



Like mother, like daughter?

JUST BECAUSE YOUR FAMILY HEALTH TREE IS RIPE WITH LOTS OF SCARY DISEASES DOESN'T MEAN YOUR FUTURE WILL BE FILLED WITH DOCTOR'S APPOINTMENTS. HERE'S HOW TO TAKE CONTROL OF YOUR MEDICAL DESTINY.

by **LESLIE GOLDMAN**

Standing outside of Wrigley

Field on a gorgeous Chicago summer day 10 years ago, I got a phone call from my mother that would rock our family's world: She had been diagnosed with multiple sclerosis (MS). The news was devastating, foreshadowing a decade of MRIs and chemotherapeutic drugs (along with awe-inspiring courage and resolve on Mom's part). But with her diagnosis, a sickening, nagging worry took up residence in the back of my mind: Will I get it, too? ¶ "Most people equate family history and genetics with their personal health destiny," says Andrew Weil, M.D., founder and director of the Arizona Center for Integrative Medicine at the University of Arizona Health Sciences Center. But before you ask your parents' doctor for a "buy one, get one free" deal, consider this: "Research shows that dietary and lifestyle measures have an almost threefold greater impact on long-term health and the way we age than our genes," notes Weil. ¶ In fact, most studies suggest 30 percent to 40 percent of our health is genetically determined, leaving a substantial 60 percent to 70 percent in our hands—risk that can be modified by what we put in our mouths, how we move our bodies and how we handle stress. As New York City naturopathic physician Brooke Kalanick, N.D., puts it, "Genetics are the gun, but your lifestyle pulls the trigger."

NATURE VERSUS NURTURE

That trigger may be even more sensitive than previously thought. Revolutionary research by Dean Ornish, M.D., found that three months of a low-fat, whole foods and plant-based diet, moderate aerobic exercise and six days per week of hourlong meditation, gentle yoga or other stress management practices actually strengthened chromosomal caps called telomeres. (Long, strong telomeres correlate with a long, healthy life.) And researchers at the Benson-Henry Institute for Mind Body Medicine at Massachusetts General Hospital found that eight weeks of dedicated stress reduction produced health-promoting changes in gene expression.

Such results don't shock Brent Bauer, M.D., director of the Mayo Clinic Department of Internal Medicine's

prevention strategies to stave off the family disease, such as snacking on baby carrots at work instead of salty chips and taking evening walks or bike rides with her mom, now 67, and her 6-year-old son. Aguilar has a leg up in that she never smoked—female smokers are two to six times more likely to suffer a heart attack than nonsmokers. But if she did smoke, quitting would have slashed her risk by 50 percent within a year. The results: Aguilar has lost 16 pounds and counting.

AUTOIMMUNE DISORDERS

In general, women are more prone to autoimmune disorders, which Kalanick defines as “your immune system growing overzealous and attacking things it shouldn't.”

In such thyroid disorders as Hashimoto's disease (which my mother has, as do I), the bow-tie-shaped endocrine gland is on the defense; the same theory applies to MS, rheumatoid arthritis (RA), lupus and some cases of diabetes.

While numbers are hard to come by, autoimmune disorders are now known to have a genetic component. Douglas Goodin, medical director of the University of California, San Francisco Multiple Sclerosis

Center, says that having one parent with MS elevates my risk from 0.1 percent to 1 percent—significant, but not the monstrous figure I'd been dreading. Other autoimmune diseases carry similar genetic links.

Kalanick's first recommendation for autoimmune patients—or those like me looking to thwart genetics—is to go gluten-free. “Gluten often causes the body to flood with inflammatory chemicals called cytokines, sending an already wound up immune system into hyperdrive, attacking tissue.” (A 2010 study in the *American Journal of Medicine* confirmed that individuals with one autoimmune disorder are more likely to have another, such as celiac disease, which is characterized by an inability to digest gluten, a protein found in wheat, barley and rye.)

