

# [REVEALED] The (not so) mysterious reason behind graying hair

*Is it fright, disease, aging...or THIS?*

Graying hair is often one of the most noticeable signs of aging. And the debate over *what* makes your hair turn gray has gone on for years, with lots of medical lore and mysterious popular legends—but precious little science.

Does gray hair mean someone is aging faster? Does it indicate chronic disease? Is it a sign of stress? Can you really turn gray “overnight” from a fright?

Indeed, there are many stories about hair turning gray overnight, from fear, fright, or stress—such as military personnel returning from harrowing combat missions. And, of course, overnight graying is a feature of many classic ghost stories.

One of my favorites is Washington Irving’s 1824 short story, “The Adventure of the German Student.” The poor student’s hair turns gray from the shock of encountering the animated corpse of a beautiful woman who had just been guillotined during the French Revolution.

And, speaking of the French Revolution, there’s the famous legend of Marie Antoinette, whose hair reportedly turned gray one night in 1793, just before she met her fate the next morning (also at the guillotine).

But beheadings aren’t the only cause of gray hair on your head...

Scientists have known for a long time that hair that has already grown out from the follicle *doesn't* change color

(the pigment is embedded with the proteins of the hair filament). And it certainly can’t do so overnight.

Plus, a groundbreaking new study from Columbia University reveals scientific evidence behind the graying process—one that shows the stress evoked in these old stories may be a root cause.

In fact, researchers have linked excess stress to silver locks. But once that stress is relieved, some of your natural hair color could actually be *restored*.

## **The important link between graying hair, stress, and cellular aging**

This new study is the first to provide scientific evidence linking psychological stress to graying hair in humans.<sup>1</sup>

But the authors believe their findings may hold broader significance than just confirming old legends and lore about the effects of stress on hair color...

They think a better understanding of the mechanisms behind *how* old, gray hairs return to their young, pigmented appearance can yield new insights into the mysterious aging process—including how aging is influenced by stress, and possibly reversed.

Their findings add to a growing body of science demonstrating that human aging is *not* just a linear, inevitable process toward declining vitality. Rather, aging can be *accelerated*

by stress—and slowed down by decreasing, eliminating, or managing that stress.

And studying *hair* is actually quite vital to uncovering how these effects may be either accelerated or slowed: “Just like tree rings hold information about past decades and rocks hold information about past centuries, hairs hold information about past months and years,” the researchers wrote in their “plain language” study summary (the kind that we certainly don’t see often enough!).

## **How hair follicles track your life events**

Hair holds information about our biological history. When hairs are still forming beneath the skin, in follicles, they’re subject to factors in

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the circulating blood, including stress hormones and lack of proper nutrients.

When hairs emerge out of the skin, they become “frozen” and the protein structure permanently crystallizes, trapping the history of their exposures in a little time capsule. (In forensic science we can also measure cumulative poisons, such as arsenic and lead, as well as essential trace minerals, like copper and selenium, in individual hairs.)

To study this “hairy” chronology, the researchers created a new method for capturing highly detailed images of thin slices of human hair. They were then able to measure the amount of pigment loss (graying) in those slices. Each thin slice corresponded to just one hour of hair growth.

To the naked eye, a normal strand of hair seems to be the same color throughout its length. But with high-resolution imaging—literally splitting hairs—you can see small, subtle changes in pigmentation along the length.

### **The direct correlation between stress and hair color**

The researchers studied hairs from 14 study participants with an average age of 35 years. All of the participants had some gray hairs, but none of them used any chemical treatments, like dye, on their hair.

Each participant kept a diary, recording the amount of stress they experienced each week over a year-long period. Then, changes in hair pigmentation were compared to those diary entries.

(Other studies have consistently found that the best measure of stress is to simply *ask* people about how they are experiencing stress. These personal feelings strongly relate to health and disease outcomes.)

The researchers found a strong

association between high stress and gray hairs. In fact, some participants’ individual hairs turned gray part-way down the length of the hair, correlating to stressful periods in their lives.

And, in the case of one study participant, five of their gray hairs restored to dark pigmentation after they went on a (presumably stress-free) vacation. Of course, the researchers cautioned that this gray hair reversal is rare and limited to isolated follicles—meaning there’s little chance you’ll revert to the hair color of your youth, no matter how much you alleviate your stress. Still, it indicates a nice, unique benefit of stress reduction.

