

Restoring Brain Function

Use it or Lose it

Dr. Smith **Live**

66th Episode

Topics:

- Documentation that the brain can repair
- Neuroplasticity: stimulates neuron production and rewrites the brain
- Why a specific spice can repair the brain
- What supplements are critical to repair the brain
- Learn what vegetables stimulate nerve growth
- Why critical thinking is essential to maintaining brain sharpness
- How to prolong brain processing speed

“Life is short, break the rules. Forgive quickly, kiss slowly. Love truly. Laugh uncontrollably and never regret anything that makes you smile.” *Mark Twain*

Documentation that the brain can repair

It's a commonly held misconception that the brain is beyond repair. Even the medical establishment has asserted that once we kill brain cells, they are gone forever. The fact is, the brain can repair itself, and as science is now proving, there is a real benefit to simple practices that can help keep our brains sharp and elastic throughout our lifetime.

*A highly compelling study published in the journal **Stem Cell Research & Therapy** found that a little known, fat-soluble component within turmeric - **Ar-tumerone** - may make "a promising candidate to support regeneration in neurologic disease such as **Alzheimer's and stroke.**"*

"Aromatic-turmerone induces neural stem cell proliferation in vitro and in vivo," German researchers evaluated the effects of this turmeric-derived compound on neural stem cells (NSCs) - the subgroup of brain cells capable of continuous self-renewal required for brain repair.

The study found that when brain cells were exposed to ar-turmerone, neural stem cells increased in number through enhanced proliferation. Moreover, these newly formed neural stem cells also increased the number of fully differentiated neuronal cells, indicating a healing effect was taking place. This effect was also observed in a live animal model, showing that rats injected with ar-turmerone into their brains experienced increases in neural stem cell proliferation and the creation of newly formed healthy brain cells.

Neuroplasticity: stimulates neuron production and rewrites the brain

The term neuroplasticity refers to the ability of the brain to “rewire” itself through the practice of the desired skill. It’s the combination of new cells and new learning that creates this magic. When fresh nerve cells are well-stimulated (i.e., trained through specific learning exercises), they make new connections. In other words, they become healthy brain cells that contribute to learning and the development of new skills.

Just like the muscles of the body, when the brain is well-nourished and stimulated through proper exercise, it heals and grows. And with proper care and feeding, this amazing brain regeneration can occur throughout life.

It wasn't until the 1980s when Fernando Nottebohm's research at Rockefeller University clearly indicated that neurogenesis—production of new nerve cells, aka neurons—was taking place in the adult vertebrate brain.

The growth of new neurons in an adult, mammalian brain was first seen in 1992, when scientists isolated neural stem cells from mice in a Petri dish.

This regeneration was then replicated thousands of times in a variety of published studies over the next 25 years.

It's now accepted in the medical scientific community that the adult brain is capable of growing new neurons and glial cells, something previously disbelieved by the medical establishment. The brain is now considered to be resilient, pliable—plastic.

What supplements are critical to repair the brain

- **Turmeric** is hands down one of the, if not the, most versatile healing spice in the world with over 800 experimentally confirmed health benefits, and an ancient history filled with deep reverence for its seemingly compassionate power to alleviate human suffering. It may also represent the pharmaceutical industry's single most existential threat, given that the preliminary science signals turmeric is at least as effective as 14 drugs, and orders of magnitude safer as far as toxicological risk.

- **Green Tea**

A 2014 paper studying the active compounds in green tea (known as catechins, a main class of micronutrient), determined that green tea catechins aren't only antioxidant and neuroprotective, they actually stimulate the brain to produce more neurons.

Because of this therapeutic effect on damaged regions of the brain, green tea has been shown to have exciting implications in the treatment of “incurable” neurodegenerative disorders such as Alzheimer's, Parkinson's, and Huntington's disease. This prompted researchers to declare green tea catechins “a highly useful complementary approach” in the treatment of neurodegenerative diseases.

Further investigation of green tea examined a combination of blueberry, green tea, and carnosine, and found it to promote the growth of new neurons and brain stem cells, in an animal model of neurodegenerative disease.