Experts agree it's also a smart move to follow your gluten-free goodies with a vitamin D chaser. Low levels of the nutrient have been found in those with depression, osteoporosis, cancer and heart disease, and the sunshine vitamin also plays a role in autoimmune disorders like RA and diabetes. Goodin prescribes supplements to MS patients but suspects a significant culprit may be deficiency early in life (possibly in utero). Still, D is a vital immune system regulator, so get tested and supplement enough to reach a reading of 80 ng/mL. Five minutes of sun exposure, sans sunblock, twice a day should also help you reach your daily quota; UV rays enable skin cells to manufacture vitamin D. However, know your skin type and avoid getting sunburned.

Energetically speaking, Kalanick urges women like me to treat ourselves a little more gently, especially when it comes to warding off disease. “Autoimmune disorders are a form of self-attack,” she says, “yet women are constantly ‘attacking’ themselves for not being able to do it all—have a great job, great body, great relationship, great kids.” Stop punishing yourself for being human, and you might give your body a leg up on healing.

Autoimmune disorders ARE A FORM OF SELF-ATTACK, YET WOMEN ARE CONSTANTLY “ATTACKING” THEMSELVES FOR NOT BEING ABLE TO DO IT ALL.

Complementary and Integrative Medicine Program. Bauer believes a commitment to the four pillars of health—diet, exercise, stress management and spirituality—can prevent 90 percent of the health care problems in the U.S.

The emerging field of epigenetics suggests a happy trickle-down effect. “Those same lifestyle choices may help silence ‘bad’ genes while supporting the activity of ‘good’ genes,” says Weil. “And that's a health benefit that can be passed on to children and grandchildren.” In other words, your apple a day just might keep your future offspring's oncologist and cardiologist away.

Still worried about succumbing to a parent's medical fate? Read on to learn your *real* risk and amass an arsenal of tools for fighting fate and staying well.

HEART DISEASE

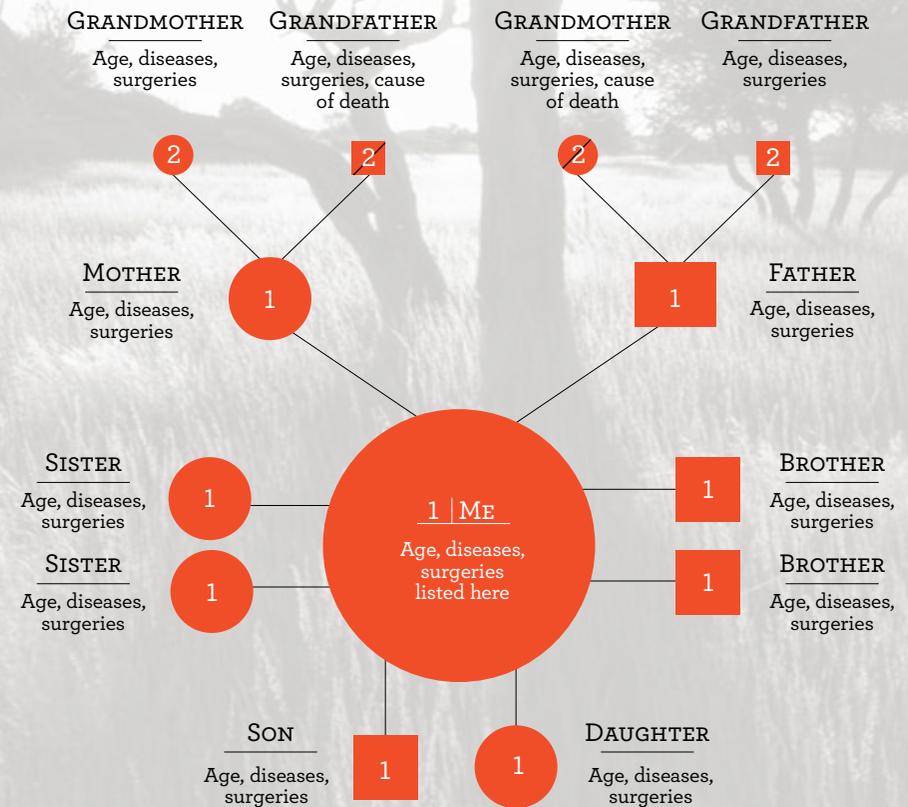
Myrna Aguilar, 35, knew heart disease ran in her family: Her father was diagnosed with hypertension and high cholesterol in his early 30s and passed away at 54. Her mother also struggled with high blood pressure and cholesterol in her early 40s. But it wasn't until Aguilar's 2009 annual checkup, when her physician voiced concern about her 20-pound weight gain, that she realized she could be next in line. “I was neglecting myself, not eating well and plopping on the couch after dinner,” recalls the single mom from South Gate, Calif. Considering her family history, these habits were especially harmful—but any woman whose diet and exercise routine could use some revamping should take note: Heart disease is the leading killer of women, responsible for 1 in every 6 deaths. Having a mother who developed heart disease before 65 (or a father before 50) ups your odds by 25 percent to 50 percent.

