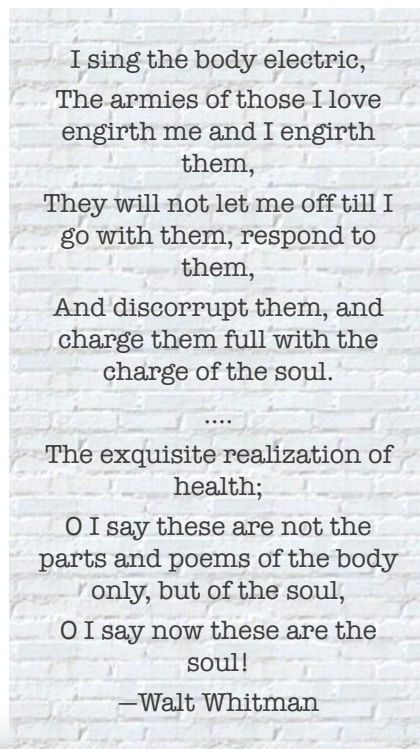
like, in this way you don't have electrical failures and/or inordinate power surges, you also save a lot in emotional electrical bills.

Billions of cells, or "neurons" in the brain use electric signals, "neurotransmitters", to communicate and to activate. Neurons are not physically touching in the brain so they can't communicate without the neurotransmitters. Neurotransmitters pass along the communi-

cation between neurons. When neurotransmitters are not communicating properly due to weakened neural pathways, symptoms appear in our daily lives - fuddled thinking, anxiety, confusion, anger, depression, and a constellation of other neurological challenges.

TMS uses gentle, targeted electrical currents to activate neurotransmitters (the communicators) like serotonin, norepinephrine, and dopamine so neurons can better work together. Most commonly, TMS treatments are directed to the left dorsolateral prefrontal cor-

tex (DLPFC), which regulates mood. TMS activated neurotransmitters suggest that neurons depolarize or fire, in a specific and beneficial



area. When enough neurons fire in a specific area of the brain, there can be a measurable reaction, a positive neural pathway shift and a shift in behavior patterns. These changes in the circuit-

ry of the brain are, in many instances, lasting.

TMS does not "fry" the brain, it activates specific areas during a positive, supportive, and potentially long-lasting treatment. We check each patient's Motor Threshold, the lowest level of response to gentle stimulation, and we use it to guide our care. TMS has been shown to be safe and at our practice, is conducted by a knowledgeable and conscientious practitioners, thoughtful to each patient's individual needs.

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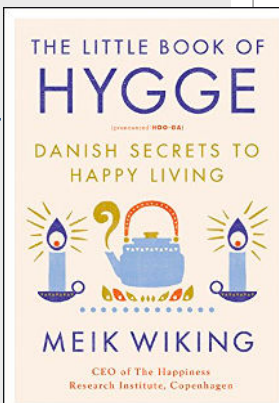
in our practice, also uses TMS with our Nexstim equipment, but is used to treat more conditions than Depression. We use Mert for conditions such as Post Concussive Syndrome, Trauma, PTSD, OCD, Generalized Anxiety, Insomnia, Addiction, ADHD and Memory issues, among other neurological dysfunctions. Mert is extremely effective and each treatment is highly crafted and tailored to the patient's unique brain patterns, individual sessions can take more time, sometimes over 40 minutes. We first take an EEG, but in this instance, we are not using it as a snapshot of the patient's brain health, but it is sent to a lab and diagnosed carefully by a team of scientists to develop a personal care protocol. This protocol guides each session, and sessions may vary based on the changing brain wave patterns. Mert is exciting treatment, allowing us to be individualized in our care of the patient, and to treat many conditions, but it is very rarely covered by insurance.

Whether you do standard protocol or Mert, our Neurosurgeon, Dr. Mark Liker, is aware of each patient and oversees all of the activity at Brain-Stim Centers. Both protocols use the best equipment available, and both offer access to EEGs and Cambridge Brain Science. At this point, both also require a brief structural (non-diagnostic) MRI. The difference is, if you have complex brain circuitry patterns and no history of depression, you may be better suited to Mert, which offers us, as practitioners, greater flexibility in treating your individual brain patterns.

