Ten thousand years ago, my ancestors were living in Europe, having migrated from the Middle East as the Ice Age receded. They kept moving north, following the spread of agriculture, into what is now France and Germany. They eventually reached the British Isles before immigrating to America and settling in Georgia.

I know this primarily because of my mitochondrial DNA (mtDNA), which is used by researchers to track ancestral lineages and migrations. It’s a useful tool because unlike nuclear DNA, which is a mash-up of both parents that carries each individual’s unique genetic information, mtDNA is passed on only from mothers to children, so it doesn’t change much from generation to generation.

But mtDNA does much more than provide genealogy clues. It orchestrates the activities of the mitochondria: the specialized organelles in our cells where nutrients are converted into ATP, the energy that powers our bodies. Scientists used to think mitochondrial defects were limited to rare but serious genetic diseases marked by nerve and muscle problems, developmental delays, and disability. However, we now know that mitochondrial dysfunction is implicated in a broad range of degenerative disorders, including aging.

Cellular Respiration

Every physiological activity requires energy, so it’s not much of a stretch to conclude that mitochondrial impairment and flagging ATP production are linked with fatigue, muscle weakness, confusion, memory loss, metabolic disorders, and chronic problems involving virtually every system in the body.

ATP production involves a series of biochemical reactions called cellular respiration that uses oxygen to convert glucose, fatty acids, and amino acids into a usable form of energy. During this process, however, reactive oxygen species (free radicals) are also created, which over time cause mtDNA mutations and mitochondrial dysfunction.

Malfunctioning mitochondria generate less ATP and more toxic byproducts, creating a vicious cycle of increasing mtDNA damage and energy deficits. Tissues with high energy demands such as the heart, brain, muscles, and eyes are particularly vulnerable. Heart failure, Alzheimer’s, Parkinson’s, Huntington’s disease, muscle wasting, chronic fatigue, hearing and vision loss, autoimmune diseases, and diabetes are all linked with mitochondrial dysfunction.

Because mitochondria are also involved in metabolism, inflammation, regulation of nuclear DNA, and apoptosis (programmed cell death), mitochondrial damage is believed to be a key part of the aging process.

Exercise More and Eat Less

Although decline in mitochondrial volume and efficiency is a hallmark of aging and age-related diseases, you can stave it off with lifestyle changes—starting with exercise. Elite athletes have up to twice as many mitochondria in their skeletal muscles as inactive

continued on page 3
Dear Reader,

High blood pressure is the most common chronic condition in the US. The American Heart Association (AHA) claims that it affects one in three adults and twice that many in the 60+ age group. But I’m not convinced that 103 million Americans—many of whom are taking blood pressure-lowering medications—actually have hypertension or need drugs.

Overdiagnosis is a real problem. An article published in Circulation last year, subtitled “Do It Right and Don’t Fudge the Numbers,” stated, “…BP assessment is the most common and important clinical measurement that is regularly done incorrectly… By not allowing adequate time for a patient to rest and acclimate after being hurried into an examination room and following proper procedures [arms supported at heart level, no talking, averaging two or more measurements], BP values are almost guaranteed to be overestimated…and overtreatment may ensue.”

Overtreatment is rampant. In a 2018 study, researchers from the UK compared the outcomes of more than 19,000 patients ages 18–74 with blood pressure in the 140/90–159/99 mm Hg range who were not taking drugs with a similar group of patients who were on antihypertensive medications. They found no differences in cardiovascular disease or death rates between the two groups. There was, however, a higher risk of adverse events such as very low blood pressure, fainting, and acute kidney injury in the group taking medications.

Then there’s the ever-lower diagnostic threshold. AHA guidelines now consider anything over 120/80 to be elevated and recommend that doctors prescribe one antihypertensive drug for stage 1 hypertension (130/80–139/89) and two different drugs for stage 2 (above 140/90). However, the British researchers concluded that there is “no evidence” to support such aggressive use of medications. “Physicians should exercise caution when following guidelines that generalize findings from trials conducted in high-risk individuals to those at lower risk.”