### **The mitochondrial effect on gray hair**

The researchers then looked at the levels of different proteins in hair and how they changed over time, as hair grows. They found alterations in 301 proteins when hair color changed. Based on these findings, they created a mathematical model that simulates the graying of a whole head of hair over a lifetime.

This model suggests that changes in cellular mitochondria explain how stress makes hair turn gray. (Mitochondria are the energy factories of the cell, but the researchers explained they also act like little antennas inside the cells that respond to various signals, including psychological stress.)

Of course, in humans, biological age is also an important factor for graying hair. One of the study authors, Dr. Martin Picard, said: “Based on our mathematical modeling, we think hair needs to reach a threshold before it turns gray. In middle age, when the hair is near that threshold because of biological age and other factors, stress will push it over the threshold and it transitions to gray. But we don’t think that reducing stress in a 70-year-old

who's been gray for years will darken their hair, or increasing stress in a 10-year-old will be enough to tip their hair over the gray threshold.”<sup>2</sup>

### My prescription for mitochondrial support and stress relief

In my view, the benefit of this study is not just the finding of gray hair reversal (although it's certainly a positive for those of us sporting more than a few silver locks). It's also that it shows—once again—the importance of addressing [aging at the cellular level](#). And the importance and benefit of reducing chronic stress at *any* age.

While mainstream researchers and doctors don't pay the right kind of attention to dietary supplements, there are actually many ingredients that support the mitochondria and are *key* to healthy aging. My go-to trio includes:

- **Aspal**, also known as rooibos. I recommend 400 mg a day.


- **Dandelion root**. I recommend 500 mg a day.
- The adaptogen *Sutherlandia frutescens*. I recommend 600 mg a day.

In fact, studies show that some of these ingredients improve gait (strength and consistency of walking), which is a strong predictor of longevity and healthy aging.

Follow these recommendations and, when it comes to healthy aging, you won't need to be dealing in shades of gray.

Plus, there are many mind-body approaches to reducing stress (without dangerous drugs), which I detail in my books *Your Emotional Type* and *Overcoming Acute and Chronic Pain: Keys to Treatment Based on Your Emotional Type*. (Both available under the “books” tab of my website, [www.DrMicozzi.com](http://www.DrMicozzi.com).)

And finally, you can learn simple, common-sense strategies for staying

vibrant, youthful, and healthy well into your 70s, 80s, and beyond in my *Insiders' Ultimate Guide to Outsmarting “Old Age.”* To learn more about this innovative, online learning tool, or to enroll today, [click here](#) or call 1-866-747-9421 and ask for order code EOVSXA00. 

### The “anti-gray” vitamin

Marie Antoinette's “let them eat cake” diet could have very well been deficient in vitamin B12, which has been linked in some studies to premature gray hairs.

And, as I wrote in the March 2018 issue of *Insiders' Cures*, research shows that most people over the age of 50 don't get enough B12. So you may be facing a double whammy: Graying hair due to age, exacerbated by inadequate amounts of B12 in your blood.

That's why I also recommend taking a daily, **high-quality B complex** that includes 12 mcg of B12. You'll potentially stave off the gray, and help reduce your risk of other age-related diseases like Alzheimer's, heart disease, cancer, and osteoporosis, to boot.

## Two fall favorites hold scary-good health benefits

As All Hallows' Eve approaches, chances are, you're stocking up on pumpkins and chocolate.

But before you set these fall favorites aside for the little witches and goblins that come to your door on October 31st—and for carving jack o' lanterns—I suggest saving some for yourself as well.

After all, these goodies are actually quite vital for your health.

In fact, pumpkin and chocolate are two of the most nutrient-dense foods around. They're also loaded with disease-fighting antioxidants and anti-inflammatories.

So, it's no surprise that study after study

shows they can help SLASH your risk of a variety of common chronic health issues. And now, new research helps highlight exactly *how* these treats do the trick for your health...

### The great pumpkin offers great protective benefits

As Charlie Brown's friend Linus said all along, pumpkins truly are great—especially when it comes to nutrients.

They're loaded with vitamin K (half of the recommended daily requirement), and vitamins B, C, and E. They're rich in fiber and an excellent source of much-needed minerals like copper, iron, magnesium, potassium, selenium, and zinc. And they contain significant

amounts of carotenoids, including the alpha- and beta-carotene your body uses to produce vitamin A. All of which provide various health benefits.