The good news is that lifestyle can trump genetics. According to the American Heart Association, better diet and exercise habits and avoiding tobacco can prevent 80 percent of cardiac events in women.

With that knowledge, Aguilar adopted a variety of

Trace your roots

Even though your genes aren't your destiny, knowing your family medical history can help you watch for potential problems. And you don't need a high-tech gadget to gather the info: A recent study found that info from a thorough family health tree is a better predictor of cancer risk than those fancy gene test kits. Here's how to map out your tree so you can show it to your doctor.



1. At the center of a blank piece of paper, draw a small circle, put a “1” inside and write your name, age and any diagnoses or surgeries you have had.

2. Draw horizontal lines connecting you to siblings and vertical lines downward (for children) and upward (for parents). Every person you add in this step is a circle or

square with the number “1” inside and their name underneath. (In a family health tree, women are circles, men are squares.)

3. At each of your relative's positions, include their age, any major diagnoses or surgeries and, if applicable, their cause of and age at death. Deceased relatives get a slash through them.

4. Start adding in second-degree relatives—nieces and nephews, aunts and uncles and grandparents. These people should be marked with the number “2” in their circles or squares, the same info filled in for each as you did in step three. Third-degree relatives (cousins, great aunts and uncles) should get a number “3” and so forth.

A COMMITMENT TO THE FOUR PILLARS OF HEALTH—DIET, EXERCISE, STRESS MANAGEMENT AND SPIRITUALITY—CAN PREVENT 90 PERCENT OF THE HEALTH CARE PROBLEMS IN THE UNITED STATES.

YOU MIGHT BE SURPRISED TO LEARN THAT HAVING A MOTHER WITH BREAST CANCER DOESN'T SIGNIFICANTLY INCREASE YOUR RISK IN AND OF ITSELF.

DEPRESSION

If you've ever fallen beneath the black cloud of depression, you know all too well the pain and sense of helplessness and hopelessness that rains down. Genetic vulnerability extends to mental health disorders; an *American Journal of Psychiatry* study found that having depression in the family doubles your risk from the 7 percent general population prevalence. But according to mind-body pioneer Alice D. Domar, Ph.D., executive director of the Domar Center for Mind/Body Health in Boston and an assistant professor of obstetrics, gynecology and reproductive biology at Harvard Medical School, you can structure your life to give you an advantage over the disease. That means building up social support wherever you can. Join a book club, volunteer at church and get out there and be with people, as social isolation is linked with depression.

Domar credits exercise with a profound ability to treat depression; research shows it works as well as, if not better than, antidepressant medication. Whether it's preventive is not known, but "if you know you have a family history, I'd say, 'Lace up your sneakers,'" says Domar. Complement your workouts with a Mediterranean diet packed with produce, whole grains and good-for-you fats: It's been shown to reduce the likelihood of depression, along with Alzheimer's disease and cognitive impairment later in life.

Your choice of profession may color your risk, as well. Domar says careers that offer a solid sense of control or consistently motivate you are wise options. (Professions that render you unable to predict day-to-day events would be ill-advised.) And make an effort to cultivate a sense of empathy for yourself. "One of the reasons people

get depressed is they feel they're always falling short of their personal goals," Domar notes. Setting realistic expectations, and then achieving them, leaves you feeling empowered—and empowerment can trump hopelessness.

CANCER

You might be surprised to learn that having a mother with breast cancer doesn't significantly increase your risk in and of itself. What matters more is her age at diagnosis: A mom diagnosed in her 60s would elevate your lifetime risk about 1 percent above the general population's of 12.5 percent, explains Sherry Boyar, M.S., C.G.C., a genetic counselor at Memorial Sloan-Kettering Cancer Center in New York. But if mom got her news at age 45 and grandma at 60, your risk doubles to 25 percent. Have more than one first-degree relative (parent, sibling or child) with breast cancer at 45? Your risk triples.