Reading List

What are you reading? My list this month:

- *The Untethered Soul* – Michael A Singer
- *The Little Book of Hygge – Danish Secrets of Happy Living* – Meik Wiking
- *Where to Begin* – Cleo Wade
- *Man's Search for Meaning* – Viktor Frankl
- *The Vanishing Half* – Brit Bennet



It's Hot Out!

Hydration is key to surviving this summer's crushing heat. Your body is made up of about two thirds water, and your brain is 80% water!

Are you remembering to hydrate in this heat? Studies show that even a small amount of dehydration can impact your brain and cognitive skills, and increase sluggishness, headaches and irritability. Children and seniors are most susceptible to dehydration. Having a glass of water before exams and exercise can increase performance, help wash out toxins, open up blood flow, ease

headaches, and lighten up your mood, among other benefits.

If you don't much like water, add a slice of lemon, lime, cucumber, basil, mint, or an herbal teabag to your water, and try and drink about 84oz of water a day!

Another hydrating, nutrient rich, low calorie snack is watermelon, do not forget the humble but mighty watermelon this summer!



August Recipes:

Tomatoes and zucchini abound over summer and are delicious and nutritious!

Lasagna:

Behold one of my more intimate lasagnas, meaning, it changes dependent on what I have handy, so I will do my best to share. I have been told by vegetarians and meat eaters alike that this is their favorite lasagna. It is not slimming but can be made with meat or meatless, or, very easily gluten free using zucchini in place of noodles and no Béchamel.

Ingredients

- Zucchini (I usually use one enormous zucchini but if you don't have a garden fresh one the size of your thigh, use 3-4 medium store bought. I recommend using a mandolin to get fine lasagna noodles. It's possible to cut by hand but you want thin, wide, even strips)
- A package of ricotta cheese (16oz)

- 1 egg
- About 1+ cup of shredded mozzarella or mixed soft Italian cheeses
- 2 plant based sausages, sliced
- 12 oz crumbled impossible meat. If omitting plant based meat add mixed vegetables or meat.
- Small package of frozen organic spinach, defrosted and drained in a colander
- 28 oz can crushed organic tomatoes
- Two tomatoes finely chopped
- Mixed mushrooms, about a pound
- Tbsp fresh oregano
- Fresh basil, a few handfuls ~ ¼ cup
- 4-5 cloves garlic, finely chopped
- 1½ large sweet onion, finely chopped
- Chili pepper flakes
- 1 red pepper, finely chopped
- Splash of red wine (optional)
- 1-2 carrots finely chopped (optional)
- 2 Tbsp fresh parsley (optional)
- No bake lasagna noodles (optional)
- 1 Tbsp Extra virgin olive oil (EVOO)
- Salt and pepper to taste

Béchamel sauce (optional, but delicious)

- 2 tablespoons butter
- 2 tablespoons flour
- 1 1/4 cups milk, warmed

- Salt and freshly ground pepper

For the Lasagna

1. Set oven to 375
2. Mandolin or thinly slice your zucchini lengthwise
3. In a heavy bottom pan sauté onions and garlic in EVOO until translucent on medium low heat (2-3min), add peppers and carrots if using and cook until fork soft, then add meat until the edges look cooked but still pink inside. Season with oregano, basil, Italian seasoning and chili pepper flakes. Enjoy your seasoning, add what you like, it will be cooking for a bit so you can still be liberal at this stage with herbs and spices as flavors soften over time. Reserve 3 or 4 basil leaves for decoration. Add mushrooms and cook a few minutes.
4. Deglaze with wine after a few minutes on a higher heat. When that dissipates, add the crushed and chopped tomato, seasoning to taste (no salt yet please). Let simmer on low while you prepare the rest. (Sometimes I make the mushrooms and meat separately from

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the rest for an added layer instead of including with tomato sauce). Add salt last, keeping in mind cheese has sodium as well.