Indeed, carotenoids help improve eyesight and protect against eye diseases. They also help your skin defend itself from ultraviolet rays and sun damage. Plus, the antioxidants, like vitamin C, help boost the immune system (which is especially imperative as we enter yet another cold and flu season, and continue battling against the coronavirus).

Not to mention, pumpkin consumption (including the seeds) has been shown to lower the risk of prostate, breast, throat, pancreas, and stomach cancers.



And the potassium, fiber, and vitamin C in pumpkins have been linked to lower blood pressure and reduced stroke risk.

In addition, new research shows that pumpkins may be a natural antidepressant and stress reliever...

In one recent study, lab animals were exposed to chronic, unpredictable, mild stress for 28 days. But get this: The animals given pumpkin extract had significantly improved behavior and brain structure associated with depression. The researchers even suggested that pumpkin could alleviate stress-related depression all by itself, without the use of risky drugs!

Of course, this experimental study was done in animals. But a recent study in humans found that a proprietary extract of pumpkin taken for 28 days *significantly increased* the levels of the “feel good” chemicals serotonin and norepinephrine in the human brain.<sup>2</sup> The researchers attributed the results

to the pumpkin's beta-carotene, which has been linked to reduced depression symptoms in other studies.

Now, it's important to note that much of this research applies to *unprocessed* pumpkin extract—either the flesh or seeds. That's because many of pumpkin's nutrients get lost when you buy seeds in a bag or puréed pumpkin in a can. Plus, industrial processing can contaminate pumpkin's natural goodness with nasty additives and toxic, artificial ingredients.

That's why I recommend making your own, fresh pumpkin purée, and roasting your own seeds. The good news is, it's much easier than it sounds. (See the sidebar on the next page for my favorite recipes!)

Now, let's move on to chocolate...

### Go cuckoo for cacao

The cacao in chocolate is as rich in nutrients as pumpkin. Along with naturally occurring antioxidants, anti-

inflammatories, healthy fats, and fiber, chocolate is an excellent source of many minerals, including copper, iron, magnesium, manganese, phosphorus, potassium, selenium, and zinc.

Like pumpkin, numerous studies have shown dark chocolate to help lower depression and boost mood—mainly due to its flavanol content. But it has also been found to improve cognitive function in older adults. Researchers believe the flavanols protect nerve cells, improve the transmission of brain signals, and increase blood circulation and flow to brain tissue (as they do for the rest of the body).

Of course, the key is to eat the *right kind* of chocolate...

Because cacao has the health benefits, you want to reach for chocolate that contains *at least* 70 percent cacao—and preferably more. In other words, we're talking about dark chocolate here. *Not* milk chocolate—which contains much less cacao, plus a lot

## The global history of pumpkins and chocolate

**Pumpkins** are a distinct variety of squash with a long history in the Americas. In fact, the English word for squash, *askutasquash*, comes from the native American Natick and Narraganset languages.

Some botanists think squash first came to the Americas from Asia. Perhaps early humans carried seeds with them from Siberia to Alaska across the Bering Strait 50,000 years ago.

Because squash has a very long growing season, it was among the first seeds planted by early Native Americans in the spring...and one of the last crops harvested in the fall (which helps explain the later link between pumpkins and Halloween).

Some native American tribes grow squash together with beans and corn. Together, squash, beans, and corn provide complementary nutrition in terms of protein, carbs, and essential amino acids.

French explorer Samuel de Champlain

described this sophisticated multi-cropping technique in the early 1600s—before the Pilgrims even landed at Plymouth. The Iroquois of the upper Northeast call this three-crop combination *de-o-ha-ko*, or “three sisters.” And the Onondagas, who lived in today's upstate New York, called these crops *tune-ha-kwe*, or “those we live on.”

**Chocolate** comes from the cacao tree, which rarely grows north of the Tropic of Cancer because it requires a hot and humid environment.

The ancient Mayans and Aztecs of Central America and Mexico prized cacao beans so much that they used them as a form of cash. Aztecs also pounded the roasted cacao beans in hot water and drank them as a beverage—sometimes sweetened and thickened with honey and cornstarch. Or they made it spicy by adding cayenne pepper—another native food. They called this beverage “chocolate,” a combination of the Aztec names *choco* for cacao and *latl* for water.