- **Carnosine (Premier Research)**

Carnosine: is a substance produced naturally by the body. Classified as a dipeptide, a compound made up of two linked amino acids (in this case alanine and histidine), carnosine is highly concentrated in muscle tissue and in the brain. It's also present in significant concentrations in beef and fish, and in lower concentrations in chicken.

Carnosine has powerful antioxidant properties, allowing it to protect cells against free radical damage. It also appears to reduce inflammation, a driver of many types of chronic disease.

Animal and laboratory studies show that carnosine reduces the buildup of amyloid beta, the protein that forms the brain plaques associated with Alzheimer's disease.

In one study on mice published in 2013, oral supplementation with carnosine prevented cognitive decline due to its inhibition of amyloid beta.

Eating a meal that includes animal- or fish-based protein will increase your level of carnosine (e.g., a three-ounce portion of beef contains around 300 milligrams of carnosine).

- **Clinician's Preference**

This organic, cold pressed plant based source of Parent Essential Oils is made from flax oil, Evening Primrose oil, pumpkin oil, sunflower oil and extra virgin coconut oil. It provides an 11:1 ratio of omega 6 to omega 3

oils. Helps the brain to repair its cell membranes. The omega 6 and omega 3 oils provide the basis for the body to make EPA, DHA, omega 9, omega 7 and any other oils. Most oils sold are derivatives and cannot make the other oils.

- **Ginkgo Biloba (Medi-Herb)**

It is considered a powerhouse in the herbal medicine pharmacopeia, and its implications for brain health are equally potent. Ginkgo has demonstrated at least 50 distinct health benefits, and its medicinal value is documented in the treatment of more than 100 different diseases.

Ginkgo is so effective that a 2006 paper published in the European Journal of Neurology found it to be as useful in the treatment of Alzheimer's disease as the blockbuster drug Donepezil.

- **Bacopa (MediHerb)**

It is an herb that contains dammarane saponins, which are anti-inflammatory, anti-angiogenetic and antiviral. It also contains Schisandra, Eleuthero and the essential oil of Rosemary. This herbal blend is designed to enhance mental clarity and support healthy cognitive function, long-term memory and concentration.

- **Sulforaphane**

Found in sulfur-rich vegetables such as broccoli, cauliflower, collard greens, kale, Bokchoy, brussels sprouts, cabbage, arugula, turnips, watercress, radishes, horseradish and wasabi.

Note: Sulforaphanes work by amelioration of obesity through enhancing energy consumption by browning of adipocytes, and reduction of metabolic endotoxemia through improving gut bacterial flora.

• Methylene Blue

1. Helps mitochondrial respiration and improves brain energy metabolism. By doing that, it can improve cognitive performance and prevent neurodegeneration.
2. Emergency rooms around the world use it, as it's the only known antidote for metabolic poisons causing methemoglobinemia, which is when a metabolic poison interferes with the transport of oxygen in hemoglobin.
3. Methylene blue is a hormetic drug, so low doses have the opposite effect of high doses.
4. Low doses, 0.5 mg to 1 mg per kilo of bodyweight, are recommended for non acute, longer-term treatments. Uses include the prevention and treatment of dementia, post-stroke and other brain injuries, cognitive enhancement, and the general optimization of health if you're already healthy.

Example: 150 lbs = 68 Kilograms = 34 mg to 68 mg of methylene blue

5. Methylene blue in the brain of humans has the effect of improving brain metabolism, blood flow and memory function.
6. **Must use pharmaceutical grade** methylene blue.
7. Considering the importance of mitochondrial health, methylene blue appears to be a simple and remarkably effective way to improve mitochondrial health and your cognitive function.

Note: Anyone taking statin drugs (Lipitor, Crestor, etc.) must stop. Statins suppress the levels of cholesterol and cause the brain to shrink resulting in dementia.

• **Low Level Infrared Light Therapy for Repairing the Brain**

Researchers at the VA Boston Healthcare System are testing the effects of light therapy on brain function in veterans with Gulf War Illness.

