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Inside Aphasia

A Deeper Dive into Brain Injuries' Impact on Language

Written by Keesha Joseph

Illustrated by Orion Pendley and Ingrid Cassel

Imagine trudging home from school, raw with fatigue and inattentive to your surroundings. You had stayed after school to practice for your Debate Club competition and wanted to rest more than ever. As you reach your neighborhood playground, you notice children playing soccer nearby. Suddenly, a soccer ball comes flying in your direction and slams into your forehead. The world goes black, and the next thing you know, you wake up in a hospital room. You try to ask the nurses for help, but they can't understand you. "Where are my parents? I need them here because I want to go home," instead comes out as fragmented words. "Where...parents...need...home...go."

The doctor soon comes in and explains that your frontal lobe, the region of the brain responsible for processing language, has suffered a traumatic injury, giving you a speech disorder that prevents you from forming proper sentences. You anxiously listen while the doctor explains the cause of your headache and sudden speech impediment. Your diagnosis? Broca's aphasia.

Aphasia is a communication disorder. This means that the parts of your brain that allow you to read, write, speak, and understand language are damaged to varying degrees. Broca's aphasia, also known as expressive or non-fluent aphasia, is induced by damage to Broca's area, either from a stroke, brain tumor, head injury, or even surgery on the brain. Broca's area is located in the frontal cortex of the left hemisphere of your brain, the region largely responsible for verbal communication and abstract thinking.

This area was discovered by a French surgeon named Paul Broca in 1861 and was deemed vital for speech articulation. In addition to being part of the frontal lobe, Broca's area connects

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to the basal ganglia, cerebellum, and contralateral hemispheres. The basal ganglia and cerebellum make up the speech-motor cortex and work to control the facial movements related to speech production. The contralateral hemispheres of the brain, the cerebrum, and the cerebral hemispheres are the overarching divisions that receive information through opposite hemispheres in a process known as a cross association. These regions work together to allow for language acquisition, comprehension, and expression.

Not only does Broca's area play an essential role in speech production, but it is also fundamental for written language. Since writing often reflects a person's speaking abilities, people with aphasia will have more difficulty writing words than reading texts. Their language comprehension skills will not have deteriorated,

but depending on the severity of the disorder, their dysfunctional grammar can be discernable in poor letter formation, misspelled words, and letter omissions. That is because a patient with Broca's aphasia often loses their ability to retain grammatical structure. Conjunctions, prepositions, and articles such as "a" and "the" are frequently omitted from their vocabulary. In general, about 15 million people worldwide, with two million being Americans, are currently affected by some type of aphasia. Unlike Broca's aphasia, where speech production is limited, Wernicke's aphasia damages language cognition and prevents those affected from understanding words. Global aphasia, on the other hand, is the most severe form of aphasia, where all modalities of language comprehension and speech production are impaired.

Those with Broca's aphasia are aware of their lack of fluency, which can result in chronic frustrations. People who suffer from this aphasia — or any language disorder — are also often at significant risk of developing mental disorders, such as depression. Psychotherapy, one of the most productive treatments for depression, is not an effective remedy for those with aphasia. Something as fundamental as communication, often associated with identity and expression, becomes a double-edged sword in treating mental illness. Since this is an invisible disorder, many people are unaware of the scope of its impact. A person with Broca's aphasia may encounter unpleasant experiences with impatient listeners and judgmental or confused looks from those around them. There are few social accommodations for people with aphasia, and social isolation can be a long-term consequence of this essentially untreatable language impairment.

Although there are no permanent treatments yet for Broca's aphasia, speech and language therapy is the primary approach to breaking down barriers and rebuilding communication. There are both restorative and compensatory types of treatments. Restorative treatments work to improve or restore impaired functions, while compensatory therapy focuses on retraining the brain and compensating for deficits that are harder to respond to treatment. Some examples include Constraint-Induced Language Therapy, which encourages spoken language output and discourages compensatory communication techniques (i.e., writing and signaling), and Copy and Recall Treatment, which reinforces spelling words through written repetition. It may take days, months, or even years to see any significant progress, but with a supportive community and the proper treatment and therapists, Broca's aphasia can become manageable. ● ● ●