There are many good reasons to treat very high blood pressure, and although drugs may be necessary, it can often be managed with weight loss, a whole-food diet (fiber- and potassium-rich produce, leafy greens, healthy fats), regular exercise, stress management, restful sleep (including treatment of sleep apnea), and supplements such as magnesium, coenzyme Q10, Pycnogenol, garlic, reishi mushrooms, and Balance3.

However, the current approach of diagnosing/misdiagnosing more and more people—two-thirds of older adults!—with hypertension and treating them with drugs riddled with side effects (cough, fatigue, dizziness, lightheadedness, headache, erectile dysfunction, etc.) is way off base.

To your health,
individuals. Their mitochondria are more efficient as well and generate considerably more energy.

You don’t have to be an elite athlete to reap this benefit. Mayo Clinic researchers assigned young (ages 18–30) and older (65–80) volunteers to one of three exercise programs: high-intensity interval training (HIIT), weight training, or a combo of the two. Muscle biopsies before and after three months of exercise revealed significant improvements in mitochondrial capacity, especially with HIIT. Younger and older people in that exercise group had average increases of 49 and 69 percent, respectively.

Caloric restriction, a well-researched therapy for healthy aging and life extension, also has positive effects on mitochondrial efficiency. Unfortunately, humans are notoriously bad at cutting calories. That’s why I recommend intermittent fasting. It provides many of the same benefits but is much easier to adopt. There are multiple variations, including fasting one or two days a week or restricting your eating to a specific time period every day. In my clinical experience, skipping breakfast after an overnight fast is the easiest regimen to follow, and many of my patients have reported improvements in energy, weight, diabetes, blood pressure, and more.

Mitochondria also take a hit from poor sleep, chronic stress, a lousy diet, obesity, toxins such as heavy metals, excess alcohol, certain drugs, and smoking. Conversely, these organelles benefit tremendously from increased access to micronutrients required for optimal function.

Take Targeted Nutrients

A 2019 study in Clinical Nutrition reviewed the micronutrients that play crucial roles in energy metabolism and ATP production. It’s quite a list and includes coenzyme Q10, L-carnitine, B-complex vitamins, vitamins C and E, selenium, zinc, melatonin, taurine, lipoic acid, and caffeine. Other studies have also underscored the benefits of creatine, pyrroloquinoline quinone, phospholipids, and resveratrol.

Several of these nutrients serve as antioxidants, protecting the mitochondria and mtDNA against oxidative stress. Vitamins B2 (riboflavin) and B3 (niacin, niacinamide) are precursors to essential cofactors in ATP production. Selenium and lipoic acid are involved in the synthesis of new mitochondria. Other nutrients support the mitochondrial membranes or have niche roles in cellular respiration.

CoQ10 deserves special mention. In addition to its essential role in ATP production, CoQ10 protects mitochondria and mtDNA against oxidative stress and regenerates other protective antioxidants. L-carnitine also gets a shout-out, as it transports fatty acids used to generate ATP, especially in heart and skeletal muscle cells, across mitochondrial membranes.

The best nutritional strategy for optimizing mitochondrial function is to eat a healthy diet and take a daily multivitamin and mineral supplement along with CoQ10, L-carnitine, and some of these other specialized nutrients that you’re unlikely to get in adequate amounts from food alone.

My Recommendations

- Regular exercise, intermittent fasting, weight loss, adequate sleep, and stress management support optimal mitochondrial function.
- Supplements include a multivitamin, CoQ10 100–200 mg, L-carnitine 500–1,000 mg, alpha lipoic acid 600–1,200 mg, niacinamide riboside 300–600 mg, and ATP Fuel (a phospholipid complex). Take as directed.

Mitochondrial Therapies

We are on the cusp of breakthroughs in mitochondria-targeted therapies. Mitochondrial transplants injected into failing organs have been shown to revive damaged heart, lung, and kidney tissue and have saved the lives of children with congenital heart defects. Scientists have successfully transferred mitochondria from healthy donor eggs into the eggs of carriers of mtDNA genetic diseases, resulting in the birth of several “three-parent” babies.

