

Is your memory getting worse?

We've all had that stomach-churning experience of forgetting, in mid-speech, the point we are supposed to be making. Will people notice that we wandered off-point? And why can't we remember that point – or for that matter, the name of that new person, or where we put our car keys?

People start to notice subtle deficits in their memories in their 30s. They struggle to find the right word and have a hard time remembering the names of people they recently met.

Small signs of mental aging are frustrating, but normal. Can you turn back the clock? Very likely. How? By increasing oxygen to the brain.

As the years go by, less and less oxygen gets to the brain. The frontal lobes of the brain are where the so-called *executive functions* reside. Executive functions are brain activities that have to do with paying attention to details and remembering them, organizing, strategizing, and planning.

Blood brings oxygen and the basic nutrient, glucose, at life-sustaining levels to all parts of the brain. Our brains have an amazing ability to supply extra blood preferentially to those parts in use.

Hemoencephalography – HEG for short – is a simple technique to measure the amount of oxygen in the blood flow to the brain. HEG makes use of light to read brain activity by measuring the oxygenation of the blood circulating through the brain. HEG uses the same principle as the little fingertip clip-on oximeter that reads your pulse rate or your oxygen levels in the hospital. It's clean and quick.

After measuring the level of oxygen, HEG uses biofeedback to let you learn to increase that oxygen in the blood flowing to the brain's frontal lobes. Patients use a simple headband that sends a signal to a computer program that supplies the patient with visual or audible feedback indicating brain activity level. Over the course of 6 to 8 weeks of sessions, you can learn to increase the oxygenated blood flow to this area of the brain, potentially improving brain function by an average of 1.2% per training session.

HEG neurofeedback training sessions typically take less than a half-hour. The process is much simpler than the older EEG technology.

The term HEG was first coined in 1997. Hershel Toomim, DSc discovered that oxygenation of blood flowing to the brain can be increased using neurofeedback techniques. With the sensor giving feedback of increased oxygenated blood flow, we can voluntarily increase our brain's oxygen levels in the area surrounding the location of the sensor.



Brains, like muscles, thrive on oxygen. Increasing the oxygen delivery can result in new neuron connections. More neurons make for better memory just as more muscles make for more strength.

HEG biofeedback provides a method of exercising concentrated attention that trains key parts of your memory and executive functions, and can increase speed and accuracy of decision-making. Some people even report that they can do math in their head with greater ease after using HEG.

We've all heard the expression "Use it or lose it". That is very true with our memories.

The brain has its own method of developing and expanding the pathways that are frequently used, and "pruning" the connections that aren't utilized in much the same way you prune deadwood off a tree. The pathways that are more consistently utilized are protected from the pruning process. HEG biofeedback stimulates these pathways.

HEG biofeedback is also showing great promise for the treatment of AD/HD symptoms. Sensory input is filtered in the frontal lobes to determine if it is something important to pay attention to or not.

Low function of the frontal lobes has been shown also to be a factor in migraine headaches, some cases of autism, depression, and schizophrenia.

When you can learn to increase the oxygen in the blood that reaches the frontal lobes, that area of the brain is able to do its job better and more efficiently. Your memory is improved, and your entire brain functions more efficiently.

So, how *is* your memory these days?

Dr. Martha Grout, medical director of The Arizona Center for Advanced Medicine and Clinical research, is the exclusive Arizona provider of BrainAdvantage, a breakthrough in simplicity and effectiveness for helping with memory loss and brain training. The Center is located at 9328 E. Raintree Drive, Scottsdale, AZ., 480-240-2600, www.ArizonaAdvancedMedicine.com



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