In the early 1500s, the Spanish explorer Hernan Cortez invaded Mexico and sent cacao beans back home. The beans were dubbed the perfect “pep pill” because they naturally increased Spaniards' endurance and improved their capacity for hard work. As a result, chocolate quickly became the national drink of Spain, just as it was in Mexico.

But as demand increased, cacao became rare and costly. And it aroused the interests of Dutch and English smugglers and privateers. By the early 1700s, European powers began cultivating the plant in their tropical colonies, and in the mid-1700s, the Dutch discovered how to produce a chocolate powder that was perfect for making cocoa beverages.

Then, in the mid-19<sup>th</sup> century, Cocoa butter began to appear on the market. Soon afterward, it was combined with powdered chocolate to make the first solid chocolate bars. Enter Mr. Cadbury in Great Britain, Mr. Hershey in Pennsylvania, and Mr. Mars in Virginia. And the rest, as they say, is history.

of added sugar and fats. And *not* so-called “white” chocolate, which may not contain *any* cacao at all.

Even dark chocolate contains plenty of calories, though, so I recommend just a few ounces a few times a week. While it may seem counterintuitive, that amount has actually been shown in several studies to reduce obesity and lower body mass index (BMI). Researchers think this is due to cacao’s theobromine (a natural stimulant similar to the caffeine in coffee and theophylline in tea).

In fact, one new study shows that consuming chocolate in the morning may lower BMI and decrease blood sugar levels.<sup>3</sup>

Spanish researchers gathered 19 postmenopausal women (average age of 52) with healthy BMIs. The women were divided into three groups: One group ate 100 grams of chocolate (about 3.5 ounces) daily within one hour of waking up. The other group ate the same amount within one hour of bedtime. The third group didn’t eat any chocolate.

After 28 days, the researchers found that *none* of the groups gained weight, and the morning chocolate group had a smaller waist circumference. The researchers think this is because chocolate helps reduce total calorie intake—in fact, both chocolate groups reported decreased hunger and desire for sweets. Plus, the morning chocolate group burned more body fat, which could contribute to their slimmer waists.

This group also had lower fasting glucose, which has been linked to a decreased risk of type II diabetes. In fact, other research shows that chocolate’s flavanols help reduce the insulin resistance that contributes to type II diabetes. Chocolate has also been shown to boost muscle cell function, which could ultimately lower

blood sugar (through transporting more glucose out of the blood and into the muscle tissues).

Plus, research shows dark chocolate’s polyphenols (like flavanols) help improve circulation, support heart-muscle cells, and prevent blood clots. Consequently, some studies have found that people who regularly eat dark chocolate have a lower risk of heart disease and stroke.

Along those lines, I’m eagerly awaiting the results of COSMOS (Cocoa Supplement and Multivitamin Outcomes Study). (I had been contacted by colleagues at Harvard about participating in the study, but did not want to take the risk of being blindly assigned to the placebo group not getting cacao.)

This study is evaluating whether cocoa supplements can help prevent cardiovascular disease and cancer. For four years, nearly 22,000 men and women (more than half of them over the age of 60) consumed 600 mg of cacao flavanols per day. It concluded on the last day of 2020, and researchers say they hope to have results available before the end of this year. (I’ll share those with you as soon as I get them!)

Meanwhile, there’s already been quite a bit of research on chocolate and colon cancer. And a recent research review of more than 50 studies in both animals and humans shows that the flavanols in cacao can prevent or slow the initiation of colon cancer.<sup>4</sup> (I’ll report more on colon cancer research in next month’s issue.)

### **Pumpkin and chocolate for all seasons**

For centuries, our ancestors have not only enjoyed the taste of pumpkins and chocolate, but also reaped many health benefits (for the long and fascinating history of these two crops, see the sidebar on page 4).

## **My favorite pumpkin purée and roasted seed recipes**

### **Pumpkin purée**

Preheat your oven to 300°F. Wash the outside of a pumpkin with lukewarm water, and cut the entire pumpkin (skin too!) into medium-sized chunks.

Then, cut off the pith (strings) and seeds from the chunks. (Save the seeds for roasting—see the recipe below.) Place the pumpkin chunks skin-side up in a large roasting pan. Add 1/4 inch of water and bake uncovered for 1 hour, or until tender.

Let the pumpkin chunks cool. Cut away the skin, and mash or purée the flesh. A five-pound pumpkin will yield about 2 cups of pumpkin purée, which you can use in any recipe that calls for canned pumpkin.

