



The Healthy Aging Brain...a Continuing Series

While exercise has an undisputed key role in maintaining brain health throughout our lives, promising new research points to a number of other factors that can spell the difference between thriving or just surviving the senior years. We checked in with Eric Terman, MD, personal physician and Assistant Professor of Internal Medicine and Geriatrics at Northwestern University for an informed view of the latest thinking on this topic...important not just for current seniors, but also for aging Baby Boomers and for younger 40-somethings just beginning the "aging" process.

What are some of the key findings of current studies into how the mind ages?

Research shows that the brain continues to form new connections throughout life. This process, called adult neurogenesis, shows how plastic or structurally adaptable the brain is, even as we age. A combination of exercise, diet and stimulating environments can increase adult neurogenesis and improve cognitive functioning in young and old individuals. This has been documented in animals and we are seeing increasing evidence this occurs with humans too.



What role does exercise play?

We know exercise appears to increase the neurogenerative properties. While the cause is not clearly proven yet, there is little doubt that exercise benefits both body and mind in many ways. It is associated with reduced risk of dementia, and may actually be preventive. For these reasons, I almost always recommend a form of regular activity to my patients.

Do you advise your older patients to consider retirement for reduced stress, more time for leisure activities, etc?

It's critical to stay engaged in something you care about, whether or not you're earning a significant salary. The brain stays sharp if you continually grapple with problems, find solutions and achieve positive outcomes.



By 2025, the number of people age 65 and older estimated to suffer from Alzheimer's disease, a 40% increase from 2015. **Alzheimer's Association*

Wouldn't lifelong learning classes and lectures fill that void?

Sometimes listening to a lecturer can be barely better than watching TV in terms of passive versus active involvement of your brain. Unless you're reading textbooks and writing papers, you're better off with the type of engagement you receive from working. It's the same reason the benefits of brain training games are unclear – problem solving for real world issues results in better cognitive capacity.

Can you explain mindfulness-based interventions and how these work to reduce the severity or risk of diseases such as Parkinson's and Alzheimer's?

High levels of stress are associated with increased risk of these diseases, and with mild cognitive impairment. Mindfulness-based interventions such as meditation and yoga are non-invasive stress reducers, and proven effective complements to treatments for anxiety, hypertension, chronic pain and insomnia too. Preliminary research is also showing that mindfulness-based interventions reduce atrophy of the hippocampus (a critical site of episodic memory), increase gray matter and improve functional connectivity in the neural networks of the brain most affected by the disease process of Parkinson's and Alzheimer's.

What is the best way to get started with this kind of program?

There are formal meditation programs and yoga training activities, as well as some excellent apps that take you through the process, such as Headspace.

What advice would you give seniors looking for ways to keep their brain and spirit vigorous as they age?

Find something to pursue that keeps you actively

engaged and that you love to do if you formally stop working. Definitely, keep moving - I have patients who have started exercise programs in their 70s and they see significant differences in the way they feel. Modify your sleep behaviors if needed to ensure a good refreshing sleep, every night. And while the effect of a strong social network may be somewhat of a chicken-egg conundrum, there is increasing evidence that social and mental stimulation strengthen connections between nerve cells in the brain.

Breakthrough research sheds new light on Alzheimer's disease

Numerous studies of Alzheimer's disease, the leading cause of dementia that gradually erodes a person's memory, thinking and ability to perform everyday tasks, are beginning to provide answers as to causes and possible targets for treatment. For instance, the link with cardiovascular disease has become increasingly evident. Several conditions known to raise the risk of cardiovascular disease, including high blood pressure, diabetes and high cholesterol, also increase the risk of developing Alzheimer's - as many as 80 percent of individuals with Alzheimer's disease also have cardiovascular disease, according to the Alzheimer's Association. Experts have noted that while some people develop brain plaques and tangles seen in the disease, they do not suffer from the symptoms of Alzheimer's unless vascular disease is also present.



Other new research is focused on the blood-brain barrier (BBB), a protective filter of the brain that becomes more damaged in patients with Alzheimer's disease. At University of Southern California, neuroscientist Berislav Zlokovic and team found that the BBB becomes leaky with age, starting in the hippocampus, an area that is affected before the symptoms of Alzheimer's disease are seen. He noted that specialized brain scans might help doctors diagnose the condition earlier.

"Dr. Zlokovic's advances bring us that much closer to a cure," reports the chairman of the Cure Alzheimer's Fund.

From the desk of Sean D. O'Connor, MD

Dear Patient:

I am delighted to bring you the latest findings on the aging brain, the second part of our ongoing series on this important topic. You will find details on promising research that points to the brain's ability to continually form new connections throughout our lives.

Going from head to toe, we take a look at a common, but painful, foot condition - plantar fasciitis. We share the most recent news on the documented success of non-surgical solutions in getting patients back on their feet.

Finally, with holiday festivities around the corner, we offer you a full plate of nutritious substitutions you can make at family dinners, office celebrations, cocktail parties... and start the year on a happy *and* healthy note!

Yours in good health,
Sean D. O'Connor, MD

Did you know?

- **1 in 5** - Number of Americans who will be over 65 by 2030.
- **6-10 months** - Average time needed for plantar fasciitis to heal itself.
- **3,000 – 4,500 calories** - Amount consumed by average American during Thanksgiving dinner (including pre-meal snacks)*

*Vanderbilt University/NY Times

Thinking on Your Feet: The Latest on Warning Signs from Below

Every step you take is a physiological marvel, made possible by the 26 bones, 33 joints and over 100 ligaments of the foot working together to ensure maximum movement. The intricate sequence begins as your heel hits the ground, and ends with a push off the big toe at the same time the Achilles tendon lifts the heel, requiring a force that is about 50 percent greater than your body weight. Now consider that during a typical day, people spend about four hours on their feet and take 8,000 to 10,000 steps – that means the feet support a combined force equivalent to several hundred tons every day.

