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# Brain Toxins Be Gone! The Role of the Glymphatic System Revealed

08/31/2017 04:20 pm ET



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There is a timely arena of research being done these days on a newly defined system called the glymphatic system. Researchers and scientists have known and could see there was a system that helps remove waste from the body and the brain but only recently have new discoveries been found that highly impact our understanding of how the brain de-toxifies. One of the dramatic results when the health of the brain declines is memory loss even to the point of dementia or Alzheimer's disease.

A key player in this new understanding is the glymphatic system and glial cells. The latest research broke such new ground a Nobel Prize was awarded for the discoveries.

So what is this glymphatic system? Glymph (also referring to glial cells) literally means glue and refers to the structures in the body that hold all the neuron and synapses together. It is a vast system.

To give you perspective, there are about ten billion neurons in the brain but about 10 times as many, make that 100 billion (!) glial cells in the brain. You could also think of these glial cells as the stuffing that holds the neurons and the synapses as they transmit and transfer electrical information.

This particular system when healthy provides the way the cells of the body and brain are washed of toxins each day. I should say each night, since it is during sleep that 60% of the cleansing happens. Let me explain how this works in greater detail. Understanding can give us the keys to creating a life of greater health. While the glial cells surround each cell in the body and provide a way for each cell to release toxins on an individual basis the brain works differently. Think of the glial system as a network of very fine tendrils inside the brain. The tendrils are a bit like a spider web extending from the periphery into every nook and cranny of the brain. It is so sophisticated that the web extends into places you might not think possible and consists of billions, yes billions of channels. The brain in a way is enmeshed amidst these glial tendrils, which are sometimes called astrocytes.

Now that you have this picture it can be easier to understand how waste is removed. The cerebral spinal fluid, or extracellular fluid, sits like a membrane as think as a newspaper, lining the inside of the head. This fluid helps protect the brain and nourishes the neurotransmitters.

The glial system is THE way the fluid can wash through the brain to increase health and decrease waste. As a passionate Craniosacral Therapist I can tell you that our community is extremely excited to see this research emerge to confirm the efficacy of our technique for bringing healing and reversal of decline to those suffering brain trauma from concussion all the way to

Alzheimer's disease. But how *does* this research relate to Alzheimer's and dementia specifically?

When there is inflammation in the brain these astrocytes, or glial cells, flair up and constrict the movement of the fluid through the brain. The micro-highways with neurons like relay stations spaced along the way become blocked. As we age the flow becomes weaker especially in proportion to the amount of inflammation.

A good image to picture would be a river where the water table keeps lowering. The lower it gets, the more sludge and gunk clog any flow that is left. There is a catch 22 for the flow helps clear the gunk (which is more appropriately called plaque and tangles) and the gunk limits the flow.

But what is the gunk made up of? Scientists believe the main contributor is a plaque called amyloid beta. The causes are quite a few but poor diet and exercise, along with sleeplessness are definitely named among them. When this gunk causes the constriction there are even more devastating side effects. For one, the astrocytes can become twisted when toxins get trapped deep in the brain, and another is even worse. Without the nourishment of the cerebral spinal fluid reaching the neurons they being to die.

This all leads to short term memory loss and then progressive deterioration of the brain.

While this can seem a bit daunting, I can tell you as a Craniosacral therapist helping reverse Alzheimer's disease this as a breakthrough to a new paradigm for aging right in our own hands. Craniosacral therapy works to increase the flow in the brain, which in turn helps reduce inflammation, which in turn reduces the strain patterns that have accumulated over time.

It gives new dimension to what it could mean to 'live in our flow.' What could you do today to increase your brain health?