And to keep sugar intake down, skip the sweet pumpkin confections that are popular this time of year. Instead, try adding your fresh, cooked pumpkin to soups and tomato sauces. You can also add cinnamon, nutmeg, and a dollop of pumpkin purée to your morning steel-cut oatmeal.

### **Pumpkin seeds**

Cut open a pumpkin and scoop out the seeds. Place the seeds in a colander or strainer, and rinse the pulp off under your kitchen faucet. Then, dry the seeds with a towel. Toss the seeds with a little bit of olive oil and salt, place them on a baking sheet, and roast them in the oven at 325°F for 10 minutes.

Then, let cool and enjoy! Some people choose to crack the dried, roasted shell and extract the soft, inner seeds. But I prefer to eat my roasted pumpkin seeds whole, along with the shell, for the added nutrition (especially fiber) and crunch.

Both of these tasty, healthy snacks can last up to three months at room temperature in an airtight container, nine months in the refrigerator, or a whole year in the freezer!

And the research into those benefits is ongoing. In fact, the Mars chocolate company has been funding some very good research on their signature product. Over the past 20 years, they’ve sponsored more than 150 studies on cacao flavanols—including funding the

COSMOS study I just mentioned.<sup>5</sup> It's a good thing we don't have to rely solely on the National Institutes of Health's diet and nutrition "experts"!

Meanwhile, groups like Pumpkin Rescue are trying to prevent food waste by encouraging people in the U.S. and U.K. to both carve *and* eat their Halloween pumpkins.<sup>6</sup>

Of course, *Insiders' Cures* readers are already ahead of that curve, but it's good to spread the news.

So, while Halloween is a great time to enjoy pumpkins and dark chocolate, these nutrient-rich foods don't have to be just holiday treats. (The health benefits aren't just seasonal.)

Go ahead and incorporate a few dollops of pumpkin purée, a handful of pumpkin seeds, a cup of hot cocoa, or a couple squares of dark chocolate into your balanced diet year-round.

You can even start sprinkling some cacao powder over your full-fat yogurt in the morning! **IC**

## My go-to breakfast food can help prevent the No. 1 cause of disease and aging

I like to begin the day with half a cup of plain yogurt mixed with organic, whole berries—together with my couple cups of coffee.

This breakfast combo is quick, easy, and delicious, and packed with probiotics, protein, fiber, essential fats, vitamins, minerals, and other nutrients that are key for good health.

Plus, a new study shows that the yogurt I eat every day can help lower my risk of chronic disease—and even chronic stress.

Meaning it's not only a tasty delight, but also a potential lifesaver...

### What yogurt can do for you

Yogurt is well known for being a natural probiotic that supports a healthy gastrointestinal (GI) microbiome. Study after study shows it helps protect you from digestive disorders and diseases—and reduces the risk of colon cancer (as I'll tell you more about next month).

But yogurt can do so much more than that. In fact, the study I just mentioned shows that fermented foods like yogurt, kefir, and kimchi—along with fermented vegetables like sauerkraut—can help reduce arthritis, type II diabetes, and chronic stress.

Why? Because supporting the GI microbiome helps prevent inflammation—the No. 1 cause of disease and aging.

As I often report, science shows there are more immune cells in the GI tract than in any other part of the body. Meaning you really do need to trust your gut when it comes to immune support and good health.

So, let's take a closer look at this study... and then I'll discuss the only kind of yogurt you should eat. (Hint: All types of yogurt are definitely *not* created equal!)

I'll also tell you which high-fiber "health foods" to avoid in order to keep your GI microbiome—and your body and brain—healthy.

### The dietary way to increase probiotic diversity and decrease inflammation

Researchers at Stanford University set out to compare how diets rich in fermented or high-fiber foods affected the GI microbiome and the immune system.<sup>1</sup>

They randomly assigned 36 healthy adults to a 10-week diet that included either fermented or high-fiber foods. The researchers analyzed blood and stool samples collected from all

participants during the study and compared them against blood and stool samples taken three weeks before the study, and four weeks after the study (when the participants ate their normal diets).

Results showed that the fermented food group had an increase in the number of different kinds of probiotics in their GI tract (the good bacteria). And the more fermented foods they ate, the larger the increase. (Microbial diversity is a key factor for good health and longevity).

