ECRONICON OPEN ACCESS

EC PHARMACOLOGY AND TOXICOLOGY

Editorial

Encouraging Memories to Remain

Charles D Shively*

"The Healthcare Advocate", Chief Executive Healthcare Officer, www.AskDrS.org and Founder, The Boca Ciega Research Consortium for Sustainability, In the Mountains Near Blowing Rock, North Carolina, USA

***Corresponding Author:** Charles D Shively, "The Healthcare Advocate", Chief Executive Healthcare Officer, www.AskDrS.org and Founder, The Boca Ciega Research Consortium for Sustainability, In the Mountains Near Blowing Rock, North Carolina, USA.

Received: April 13, 2022; **Published:** April 29, 2022

Do you lose memories? How are memories captured in our memory for later use? Memory involves processes that are used to acquire, store, retain and later retrieve information. Where are memories stored in the brain? Different types of memories are stored across different interconnected brain regions. Importantly, memories are not stored in just one part of the brain which support at least four general types of memory. These include: working memory, sensory memory, short-term memory and long-term memory. Each of these types use different "networks" in the brain to correctly function.

Do we have selective memory? YES! Every individual chooses to retain certain facts and events but not others. Some scientists call this selective amnesia! Why? Each individual has the tendency to remember only what one wants to remember.

Explicit Memories (events which happened to each of us as episodes) as well as general facts and information defined as semantic (action) events involve three important areas of the brain: the hippocampus, the neocortex and the amygdala. See figure 1. The hippocampus, located in the brain's temporal lobe, is where episodic memories are formed and indexed for later access. These memories are autobiographic memories from specific events in our lives. Do you recall what tea or coffee you had with a friend last week?

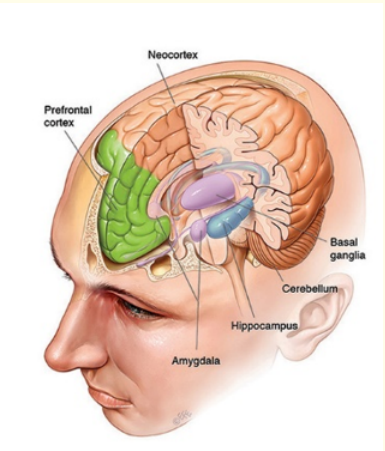

Figure 1: *Brain memories area.*

The neocortex is the largest part of the cerebral cortex (the outside sheet of the surface covering the brain is involved in higher functions such as sensory perception, generation of motor commands, space reasoning and language. It is a big "file cabinet" with most hu-

man experiences. But what about the almond-shaped structure in the temporal lobe which attaches emotional significance to memories? Strong emotional experiences are hard to forget. These are permanent and the interactions between the hippocampus and neocortex control the stability of any memory…and how it is effectively retained over time.

Implicit Memory, often called unconscious memory or automatic memory, uses past experiences to remember things and is not consciously recalled. It allows us to perform habits, skills and automatic behaviors and is generally defined as acquired knowledge that is not available to conscious access. It is a type of long-term memory related to the impact that activities and experiences can have on our behavior. Examples are how we wash our teeth, tie our shoes, play musical instruments, sing songs and ride bicycles. Interestingly, the playing of a musical instrument to perform songs or melodies is a combination of implicit unconscious memory and explicit episodic (original learning of the song to be played or sung) memory stored in the neocortex. Songs learned during teenage years are still remembered fifty or more years later. As a musician, I know this. It is amazing!

In contrast to how we encourage these types of memories to remain with us, short term memory is challenged by the known "forgetting curve" first announced and confirmed by Hermann Ebbinghaus in 1885. How much do we forget in 24 hours…if we do not choose to retain the just-learned information. 70%!!! Actually, studies have proven that approximately 50% of new information within an hour of learning is lost unless conscious strategies are employed to retain and enhance recall of the new learned information.

These thoughts beg the question: How are memories formed? In order to form new memories, information, often obtained through visual experience, must be changed into a usable form, which occurs through the process known as encoding. Once successfully encoded, it must be stored in different memory brain locations for later use. Memories are created through the strengthening of existing connections or the growth of new connections between neurons, the brain nerve transmission carriers.

Some memories are very brief, just seconds long and allow people to take in sensory information around them or about the world. Short-term memories are longer and last about 20 - 30 seconds, typically consisting of the information people are currently focusing on and thinking about. Using memory demands the retrieval of information that has been encoded into memory. Often times this retrieval is not perfect. What is the expression? It's on the tip of my tongue! Known in medical terms as lethologica. How does this happen? Surveys of 90% of speakers around the world suggest is occurs because of lack of sleep and is a combination of partial recall and the brain systems involved with memory are "fighting" for memories with conflicting episodes.

Sensory memory, being the earliest stage of memory, captures the information we are currently aware of or thinking about. Freudian psychology would consider this as the equivalent of the conscious mind. Paying attention to sensory memories generates information in short-term memory.

Long-term memory is referred as the continued store of information. This is actually working memory. Long term memory is outside of our awareness but can be called into working memory when needed…it lasts a lifetime.

How do we protect our memory? For those people who reach their 80's, a decline in cognitive decline can occur. How can an individual protect the brain as age approaches? Consider using the following: Avoid stress, avoid illegal drugs, avoid excessive alcohol and other neurotoxins (heavy metals, pesticides), get enough exercise, stimulate your brain with exercises and maintain a sense of self-importance or efficacy.

Are there foods or OTC supplements that can improve your memory? Of course. Consider use and consumption of the following: Avodados for focus and memory. Blueberries to increase blood low and concentration. Dark chocolates and caffeine for focus. Flax seeds as a superfood to improve mental clarity. Green tea for antioxidants and amino acids. Nuts and seeds to improve concentration. Salmon and fatty fish loaded with protein, vitamins, minerals and omega-3 for brain clarity. Water! Drink a half gallon a day each day.

Our bodies are made up of sixty-five or more percent water which benefits brain function, reaction time, working memory, concentration clarity and creativity.

How do you encourage memories to remain?

Volume 10 Issue 5 May 2022