

Ask an Occupational Therapist: Neuroplasticity and improving your working memory.



Phillip Wendt, Occupational Therapist

What is neuroplasticity?

Neuroplasticity is the concept that your brain is a dynamic organ that changes and grows in response to a variety of stimuli. It has largely replaced the older medical idea that the nervous system is an unchanging system that functions in a machine-like manner. For example, people are now overcoming learning disabilities once thought insurmountable, making amazing recoveries from strokes and brain injuries, and much more.

What is your background in neuroplasticity as an occupational therapist?

My first real experience with neuroplasticity was when I worked with stroke patients in Calgary in the mid-2000's. There, I had the extreme privilege to start one of the first constraint-induced movement therapy (CIMT) programs in Canada. CIMT is an intensive, 2-week protocol that I would describe as "boot camp for the arm and hand" to my patients. It took lots of hard work for our patients, and lots of support from our therapists, but it was truly a jaw-dropping experience to see people using their arms again after just a few weeks. Keep in mind, this was months after a stroke, when medical approaches of the time would assume that there would be very little return to functional ability, but here were people using their arms to dress, eat, play games, etc. It was one of the best experiences of my professional life to see these neuroplastic changes in people.

How do you use neuroplastic treatment principles in your current practice?

By training working memory, people are better able to stay focused, ignore distractions, plan next steps, remember instructions, and start and finish tasks.

I currently use cognitive remediation programs as an adjunct treatment for people with decreased working memory. Working memory is the ability to focus, keep information in your mind for short period of time and then use it. By training working memory, people are better able to stay focused, ignore distractions, plan next steps, remember instructions, and start and finish tasks.

The programs are computer/tablet based and involve daily cognitive exercises for several weeks targeted to increase one's working memory. I tend to meet weekly with clients and, similar to CIMT above, my role is to help shape the training exercises,

motivate clients to stay on track, and ensure that the training benefits can be transferred to their daily lives.

Who can benefit from this type of approach?

People with demonstrated deficits in working memory benefit most. For this group, improving working memory can help to:

- stop losing track of topics in conversations
- be less forgetful
- organizing materials and activities
- manage important financial transactions
- be less distractible
- prioritize multiple activities
- be able to follow through and perform what you are planning to do
- stop misplacing things like glasses, cell phones, keys, etc.

Where can I learn more about brain training and neuroplasticity?

There are lots of brain training programs available, some are good...some less so. Two worth looking at that have a large amount of work and research into their effectiveness are [BrainHQ](#) and [Cogmed](#).

Additionally, I would recommend reading Norman Doidge's book "The Brain That Changes Itself". It is a great read that details much of the amazing history of neuroplasticity. Also, a KIH patient recently told me about his new book, "The Brain's Way of Healing" which I'll be putting on my reading list!

Have more questions to ask an occupational therapist? Phillip would be happy to respond! Please email questions to kih@kih.ca