In addition, the fermented food group had a decrease in levels of 19 different inflammatory proteins. And one of these proteins, interleukin 6 (IL-6), is strongly associated with health conditions like arthritis, diabetes, and chronic stress.

Meanwhile, the "high-fiber" group didn't show a drop in *any* of these inflammatory markers. And their microbiome diversity was basically the same before, during, and after the study.

One of the study authors said in a Stanford press release: "This is a stunning finding. It provides one of the first examples of how a simple change in diet can reproducibly remodel the microbiota across a cohort of healthy adults."<sup>2</sup>



Really? One of the first examples?! What have they been reading? It doesn't appear to be *Insiders' Cures*. Or the myriad of studies I've reported on for years about how diet has been shown to positively affect the probiotics in the GI microbiome. Maybe they're thinking of all of the studies on probiotic *pills*, which indeed *are* worthless.

### Why I'm not surprised (even if the researchers are)

As I warned in the first issue of *Insiders' Cures* nearly 10 years ago, the dietary fiber issue is complex—and the mainstream just doesn't get it right. And that certainly proved to be the case again in this study.

The researchers said they focused on high-fiber foods because of previous research showing their health benefits. But while high-fiber diets *are* linked to lower mortality in many prior studies, it's important to note that this study showed that none of the 19 inflammation biomarkers decreased among participants eating a high-fiber diet.

However, the results *did* show that greater intake of fiber led to more carbohydrates in the stool, pointing to incomplete digestion. This led the researchers to believe that people eating Western diets that contain highly processed foods lack fiber-degrading probiotics.

This creates a vicious circle... especially because some foods touted as "high fiber" are mainly just highly processed carbs—like the cereals and other refined grains the big food industry and their codependents in the academic-government complex endorse and would like to make us to eat.

That's why if you see a processed food that's labeled "high fiber," you should *always* be suspicious. Most likely, it's loaded with unhealthy additives like

sugars, processed carbs, preservatives, and artificial flavors.

Whereas truly healthy foods that are naturally rich in fiber *aren't* labeled with splashy health claims and endorsements from crony corporatists on their cardboard boxes. Because, well, they don't come in cardboard boxes! (And for their so-called nutritional benefits, you might as well be eating the cardboard anyway!)

### What type of fiber should you eat instead?

Rather than opting for "high fiber" foods in the center aisles of your grocery store, opt for healthy, whole foods that line the perimeter—as they contain plenty of the right fiber. In particular, the following foods are naturally high in fiber:

**Fruits:** Apples, avocados, bananas, berries, pears.

**Vegetables:** Artichokes, beets, broccoli, Brussels sprouts, carrots, leafy greens, potatoes.

**Legumes:** Black beans, chickpeas (also known as garbanzo beans), edamame, kidney beans, lentils, lima beans, split peas.

**Nuts and seeds:** Almonds, chia seeds, pistachios, pumpkin seeds (called *pepitas* in Mexican cuisine, see page 5), sunflower seeds, walnuts.

### But what about yogurt?

Just as with foods labeled "high fiber," you need to be very careful when choosing yogurt—as most spout splashy health claims, too, but contain the wrong ingredients. A simple scan of grocery-store shelves reveals yogurts that are full of sugars, preservatives, and artificial colors and flavors.

So, to ensure you'll be enjoying nutritious, healthy yogurt—not junk food in disguise—I recommend looking for four keywords on the label:

- Organic
- Plain
- Whole milk
- Probiotic

Basically, there should only be *one* ingredient in your yogurt—milk with about 4 percent fat (yes, it can include some cream), with live, active cultures. The milk should come from animals that are *not* subjected to growth hormones like rBST, are *not* fed antibiotics, and are pasture-raised. Organic milk, by definition, must meet *all* of these criteria, which is why I recommend organic varieties.

In addition, your yogurt should never contain high fructose corn syrup, added sugar, aspartame, stevia, gelatin, preservatives, or artificial colorings. Avoid anything labeled "reduced-fat," in *any* dairy product, which actually sabotages your health (and has been linked to type II diabetes and obesity).

Just keep it simple: Look for plain, unflavored, organic Greek or Icelandic (skyr) varieties. And then, for some extra flavor, crunch, and nutrition, you can add your own natural high-fiber foods (like fresh berries, nuts, or seeds), or even some local honey.

Doing so will provide you with healthy probiotics, as much as a quarter of your daily recommended requirement for protein, and significant amounts of essential fats, calcium, potassium, and vitamin D.