While feet were designed to propel you through life with powerful ease, many factors can affect function. Age, obesity, long periods of standing, certain diseases such as diabetes, some types of exercise, faulty foot mechanics, overuse or misuse of muscles, even ill-fitting shoes, result in pain that can sideline even the most determined walker. However, today's treatment of choice - a combination of non-invasive measures and time - will get most people back on their feet without the complications of surgery.



Physical therapy can help relieve the pain, which is often aggravated by tight muscles in your feet and calves. Exercises to stretch the plantar fascia and Achilles tendon and strengthen lower leg muscles are often prescribed initially. Notably, one of the most effective treatments for plantar fasciitis may also be the simplest. Patients who tried slowly raising and lowering the affected heel while standing barefoot on a stair or a box, 12 times every other day, reported a vast improvement in pain and disability in three months, compared with those who adhered to a standard regimen of pulling toes toward the shins several times daily. When performing that exercise, it is best to roll a hand towel and place it under the toes to increase the amount of flexion.

In addition to therapy, other conservative measures are recommended initially, including:

- ◆ avoid flat shoes and barefoot walking
- ◆ cut back on activities that may aggravate the condition (running, dancing, jumping)
- ◆ over-the-counter silicone heel shoe inserts
- ◆ short-term trial of anti-inflammatory drugs

Plantar fasciitis can persist, however, and additional treatment may include:

- ◆ a single glucocorticoid (cortisone) injection
- ◆ molded shoe inserts (orthotics) or arch supporting shoes

- ◆ night splints
- ◆ cushioned walking boot

The good news: almost 90 percent of patients with plantar fasciitis will improve within 10 months of starting simple treatment methods, say experts.

Fancy Footwork: Expert Advice to Keep You on Your Toes

Preventive stretching. Add conditioning exercises to your daily routine, such as rolling your foot over a golf ball for a few minutes to work the plantar fascia ligament, or tracing the letters of the alphabet with your feet. Wrap a TheraBand (a resistance tool) around the sole of your foot while sitting on the floor with your legs straight out in front, and flex and point.



Size check. The size of your foot can change over time, especially in women whose feet become longer and wider after pregnancy. Ask for a professional measurement the next time you shoe shop.

Find the right fit. Too-tight shoes weaken the muscles in the ball of the foot and the ligaments that hold the toes straight, causing corns, ingrown nails and bunions. Make sure your shoe is roomy enough to provide a finger's breadth between its tip and your big toe.

Stand tall, naturally. High heels are the most common cause of foot pain among women, leading to corns, calluses, bunions and neuromas (pinched nerve or nerve tumor). Choose shoes broad in the toes, with a low wedge and shock absorbent sole.

Sources: Mayo Clinic, American College of Foot and Ankle Surgeons, University of Maryland Medical Center, NY Times

8 out of 10 – Americans who have experienced a foot problem; 50% reported an impact on quality of life.

Plantar Fasciitis, the most common cause of foot pain

Although it is known as jogger's heel, there are multiple causes of plantar fasciitis, responsible for one million visits to the physician each year. Exercise such as dance and aerobics can contribute to plantar fasciitis, as can being flatfooted or having a high arch, carrying extra weight, or working in an occupation that requires frequent standing or walking on hard surfaces. The plantar fascia is a band of tissue from the heel to the ball of your foot that supports your arch like a bowstring; too much tension on it creates small tears. Repetitive stretching and tearing causes the fascia to become inflamed and irritated, and results in a stabbing pain felt most acutely in the morning or after any period of inactivity.



Nutrition Corner

Healthy Holidays to You!

That delightful period of festive dinners and parties, from Halloween treats through elegant New Year's brunches, can play havoc with even the best of dietary intentions. While the average weight gain during the holidays is just one pound, it is a pound that doesn't leave, and accumulates through the years, leading the National Institutes of Health to cite it as a major contributor to obesity later in life. *HealthWise* offers these tasty substitutions...and our best wishes for a happy and nutritionally sound new year.

At Thanksgiving Feast on this:	Not that:
Gravy made with beef broth, cornstarch	Gravy made with flour, oil and fat drippings
Stuffing made with rolled oats and Granny Smith apples	Stuffing made with breadcrumbs and butter
Fresh cranberries	Cranberry mold with pecans
Baked sweet potato	Candied yams
Fruit/yogurt parfait	Pumpkin/pecan pie

At Holiday Celebrations Celebrate with this:	Not that:
Baked vegetable pancakes	Fried potato pancakes
Lean, low-sodium, smoked ham	Honey glazed ham
Brown rice	Bread/rolls
Spiced apple cider	Egg nog
Meringue cookies	Frosted butter cookies

At New Year's Eve parties Toast to this:	Not that:
Fresh vegetables with kale-spinach dip	Vegetable "chips" with ranch dip
Stuffed mushrooms/artichoke hearts	Mini quiches/pizzas
Shrimp cocktail	Crab Rangoon, fried wontons
Champagne	Mixed drinks
Chocolate covered strawberries	Strawberry cheesecake bites

Sources: Cooking Light, Better Homes and Gardens, Better Health Magazine, Daily Meal