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"Those actions which appear the most insignificant, if only they are constantly repeated, will form for us in the course of weeks or months or years an enormous total which is inscribed in organic memory in the form of ineradicable habits (pg. 209)."

The Education of the Will; The Theory and Practice of Self-Culture, (1914).

Jules Payot, a leading French figure in lay education, pedagogy and philosophy.

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

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Aphasia Insights!

Speech Therapists: Make a Habit of Making Habits for People with Aphasia

By Tom Broussard, Ph.D.

Speech therapists needs to use the limited time available to create a therapeutic environment for people with aphasia (PWA) that can evolve into a set of lifelong learning activities that are needed to create and sustain plasticity, long-term.

Estimated Pace of Neural Circuitry Loss in Typical Large Vessel, Supratentorial Acute Ischemic Stroke

	Neurons Lost	Synapses Lost	Myelinated Fibers Lost	Accelerated Aging
Per Stroke	1.2 billion	8.3 trillion	7140 km/4470 miles	36 y
Per Hour	120 million	830 billion	714 km/447 miles	3.6 y
Per Minute	1.9 million	14 billion	12 km/7.5 miles	3.1 wk
Per Second	32 000	230 million	200 meters/218 yards	8.7 h

Saver J. Time Is Brain-Quantified. *Stroke.* January 2006; 37: 263-266.

People with aphasia have lost millions of cells, billions of synapses, and hundreds of miles of myelinated fibers from a stroke (Saver, 2006). It takes an amazing amount of energy to rebuild an equivalent set of new dendrites, synapses, and fibers from a stroke.

One (therapeutic) step at a time is always the issue. Conventional speech therapy can only provide a limited amount of "therapeutic steps" before insurance ends. There are many organizations available (stroke groups, intensive programs, schools, community organizations and others) to take over after conventional therapy ends. But other than that, many PWAs are on their own.

Speech Language Pathologists (SLPs) need to use those limited hours to create an environment of personal therapeutic activities to induce plasticity and learning for life. SLPs must do this early to acclimate the patient's learning environment such that they are prepared for an established routine of lifelong personal speech therapy.

I started my speech sessions about a month after my stroke. At that point, my mind was still foggy such that my sessions were the only things I could "see." Everything in my mind was focused on the next session, and then the next, and then the next. But as time went by, things started to look less foggy.

I started using some of my habits from my previous life. It was always my habit to keep track of my life with my calendar; work dates, travel dates, vacation, appointments, weddings, and more.

After my stroke, my calendar included speech sessions, OT sessions, PT sessions, cardiovascular sessions, and doctor's appointments, totaling ninety-one in all that year.

After that, it was my diary and then recording my voice (IPhone). All of that was conducted without any conscious decision (by me, or others) that doing it itself was therapeutic. It was just my habit to keep track of my life like the old days. I had no idea that any of this would make me get better later.

It was only much later when I realized that my habits were the activities that led me to recovery. Of course, there was no real "recovery plan". It just turned out that my activities *themselves*; a 500 page diary, 202 voice recordings, over 350 wiki notes, and over 250 photos, *were* the grist for the plasticity mill.

The activities exhibited the principles of plasticity that were built by a lifetime habit of repetition, interest and effort without knowing that the activities *themselves* created the ongoing habit-creation that was needed to induce plasticity and the resultant recovery.

Given the short amount of conventional therapeutic time allotted for PWAs, SLPs can't create "therapy" (which is to say, plasticity) in 30 minute bursts. SLPs can't create long-term habits without inducing long-term habitual creation activities. PWAs don't get better overnight.

SLPs can only *prime* the activities to become the ongoing, habitual, and repetitive acts such that it can induce plasticity, create neural matter and the resultant learning in the weeks, months and years in the future.

The aim of SLPs is to create the environment such that it begins a long-term commitment of self-directed learning and personal therapy before conventional therapy ends. SLPs need to use the sessions to create a habit-making environment from day one. There is precious little time available to create a set of lifelong habits to provide the lift needed before running out of runway.

The "recovery plan" requires a set of repetitive language activities to be used daily in the form of diary entries, voice recordings, video recording, taking pictures with other forms of appropriate feedback. Many patients may not be fully aware yet of the long-term therapeutic nature of these activities conducted at home as well as at the therapist's office.

Regardless, the materials *themselves* will instill the neurological discipline by the act itself. Whether the patient is aware of it or not, the activities themselves are the active ingredients of plasticity.

The "recovery plan" needs a rigorous set of reading, writing and speaking activities *every single day*. It doesn't matter if it looks good or bad. What matters most is that the activities *themselves* become the repetitive base to create and sustain the on-going habit that is needed. The habitual activities are the motive force that induce (and create) experience-dependent neural plasticity.

However, what is missing is the realization that habits are *needed* and take *time*. SLPs need to create an environment of language-sustaining habits that can exploit the magic of plasticity for the months and years it will take to repair the clients' language.

Signed: *The Johnny Appleseed of Aphasia Awareness.*

References:

Saver J. Time Is Brain-Quantified. *Stroke.* January 2006; 37: 263-266.