That's a lot of nutrients in one simple, delicious food! (So, it's not really surprising that yogurt—along with cheeses and full-fat dairy—is a key part of the healthy Mediterranean diet.)

The bottom line is, if you eat a balanced diet that's rich in whole foods like yogurt—and forget the "high-fiber," processed carbs, packaged fiber supplements, and useless probiotic pills—you'll keep your GI microbiome healthy, *and* substantially reduce your risk of many chronic illnesses and stress.

# Take a hike (in a good way) this fall

There's no better time to get out for a walk or hike than during the month of October.

Nature puts on a full display of fall colors when leaves on deciduous trees stop making green chlorophyll to prepare for the dormant winter. Then, the colorful red, orange, and yellow carotenoid pigments (that have been hiding in the leaves all along) come forth and show their colors.

This blazing example of Nature's glory is a treat for the senses. And a new study shows that walking in this autumn wonderland can actually benefit the *structure* of your brain—leading to improved memory, concentration, mood, and overall well-being.

## How the “people’s march” is good for the whole person

This new study was conducted in Germany, where outdoor walks are a popular and regular pastime. In fact, in the fall, many Germans enjoy a traditional volksmarch.

Volksmarching (“people’s march”) is a form of non-competitive fitness walking that developed in Europe during the 1960s. Today, millions of people worldwide participate in volksmarches, which usually range from 5 to 20 kilometers, following set courses on outdoor paths or trails.

(While I was an associate medical director at Walter Reed Army Medical Center, an annual Saturday volksmarch began and ended right outside my office windows, along a trail through Rock Creek Park in Washington, D.C. It was a festive affair, with music, bratwurst, and hot cider, handed out by members of the medical general officer staff. My daughter and I loved to join the march. In October 1990, we held a special

*Wandervogel* “Freedom March” to celebrate the fall of the Berlin Wall. Participants got a belt buckle, which my daughter treasures to this day.)

Of course, if you march to the beat of a different drummer, you can go off on your own—as the participants in the German study did.<sup>1</sup>

Researchers regularly examined six healthy Berlin residents for six months. They also conducted 280 brain scans. The study focused on self-reported activity during the prior 24 hours, and specifically on any time spent outdoors before the brain scans. The participants were also asked to perform cognitively challenging tasks.

The brain scans demonstrated that time spent outdoors was positively related to the amount of gray matter in the right dorsolateral-prefrontal cortex of the brain (involved in “cognitive control,” or planning and regulation of a person’s actions). Many mental disturbances are associated with loss of gray matter in this area of the brain.

The researchers also found that time spent outdoors helped improve participants’ mood. Even taking into account other mood-boosting factors like exercising and exposure to sunshine, participants *still* had improved well-being—leading the researchers to conclude that simply being out in Nature improves brain structure...which most likely benefits concentration, memory, and psychological well-being.

In other words, it’s not just about engaging in physical activity—it’s about doing it *outdoors*, as I always recommend.

## How many steps do you really need to walk?

So, take a cue from the Germans and

get marching this fall. Of course, you don’t have to do a 20 kilometer volksmarch to get the health benefits of a daily walk.


In fact, a recent four-year study of nearly 17,000 women with an average age of 72 years found that those who walked just 4,400 steps per day had a *41 percent* lower risk of mortality compared to those who took 2,700 steps.<sup>2</sup>

To put this in context, many people who don’t specifically exercise at all still manage to get an average of about 2,000 steps a day, just by going about their daily routines. So, adding just 2,400 more steps (a little over a mile of walking) per day can *significantly* improve your health.

(That’s a far cry from—and much less daunting than—the arbitrary, unsubstantiated “10,000 steps a day” myth we’ve been force fed by the fitness industry and medical establishment as supposedly good for our health.)

Since it takes about 20 minutes to walk a mile at a moderate pace, this finding falls right in line with previous research *and* my recommendation to engage in 140 to 150 minutes of moderate exercise per week.

Not to mention, the study reinforced that *moderate* walking is indeed key. The researchers noted that most of the participants walked at a pace considered slower than “moderately intense” walking.

So, this month (and every month), take a nice saunter—*not* a jog or a sprint—through the fall foliage. Your time spent outdoors in Nature will benefit your body, brain, and spirit. 

*Citations for all articles available online at [www.DrMicozzi.com](http://www.DrMicozzi.com)*