CoQ10, L-carnitine, lipoic acid, and other supplements are used to treat inherited mitochondrial diseases as well as Parkinson’s, chronic fatigue, heart failure, and other conditions. As for the rest of us who suffer with the “fatal disease” of aging—nobody gets out alive—we should all strive to support our mitochondria with lifestyle changes and protective nutrients. As Lewis Thomas, physician and acclaimed author, wrote in The Lives of a Cell, “At the interior of our cells, driving them, providing the oxidative energy that sends us out for the improvement of each shining day, are the mitochondria...”

References


Dear Dr. Whitaker

Q Do you know of any supplements that would help with throat clearing? I have to clear my throat several times an hour. It is annoying, embarrassing at times, and it gets on my wife's nerves, but I can't help doing it. — Allen B., Colorado

A It depends on the cause. Irritation that leads to throat clearing and chronic cough could be due to drainage of mucus from the nose (postnasal drip), which is generally related to sinus infections or allergies. These conditions can often be treated with natural therapies, although medications may be required. (Visit drwhitaker.com for details.) A dry, irritated throat is also a side effect of ACE inhibitors and ARBs, drugs prescribed to lower blood pressure. However, a very common—and often undiagnosed—cause is a variation of acid reflux called laryngopharyngeal reflux (LPR).

Like GERD, LPR involves reflux of stomach acid up through the esophagus, where it causes throat irritation that prompts clearing or coughing. Referred to as “silent reflux” because patients usually don't have heartburn, indigestion, or other GERD symptoms, it is treated with the same acid-blocking drugs and lifestyle changes (weight loss, avoiding triggers like alcohol, caffeine, fried foods, etc.). Suggested supplements include deglycyrrhizinated licorice, aloe vera, chamomile, zinc carnosine, and digestive enzymes, used as directed. Drinking more water and eating a healthy Mediterranean diet also have proven benefits.

Q My daughter is convinced that milk causes mucus and phlegm production and worsens colds and breathing problems, so she does not let her kids drink it. Do you know whether or not this is true? — S.H., Ohio

A This common belief, which dates back to the 12th century and was perpetuated by Dr. Benjamin Spock, has been soundly disproven. Some experts believe it stems from the somewhat thicker, lingering mouthfeel produced by the combination of milk fat and saliva. However, it's simply a sensory perception and is completely unrelated to mucus or phlegm.

Q I have an embarrassing problem. I am in pretty good shape for a 64-year-old, although I could stand to lose a little weight. The problem is that it is mostly in my chest, and it looks like I have breasts. I assumed that chest presses, pushups, and other exercises would get rid of them, but nothing has helped. Any suggestions? — A.N., via email

A Proliferation of fatty or glandular breast tissue—or a combination of both—is actually quite common in males. It's an obvious consequence of obesity but also arises from imbalances in testosterone and estrogen. Gynecomastia (“man boobs”) is particularly prevalent in boys as they enter puberty and older men as they experience declines in testosterone. Several drugs, including some antibiotics, antidepressants, antipsychotics, and medications to treat hypertension, GERD, and prostate enlargement also list it as a side effect. Given your age, have your testosterone level checked and consider hormone replacement therapy. (See page 8 for more on testosterone.)

Read more at drwhitaker.com, and send your own questions to drwhitakerquestions@drwhitaker.com.

New Online: Links Between Gout and Diabetes

Got gout? Then your chances of having diabetes or developing it in the future are above average. Although gout is considered to be a type of arthritis because it is marked by pain and swelling in the joints, it is also a metabolic disorder. Caused by a buildup of uric acid in the blood (hyperuricemia) that forms crystals in the joints, gout pain can be excruciating, and people who have one attack are likely to have another. But why does uric acid build up in the first place? That’s where the diabetes link comes in.