As for ovarian cancer, a maternal diagnosis boosts your risk from 1.5 percent to between 4 percent and 7.5 percent.

You may want to consider meeting with a genetic counselor to discuss testing for BRCA gene mutations if you have any of these risk factors: Your mother or sister was diagnosed with breast cancer before age 45; you have multiple family members with breast cancer; or you have a family history of ovarian cancer or male breast cancer. BRCA mutations are linked to a lifetime breast cancer risk of up to 85 percent (15 percent to 60 percent for ovarian cancer). Women of Ashkenazi Jewish ancestry are 10 times more likely to have a BRCA gene mutation than the general population and should seek genetic counseling for any history of breast or ovarian cancer, regardless of age.

The numbers are not so clear for hereditary lung cancer. But Jill Feldman, 41, didn't need statistics to know she lived beneath

its menacing shadow. Orphaned at age 28 (both her parents died of lung cancer within months of diagnosis; her father was diagnosed at 41, her mother at 54), the Deerfield, Ill., mom of four also lost two grandparents and an aunt to the disease. "With such a strong family history, I feared a healthy lifestyle was not going to save me," Feldman admits. In 2006, a CT scan (recommended by her doctor due to her family history) revealed a suspicious lesion on her right upper lobe, eventually diagnosed as adenocarcinoma—a lung cancer that proved to be more aggressive than doctors originally thought.

Boyar says studies attribute a whopping 85 percent of lung cancer to smoking (it's also the primary risk factor for pancreas, bladder, kidney, head and neck and esophageal cancer) and says individuals with a specific genetic mutation may have even more difficulty metabolizing cigarette smoke. "In families like Feldman's, we'd say smoking, including secondhand smoke exposure, may be exceptionally toxic." (Feldman smoked intermittently in high school and college but not enough to be considered a former smoker by her physicians.)

Feldman's surgeons removed the upper right lobe of her lung that contained the lesion, and she now considers herself cancer-free. To maintain that coveted status, she undergoes regular scans and blood work and takes a drug called Tarceva. She walks two to three miles, five days a week, to reduce her cancer risk and boost lung capacity, and has revamped her diet to include more whole grains, low-fat dairy, fruits and vegetables. "We eat a lot of broccoli," she jokes. That's smart snacking: Numerous

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A MEDITERRANEAN DIET, PACKED WITH PRODUCE, WHOLE GRAINS AND GOOD-FOR-YOU FATS, HAS BEEN SHOWN TO REDUCE THE LIKELIHOOD OF DEPRESSION.



PHOTOGRAPHY: (clockwise from top left) IMAGE SOURCE/GETTY IMAGES; BRAND NEW IMAGES/STONE/GETTY IMAGES; IMAGE SOURCE/GETTY IMAGES; SARA BARRAUD/OJO IMAGES/GETTY IMAGES.

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studies have linked sulforaphane, a chemical found in broccoli, with reduced cancer risk.

The lung cancer survivor also was an integral part of growing the grassroots nonprofit fundraising organization LUNgevity, which gave her “somewhere to focus my anger after all the losses,” she says. Bauer says Feldman may reap even greater rewards putting her energy into this kind of service: “A sense of empowerment is absolutely critical,” he notes. “My patients who take charge of their health care almost always do better.” And while Feldman wasn’t ultimately able to dodge the family disease, her outlook has certainly benefited from recognizing her risk and acting on it. “Catching a cancer early can mean all the difference,” notes Boyar. “If a person is aware of her family history, and that serves as a catalyst for seeking medical care she might not otherwise have sought, that’s a good outcome.”

OSTEOPOROSIS

According to Kathryn Diemer, M.D., clinical director of the Bone Health Program at the Washington University School of Medicine in St. Louis, 70 percent of osteoporosis risk is determined by genetics. Still, “you’re not doomed,” she says. “Your job is to do anything you can to achieve peak bone mass and maintain it.” (That’s because women can lose up to 20 percent of their bone density in the five to seven years following menopause.)

