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INTEGRATED KINETIC NEUROLOGY

Our Brains Map of the Body

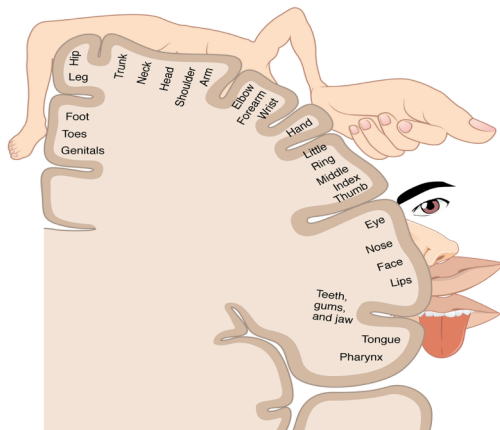
How do we make sense of the world around us? This may seem like a deep, philosophical question, but the answer is quite simple- through our SENSES. Doesn't it then make sense that we should approach rehabilitation from pain or injury, or even performance enhancement through multiple senses?

Throughout the next few blog posts, we hope to dive deeper into what we mean by this, but let us first start by stepping back and take a broader view of what we do as therapists and trainers. The majority of our approaches aim to deliver quality information through the proprioceptive system. We can choose from movements that aim to “activate” certain muscle groups, stretching, foam rolling, massage, instrument assisted manual techniques, and the list goes on.

When we really step back and think about it, we're really just applying a stimulus through the proprioceptive system. We then step back and hope the response is positive. There are obviously other higher-order systems at play here too, but they lack any form of precise stimulation. The somatosensory cortices of our brain hold maps where we process sensory information from the surface of our body and other structures. This sensory cortex, or sensory homunculus, houses a map with representations of each body part on the opposite side of the body.

So, if someone were to rub your left ankle, that information would stimulate the

brain's representation of the left ankle which is mapped in the sensory cortex of the right parietal lobe. This stimulation gives our brain the ability to know where our body is in space. Remember, our brain is encased within the skull, with no access to the outside world other than through sensory stimulation.



As you can see from the above pictures, certain body parts have larger representations based on the amount of complex neurological connections in those areas. Basically, the areas represented as larger have much more of an influential stimulus on the entire system. It is clear that the head, face, and hands all have much more of an impact on the brain. While these images only depict the influence of proprioceptive structures, the same also hold true for other sensory systems close to the brain, and this is why combining precise visual and vestibular drills in combination with other movements can facilitate greater change in how our clients perceive both our internal and external environment.

If we consider the malleable nature of our brain, we can appreciate how these representations can change over time through poor movement or even lack of

movement, injuries, and other problems throughout the body. If our brain is not receiving quality information from these areas, then how can we expect movement to be fluid and controlled? This can result in these areas becoming “fuzzy” or “smudged” overtime. A body that doesn’t deliver rich input to the brain, is not going to facilitate quality output. This can drain us of our neural resources that allow us to move efficiently through the world, leaving us less capable of adapting to stress. The body will respond in an effort to protect us by expressing pain, stiffness, and weakness perhaps. Fatigue can set in from our brain putting extra resources into executing movements, leaving less for other systems to thrive on.

This concept and process of how our brains respond to stimuli, and how we need to consider a multi-layered approach to regenerating our resourcefulness to respond more efficiently, is the paradigm shift away from looking at the body as a series of isolated parts. We need to shift our focus.

If this information intrigues you as a practitioner, stay tuned for more blog posts and be sure to check out an IKN course come to you!

References

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