Metabolic syndrome is a cluster of conditions that increase the risk of diabetes, heart disease, stroke, and, as it turns out, gout. These conditions include abdominal obesity, insulin resistance, elevated blood sugar, hypertension, inflammation—and hyperuricemia. The usual recommendations for lowering uric acid and preventing gout attacks are adequate hydration and avoidance of purine-rich food (red meat, some seafood) and excessive alcohol, sugar, and fat. Coffee, vitamin C 1,000 mg/day, tart cherries, and dark-colored berries, on the other hand, reduce uric acid concentrations. And regular exercise, weight loss, a low-glycemic/low-sugar diet, and a solid supplement regimen protect against all aspects of metabolic syndrome.
For more health advice and solutions, visit drwhitaker.com

Works for Me...

➤ Vision/Eyeglasses  I recently went to my eye doctor for an exam and new glasses. I selected some frames but was shocked to hear that they were going to cost over $500—and designer frames were much more. Instead I asked for a copy of my prescription and went to Costco, where I got two pairs (computer and progressive) for less than half that price. Then I decided to get another pair just for reading, so I went online and found Zenni. Their website takes a picture of your face so you can “try on” different frames. The basic frames I selected, including prescription lenses, cost $6.95 plus $4.95 shipping. I was a little nervous about quality, given the price, but they are perfect. I highly recommend this company. The website is zennioptical.com. — P.L., Texas

I’m sure readers will appreciate this information. I was surprised to learn that most frames are made by one company, and a markup of 1,000 percent is not unusual.

➤ Sore Muscles  I take vinyasa yoga two or three times a week, and these intense classes sometimes leave me with sore muscles. A fellow student suggested I try massage balls. You wedge one or two of these hard rubber balls between sore areas and a wall, floor, or chair and roll them around to massage the muscles. When you hold a ball over a tender trigger point you can actually feel it release. A tennis ball should also work. — E.N., California

➤ Radiation Side Effects  I recently completed a course of radiation for prostate cancer recurrence. I was told that fatigue, skin irritation, diarrhea, and potentially long-term urinary incontinence and changes in bowel habits were common side effects. My wife, who gets your newsletter, has had me on a good supplement program for years. During treatment, she insisted I take extra probiotics and 5 grams of L-glutamine mixed in a smoothie or water three times a day. I never had any urinary problems or fatigue and continued my exercise program throughout. I did have some skin irritation and more frequent bowel movements, but they resolved after a month or so. My wife asked me to tell you about my experience, and we both thank you for your advice and nutritional supplements. — H.B., via email

Do you have a Health Tip to share? We’d love to hear it! Send it to worksforme@drwhitaker.com.

Health Hack: Alcohol—Multivitamins and Sober October

Modest alcohol intake may reduce risk of heart disease, stroke, diabetes, and gallstones. Heavy drinking, however, has devastating consequences. Although alcohol use and abuse are declining among young Americans, they are rising in the 65+ age group. If you’re overindulging—more than one drink a day for women and two for men—I have two suggestions. First, take a potent daily multivitamin. In addition to replacing nutrients depleted by alcohol, high-dose vitamins and minerals help curb alcohol cravings. Second, observe “sober October” by going cold turkey for one month. If you find this difficult, you need to get serious about cutting back.

Monthly Health Quiz

Test Your Vitamin K Knowledge: True or False

A) People on blood thinners should avoid vitamin K-rich foods and supplements.
B) Broccoli, kale, soybeans, and cheese are good sources of this vitamin.
C) Antibiotics deplete vitamin K.
D) Supplemental vitamin K protects against hip fractures and arterial calcification.

Answer:

A is false. The latest research has found that patients taking warfarin (Coumadin) actually benefit from an increased, yet consistent vitamin K intake. Newer anticoagulants (Pradaxa, Eliquis, Xarelto) are not affected by vitamin K intake. B, C, and D are true. A good supplemental dose is vitamin K2 (MK7) 150 mcg per day.

Notable Quote

“Do not regret growing older. It’s a privilege denied to many.” — Anonymous

No computer? Mail your question or health tip to Health & Healing, 6710-A Rockledge Dr., Ste. 500, Bethesda, MD 20817.
Think Twice Before Taking OTC Drugs

What do you do when you have a headache or back pain, or come down with a cough, congestion, or runny nose? How about heartburn, diarrhea, or constipation, or you just can't get to sleep at night?