The good news: Bone is living tissue, just like muscle and skin, which means you can feed and strengthen it. Meeting your daily calcium and vitamin D needs is crucial for building and maintaining bone strength. “Calcium’s the building material of bones, like bricks in a brick wall,” explains Amy Joy Lanou, Ph.D., senior nutrition scientist for The Physicians Committee For Responsible Medicine and co-author of *Building Bone Vitality* (McGraw Hill). Vitamin D and 16 other nutrients provide the mortar, says Lanou. Women from ages 19 to 50

should aim for 1,000 milligrams of calcium per day (post-menopausal women need 1,200 milligrams). Be sure to incorporate calcium-rich foods into your diet, like low-fat Greek yogurt, leafy green vegetables and almond milk. While the National Institutes of Health recommends 200 IU of vitamin D per day, Diemer suggests five to 10 times that dose. “We’re seeing D deficiency in 70 percent of our patients, the result of wearing sunscreen and working indoors,” she says. A blood test can diagnose deficiency (optimum results should read 30 ng/mL or higher). Few foods provide vitamin D, but salmon, tuna, mackerel and UV-B light-boosted mushrooms (try Sun Bella) can help boost your level.

Lanou says that when it comes to osteoporosis prevention, what you take out of the bone is just as important as what you put into it. Most modern diets are high in acid-forming foods, such as meat, cheese and eggs, and lack adequate alkaline products, like fruits and vegetables. “In order to neutralize the acidity, the body pulls calcium compounds from the bone.” The result: Weaker, demineralized bones that are ripe for osteoporosis. If you’re worried about following in your mother’s frail footsteps, Lanou suggests limiting animal proteins, sodas, packaged foods and other acidic picks, and packing in six to nine daily servings of produce—prime advice for all of us.

Weight-bearing exercise is also crucial. “You don’t need to run a marathon, just be up on your feet,” Diemer says. Walking, dancing and yoga all count. In addition to 20 minutes of weight-bearing cardio, three times per week, incorporate two 20-minute weightlifting sessions. Muscle exerts resistance on bones, strengthening them as they struggle to support the extra weight. Pilates works especially well for strengthening the spine and core; research presented at the 2010 American College of Sports Medicine annual meeting found a regular Pilates regimen increased spine and thigh bone density in middle-school girls, reducing their risk of osteoporosis later in life. That said, excessive exercise cripples bone health. “If you’re working out enough to lose your period, that means you’re not making enough estrogen to

maintain bone mass,” says Diemer.

Regardless of family history, all women should undergo a bone density scan when they reach 65 or finish menopause, whichever comes first. And even if you are diagnosed, today’s prognosis is much better than your mother’s: Current medications can lower your risk of fractures by as much as 70 percent.

MY PROPHYLACTIC PURSUIT

In the months and years following my mom’s MS diagnosis, I felt almost resigned to a similar future. What I’m learning, though, is that my intense fretting might be wreaking far more havoc than any genetic risk. “While you’re spending a lot of time worrying about MS, your brain is responding as if someone were coming at you with a knife, jazzing up your adrenal glands and suppressing your immune system,” Bauer told me. In other words, my nerve-rattling anxiety has been laying down the red carpet not only for autoimmune disease, but cancer and heart disease, along with nuisances like migraines, ulcers and delayed wound healing.

Besides bumping up my vitamin D intake, I’ve committed myself to downgrading my stress levels—a move Bauer recommends for anyone concerned about “inheriting” a chronic disease. That means integrating at least 30 minutes of meditation (in the form of breath work, Bikram yoga, reading poetry) into my daily routine. I’ll continue to work out five days a week and eat mostly whole, plant-based foods. And while Kalanick’s gluten-free recommendation makes sense, I’d need to see stronger research definitively linking such a big lifestyle change to autoimmune disease prevention before ditching bread and baked goods.

In classic neurotic style, I asked Bauer if I now needed to worry about my years of worrying. He reassured me that while we all take health missteps, our bodies are incredibly resilient. It’s time to start focusing on my mom’s unbelievable grace and perseverance (her license plate reads “GTBCKUP”) and hope that *those* are the traits I inherited. ✕

Leslie Goldman is a Chicago-based health writer.