Journal of Neurotrauma, they reported the outcomes of LED therapy in 11 patients with chronic TBI. Neuropsychological testing before the therapy and at several points thereafter showed gains in areas such as executive function, verbal learning, and memory. The study volunteers also reported better sleep and fewer PTSD symptoms.

Why critical thinking is essential to maintaining brain sharpness

Aging is often associated with cognitive decline, both in research and anecdotal evidence. However, a growing body of literature shows that retaining a sharp, lucid brain means never retiring our critical thinking skills.

The need to continually challenge and expand our thinking was demonstrated in the aforementioned 2011 study published in the Journal of Neuropsychiatry. In this study, the leisure time activities of a group of older adults (ages 70 to 89) were monitored for effect on mild cognitive impairment (MCI).

The study determined that the level of complexity of the activity was key to its effectiveness at preventing MCI. Working with computers, reading books, and activities associated with patterns and problem-solving contributed to a significant decrease in the odds of developing MCI. Less stimulating activities showed no statistical effect. This stresses the importance of feeling challenged and stimulated by the activities we pursue as we age.

These findings were reinforced by a 2014 study of nearly 3,000 volunteers, spanning more than a decade. This study examined the potential long-term benefit of cognitive training in older adults. Results showed that participants demonstrated enhanced brain processing speed and reasoning skills for up to 10 years after the training was completed.

These tangible brain benefits spilled over into daily life and were measured in the participant's ability to complete normal daily tasks, such as personal finances, meal preparation, and personal care routines. The study revealed that stimulating environments help increase the complexity of the brain.

Get Lots of Physical Exercise

When you hear the phrase “train your brain,” you probably don't think of lifting weights. Turns out, physical exercise is one of the best things you can do for your body and your brain.

The brain benefits of exercise are two-fold. First, the brain is a voracious consumer of glucose and oxygen, with no ability to store excess for later use. A continual supply of these nutrients is needed to maintain optimal functioning.

Physical exercise increases the blood flow to the brain, delivering a boost of fresh oxygen and glucose to hungry brain cells. A 2014 study showed that just 30 minutes of moderate cardio was enough to boost cognitive functioning in adult brains of all ages.

But the benefits don't stop there. Exercise is believed to stimulate hippocampal neurogenesis: new cell growth in the region of the brain associated with long-term memory and emotions. Healthy cell growth in this

region is important to the aging brain and believed to help prevent cognitive decline associated with Alzheimer's disease and dementia.

Use Stress Reduction Techniques

Stress is one of the top factors in age-related cognitive decline. This makes engaging in regularly scheduled leisure activities not just a fun thing to do, but an important step toward ensuring optimal brain health.

You don't need to look far to find ways to de-stress. Let your interests guide you. The key to picking brain-healthy pastimes is to avoid passive activities such as watching TV and instead choose stimulating hobbies that engage the brain through patterns, puzzles, and problem-solving.

A 2011 study published in the *Journal of Neuropsychiatry* found that activities such as playing games, reading books, and crafts like quilting and knitting reduced rates of cognitive impairment by up to 50 percent.

Engaging with art also ranks high on the list of brain-healthy hobbies. Studies prove that once again, it isn't enough to be a passive observer. To get the brain boost, we must engage.

In a German study reported in the journal *PLOS One*, researchers studied two groups: a group that observed art, and a group that produced art. The study concluded that compared to those who observed art, the art producers demonstrated increased interactivity between the frontal and parietal cortices of the brain. This increased brain connectivity translates to enhanced psychological resilience in the group of art producers. In other words, their ability to resist the negative effects of stress improved.

Looking for a more low-key way to unwind? How about playing beautiful music or sitting in quiet contemplation? Meditation has been shown to lower blood pressure, reduce inflammation, and even build resistance to feelings of anxiety and depression. And while listening to music may seem

like a passive activity, research suggests that the act of listening to musical patterns facilitates brain neurogenesis.

Both meditation and listening to music affect the secretion of key hormones that enhance brain plasticity, thus changing the very way we respond to stress. Talk about good medicine!