More than 80 percent of Americans use over-the-counter drugs as the first response to most ailments. They’re readily available, more convenient than seeing a doctor, and much less expensive—especially when you factor in doctor visits, the rising costs of prescription meds, and increasingly steep deductibles.

Although I like to think that Health & Healing readers opt for natural therapies as often as they do OTC drugs, I’m all for anything that provides relief and saves money—as long as it’s safe and truly effective. However, not all of the 100,000-plus OTC drugs on the market fit that bill. Let’s look at two of the most popular categories.

Limited Effectiveness of Cold/Flu Meds

Medications to treat respiratory conditions are the best-selling category of OTC drugs, with annual sales exceeding $8.1 billion. Colds and flu can make you feel miserable, but these remedies don’t help much. As reported in the BMJ last year, “Many over-the-counter (OTC) treatments for the common cold claim to alleviate nasal symptoms, such as congestion, rhinorrhea (runny nose), and sneezing... Evidence for the effectiveness of these treatments is limited and of low quality...”

Studies have found that dextromethorphan, the active ingredient in Delsym, Robitussin, DayQuil, and other popular cough medicines, is less effective than honey. Twelve-hour nasal sprays like Afrin, Dristan, and Sinex relieve congestion but must not be used for more than three days, as they cause rebound congestion and are easy to get hooked on. The oral decongestant pseudoephedrine is an amphetamine-like drug that increases blood pressure, heart palpitations, nervousness, and sleeplessness. Phenylephrine, often used in its place, doesn’t work very well.

Think Twice Before Taking OTC Drugs

Increased risk of dementia is the last thing you’d expect from a medication, but a new study shows that is precisely what you may be bargaining for with long-term use of anticholinergic drugs.

Acetylcholine is a neurotransmitter produced in nerve cells throughout the body and brain. It signals smooth muscle contractions that help regulate heartbeat, blood pressure, air flow, peristalsis, and urination as well as glandular secretions. In the brain, acetylcholine serves as a key neurotransmitter and is involved in memory, learning, and alertness.

Many popular drugs target acetylcholine. A few of them aim to increase levels. Because acetylcholine is in short supply in the brains of people with Alzheimer’s, the only drugs approved for this disease inhibit the enzyme that breaks it down. A large number of medications, however, block its effects. These are called anticholinergic drugs, and they are used to control cardiac arrhythmias, open airways and sinuses, reduce intestinal cramping, relax muscle spasms, and treat urinary incontinence and other conditions.

Anticholinergics have serious side effects, including drowsiness, confusion, dizziness, and memory loss, especially in older people. But that’s not the half of it. They also increase risk of dementia. In a 2019 study, British researchers compared the anticholinergic medication use of 58,769 patients with dementia with a control group of 225,574 people with normal cognitive function. They discovered a 50 percent increased likelihood of dementia with more than 1,095 doses within a 10-year period—the equivalent of just three years of daily use of the minimum effective dose of a strong anticholinergic.

This study found the greatest risk with prescription tricyclic antidepressants, antipsychotics, and medications for overactive bladder, seizures, and Parkinson’s. However, a long list of OTC drugs, including popular products taken for allergies, colds and flu, motion sickness, and insomnia, fall into this category. First-generation antihistamines like diphenhydramine, a strong anticholinergic in Benadryl, Sominex, Allermax, and PM (nighttime) versions of Excedrin, Advil, Tylenol, and Aleve, are just a few examples of strong anticholinergics. The cumulative effects of multiple drugs, prescription and OTC, add up. It is imperative that you protect your brain by taking steps to reduce your anticholinergic burden.
Heartburn Drugs Are Used Inappropriately

Drugs for heartburn and indigestion are also among the most commonly used OTC medications. They run the gamut from antacids (Tums, Mylanta, Rolaids) to H2 blockers (Tagamet, Pepcid, Zantac) to proton pump inhibitors (PPIs: Prevacid, Prilosec, Nexium), which are also available in stronger prescription strengths.