5. Mix ricotta cheese with egg, ¼ cup parmesan, and chopped parsley.
6. Spoon some tomato sauce on the base of your lasagna pan, layer with zucchini noodles or no bake lasagna noodles if using. Layer with ricotta mix, then, spinach, meat sauce, mozzarella, another layer of zucchini or no bake noodle – and so on, creating gentle layers. I often alternate layers of noodle/zucchini and so on until at the top of the pan. Last layer should be zucchini (or noodle) and a touch of sauce.
7. Can sprinkle parmesan or add to the béchamel.

For the Béchamel

1. Melt the butter on low heat in a heavy-bottomed saucepan. Stir in the flour and cook, stirring constantly, until the paste begins to cook, bubbling a little, about 2 minutes, but don't allow it to turn brown.
2. Add warmed milk, continuing to stir as the sauce thickens. Bring heat up to medium high and allow it to go to a boil for a moment, but stay with it, while adding salt and pepper to taste, lower the heat to low and stir for 1-2 more minutes.
3. Remove from heat. If you'd like, you can stir in another 1/3 cup of shredded cheese. Pour that baby evenly on the lasagna. Some or all, up to you. It's quite rich.

Decorate your lasagna with basil leaves and tomatoes and pop it into the oven, loosely cover with parchment or foil and cook for about 30-40 minutes, remove foil and go another 10 minutes or so. Some ovens may take a slightly higher or lower heat. I like mine crispy on the ends so I leave it in there for a bit. Let rest out of

oven for 15 minutes or so and dive in.

Okay—was that too heavy?

Zoodles in 10 Minutes!

Using a spiralizer makes noodles out of your zucchini. So good even my kid likes it!

Ingredients

- 5-6 cloves garlic, chopped medium fine
- Extra virgin olive oil (EVOO)
- Salt and pepper
- Zucchini noodles (1 mammoth or 3 small zucchinis)
- Pint of cherry tomatoes sliced in half
- chili pepper flakes to taste
- large handful of torn basil leaves
- parmesan (optional)

Instructions

1. With your spiralizer, use a medium small setting and leave skins on. A little goes a long way.
2. In a heavy bottomed pan (I like cast iron but it is heavy), sauté your cherry tomatoes, place on small plate, and wipe pan.
3. Sauté garlic in EVOO until translucent. Increase heat to medium high and add more EVOO if needed; it should be a bit sizzling but not burning.

Add zoodles and cook while tossing for about 5 minutes. You want your zoodles just barely al dente, wilted but with bite.

4. Add tomatoes, season with chili flakes and toss together with torn basil for about a minute, just slightly wilting the basil.
5. Remove from heat and season with salt and pepper and parmesan.

And finally, one of my favorite summer tomato sandwiches directly verbatim from *Saveur*:

Burrata and Marinated Cherry Tomato Sandwiches

Yield: serves 4

Time: 8 hours, 10 minutes

Ingredients

- 2 cups halved cherry tomatoes
- ¼ cup plus 2 Tbsp. extra-virgin olive oil
- ¼ cup balsamic vinegar (I add a touch more)
- 1 tbsp. capers
- 10 oil-packed anchovy fillets, finely chopped (2 Tbsp.)
- Crushed red chili flakes
- Salt and freshly ground black pepper
- One 8-oz. ball burrata
- 4 small crusty sandwich rolls

Instructions

1. To a large bowl, add the tomatoes, oil, vinegar, capers, anchovies, a pinch of chili flakes, and a generous pinch each of salt and black pepper. Stir well to combine. Cover with plastic wrap and let rest on the countertop or in the refrigerator for 8 hours or up to overnight.
2. When ready to serve, let the tomato mixture come to room temperature. Split each sandwich roll and top with some of the tomato mixture (stir briefly before spooning it on). Divide the burrata among the rolls. Season with salt, black pepper, or more chili flakes to taste, and serve.