

Aphasia Insights!

September 2019
Volume 1, Issue 10
September 10, 2019

“Repetition of a newly learned (or relearned) behavior may be required to induce lasting neural changes.”

Kleim J, Jones T. (2008). Principles of experience-dependent neural plasticity: Implications for rehabilitation after brain damage. *Journal of Speech, Language, and Hearing Research*, 51, 225-239.

Stroke Educator, Inc. is committed to educating the wider public about stroke and the 50 state “*Aim High for Aphasia!*” Aphasia Awareness Campaign.

Stroke Educator, Inc.
541 Domenico Circle
St. Augustine, FL 32086
207-798-1449
tbroussa@comcast.net
www.strokeeducator.com

Repetition Matters! Principles of Experience-Dependent Neural Plasticity.

By Tom Broussard, Ph.D.

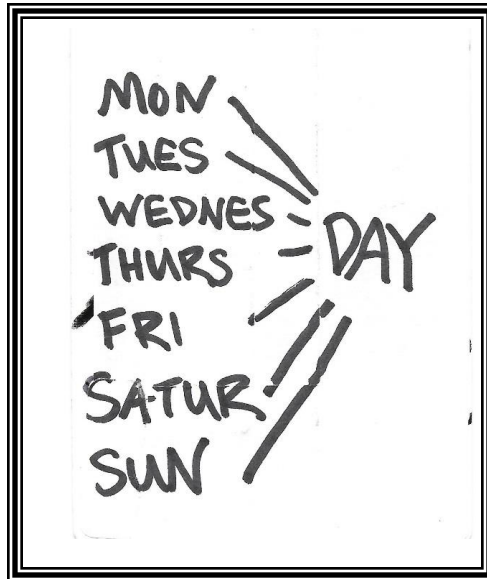
Repetition is one of the ten principles of experience-dependent neural plasticity. Neural plasticity is the adaptive capacity of the central nervous system to change or alter the structure and function of the brain. The principles of experience-dependent neural plasticity drive the learning for both the damaged and intact brain (Kleim, 2008).

I had my stroke on September 26, 2011 and woke up two days later without knowing what had happened. My body was fine (as far as I knew) but I didn't know that my language was damaged. It took time for me to realize that I had problems with my language. My speech therapy started a month after my stroke and that was the beginning of my aphasia recovery.

The first session included sets of activities (what the therapist called “automatics”) including repeating days, months, numbers, and the

alphabet. As I reviewed the automatics, I could identify my individual deficits within each set.

With numbers, I could pronounce 1 to 10 out loud but had a hard time finding the right number beyond that. The teen numbers (15, 16, 17, and 18) and decimal numbers (50, 60, 70, 80 and more) were all problems.



With days, I could say each day of the week in sequence, but if asked what day was today's day, I could not “find” that word without repeating all the days of the week starting with Monday

until I arrived at the right day. The same problem happened with months too.

The alphabet had its own problem. Half of the letters sounded good and the other half sounded bad (to me). “Bad” letters included letters like “g, h, f, k, r, m, n and others. Every day I arranged my “automatics” activities on the dining room table and repeated them over and over.

Although I repeated all of these activities at home (and other activities with the therapist), I still didn't realize that all of these activities *themselves* were therapeutic and were the active ingredients of neural plasticity.

I absorbed the mantra of neural plasticity, "Repetition of a newly learned (or relearned) behavior may be required to induce lasting neural changes (Kleim, 2008)." Repetition to induce *lasting* neural change is a big deal. Some amount of repetition can provide some amount of change. But ongoing repetition created the *lasting* neural changes that is the key to aphasia recovery.

As I repeated the days of the week (for example), I spoke aloud (and then whispered) the days of the week (that went) faster and faster to "get" to the day I wanted. Then I started "seeing" (and hearing) each day of the week *but only in my mind* and got even faster. Within a few months, I started to use this technique (mentally reviewing the days, months, numbers, and letters) such that it started to look as if my conversations were improving.

But I gave the *appearance* of getting better because I was still aware of the deficits and created these "tricks" to get around them. And although it appeared that my language was getting better (for people on the outside), I was still working through my perspective of personal improvement based on being full-on aware that my language was still bad, but my tricks allowed the *appearance* of getting better for others to see.

The next step (of which I was still wildly unaware) was the next trick: becoming aware that the speed had accelerated such that I could no longer consciously "see" the appearance of one word/snapshot or another. It was not unlike the flip-books of old. Each word/picture flipped faster and faster (in my mind) until it began a motion picture of its own, etched into my brain.

Repetition matters!

Kleim J, Jones T. (2008). Principles of experience-dependent neural plasticity: Implications for rehabilitation after brain damage. *Journal of Speech, Language, and Hearing Research*, 51, 225-239.

Signed: *The Johnny Appleseed of Aphasia Awareness.*