If you need immediate relief from occasional heartburn or indigestion, chew an antacid. H2 blockers and PPIs should be reserved for ulcers, GERD, and more serious stomach problems. Furthermore, labels specifically state they should be taken for no more than 14 days without consulting a doctor—but that’s not how it plays out in the real world. Overuse of any heartburn drug can have adverse effects, but I’m particularly concerned about PPIs.

A large 2019 study reported, “...taking PPIs is associated with a number of serious adverse events including cardiovascular disease, acute kidney injury, chronic kidney disease, dementia, pneumonia, gastric cancer, Clostridium difficile infections, and osteoporotic fractures. Some of these adverse events are associated with an increased risk of death.” The researchers also expressed concern about the harm done to patients who take them inappropriately. Many people who are on PPIs have been taking them for years on end—or they don’t need them at all and would get as much benefit from safer, less potent drugs.

My Recommendations

- Read drug labels carefully and heed recommended doses, frequency, duration, and warnings about alcohol intake.
- Talk to your doctor about all your drugs, prescription and OTC, and their necessity, interactions, contraindications, and anticholinergic effects.
- There are safe, effective alternatives to virtually every OTC drug. Visit drwhitaker.com for details on specific conditions.

OTC ≠ Safe

You cannot assume that a drug is safe just because it’s available without a prescription. Many drugs that were once prescription only are now sold over the counter, and more are on the way, as the FDA maintains this will empower consumers to self-treat more common conditions.

I’m all for empowerment, but I’m not sure having more drugs at our fingertips is a good idea. Medications by their very nature are potentially harmful. Well over 100,000 Americans die every year from drugs used as directed. True, prescription drugs are more dangerous. However, when you add a handful of OTCs to a pile of prescription meds—and a third of older people take five or more—you’re playing with fire.

References


Breast Cancer Prevention

Although mammograms are billed as the best way to reduce the risk of dying from breast cancer, women need guidance besides reminders to get screening tests. They need advice on how to prevent it from developing in the first place. The good news is that although genetics is believed to account for 5–10 percent of breast cancer diagnoses, researchers attribute at least a third of cases to inactivity, poor diet, excess weight, and other lifestyle factors.

Exercise (150 minutes a week) reduces risk by 20–30 percent. Cruciferous vegetables, leafy greens, berries, carotenoid-rich produce, flaxseed, olive oil, soy, fatty fish, and green tea are protective, while excessive alcohol increases risk. Weight loss is important, as obesity not only increases the odds of developing breast cancer but also worsens outcomes. On the supplement front, studies provide evidence of the preventive effects of vitamin D, B vitamins, folic acid, omega-3s, curcumin, EGCG (green tea extract), and sulforaphane/indole-3-carbinol (compounds in cruciferous vegetables). Adopting these safe, low-cost lifestyle changes is no guarantee of sidestepping this dreaded disease, but it’s a giant step in the right direction.

Testosterone Therapy for Weight Loss

As our obesity rate approaches 40 percent—and the burden of diabetes and heart diseases increases—the need for effective interventions is more urgent than ever. For older men with hypogonadism (testosterone deficiency), one of the most promising is testosterone replacement therapy. German doctors studying the effects of long-term testosterone treatment presented their latest research at the Endocrine Society annual meeting earlier this year. They reported that 10 years of supplemental testosterone resulted in an average sustained loss of 20 percent of initial weight (50 pounds) and 4.9 inches of waist circumference. During that same period, a control group of untreated men gained 4 percent of baseline weight and 1.8 inches around the waist.

Compared to the control group, there were far fewer heart attacks, strokes, and deaths in the men who used testosterone as well as improvements and, in some cases, remission of diabetes. Notably, there was no increase in prostate cancer. Testosterone enhances multiple aspects of health, as shown in the 2018 Testosterone Trials, including libido, erectile function, walking distance, mood, symptoms of depression, anemia, and bone density and strength. It’s time for doctors to get over irrational fears about testosterone therapy so that more older men can reap these diverse benefits—and perhaps put a dent in our epidemic of obesity.