

The Power of Different for the Brain (and Patient Outcomes)

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When you perform a chiropractic adjustment, you are changing the nervous system; central and peripheral. The brain ignites when you influence the joints and stimulate peripheral nerves via the skin. Hilton's Law states, "The same trunks of nerves whose branches supply the groups of muscles moving a joint, furnish also the distribution of nerves to the skin over the insertions of the same muscles - and what at this moment more especially merits our attention - the interior of the joint receives its nerves from the same source." In other words, the very act of touching skin stimulates the nerves deep in the joint. All with one final destination: the brain.

The Value of Thing 1 and Thing 2

The brain and nervous system crave novelty and newness. A difference that is not perceived does not exist. These words are truly powerful when you are talking about learning and the brain. The brain cannot learn if it cannot perceive differences. It needs a Thing 1 and Thing 2 for comparison. If there is only Thing 1, how can it change? It can't.

What does the brain use to drive differences? Sensory input. Sensory input drive motor output. You can only move as well as you can feel. More specifically, you can only move as different as you can feel. Too much sensation can overstimulate your nervous system, leading to sympathetic dominance and the *fight, fright, freeze, freakout* stress response, which decreases fine motor control. The brain needs variation, variability and variety in order to become more adaptable.

For example, imagine standing in a brightly lit room; then someone standing behind you turns on a flashlight. It's difficult for you to see the light because there is already so much light. Now imagine standing in a dark room as someone standing behind you turns on a flashlight. You notice the difference immediately. There is now a Thing 1 and Thing 2. Your brain can learn faster not because of the amount of stimulation, but because of the *differences* in stimulation. This is why you need to change up your therapy and the order with which you deliver your chosen therapies.

Applications to Patient Care

The most successful systems in nature are the most adaptable, not the most efficient. The better you get at one thing, the more vulnerable you become in others. The more you specialize in movement, the weaker you become. For example, if you always do the same workout/rehab routine, your body adapts and develops specific compensation patterns. When an unexpected life moment arises, such as a slip, fall or lift, the nervous system has poorly grooved memory recall for adapting. As a result, injury can occur. Its comfort zone has become smaller due to specificity.

What are some strategies you can use to optimize the patient experience and take advantage of this connection to the brain? It's really quite simple. When you understand a concept, you can create endless techniques. The key for long-term results is not the technique, but the underlying concept. If the concept is wrong for what the patient needs, no amount of techniques will make much of a difference. Here a few strategies you can try:

Use kinesiology tape to your advantage. Applying tape to the skin is a powerhouse stimulation to your brain. The brain comes to the surface at the skin. What does that mean? The skin is part of the neurodevelopmental tissue called your ectoderm. That tissue also includes the central and peripheral nervous system and enteric nervous system, otherwise known as the gut. All three of these work together. You cannot have a problem with one without influencing another.

Taping the skin immediately changes the brain and movement because sensory drives motor. A patient feels and senses tape on the skin, which changes the brain – and when you change the brain, you change pain. Use multiple pieces of tape to give the brain multiple types of sensory input. For example, instead of using a single strip of tape on a muscle, use two separate pieces with different tensions. Thing 1 and Thing 2.

Use different topical analgesics on the same visit. Let's say someone presents with lower back pain and you want to apply a topical analgesic. Instead of applying the same analgesic on the back, try applying a cool one on the left and a heat one on the right. Vastly different experience for the brain and nervous system. You can also experiment with location. Let's take the same patient with lower back pain. Apply an analgesic on the lower back, but then apply another one at the top of the spine or along the abdomen. This gives the patient body awareness based on sensory feedback so they can feel the length of the spine and the front of the body in relationship to the back of the body. Simple and effective.

Use different pressure techniques when delivering manual therapy. We don't always have to go hard and deep to affect the nervous system. Sitting just beneath the skin are superficial cutaneous free-nerve endings called type C-delta unmyelinated fibers that decrease pain. They respond mostly to feather-light touch. When you press too hard, you bypass those pain-dampening nerve signals. Stimulate with very superficial manual therapy first and then progressively work your way to pressing in many different directions. Better yet, actually use a real feather to do the technique. Believe it or not, I find a painter's brush works extremely well!

Pain Is a Request for Change

If you want to make any lasting changes to the body you have to ask the brain nicely. Nothing will stick or hold for long if anything is forced on the nervous system. Pain is a request for change. A great start is to change how you do things differently for the brain. Have fun.

Resources

- Baniel A. *Kids Beyond Limits: The Anat Baniel Method for Awakening the Brain and Transforming the Life of Your Child With Special Needs.* TarcherPerigee, 2012.
- Blake A. *Your Body is Your Brain: Leveraging Your Somatic Intelligence to Find Purpose.* Trokay Press, 2018.
- *Rocktape RockBlades Basic Manual*, 2018, p.p. 41-42.
- Wolfe P. *Brain Matters: Translating Research Into Classroom Practice, 2nd Edition.* Association for Supervision & Curriculum Development, 2010.

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