

PERSONAL BEST

HOW TO LOOK GOOD, FEEL GREAT, STAY FIT • EDITED BY DEBORAH FRANK



SPECIAL REPORT

THE MAYO CLINIC 2013

You wouldn't believe how many people try to smuggle monkeys onto airplanes. Which leads to monkey bites. Which leads to panicky calls from passengers to the Mayo Clinic Preferred Response team, a service of the legendary medical institution that gives subscribers in remote locations immediate access to expert health-care advice anytime, anywhere, from a yacht in the

As the oldest and largest private medical practice in the world, the Mayo Clinic in Rochester, Minnesota, has been considered the gold standard in health care, with no signs of flatlining. Aimee Lee Ball charts its vitals for the future.

Caribbean to a safari in Zambia. "I have a whole raft of beast-bites-man-trying-to-impress-woman stories," says David W. Claypool, M.D., medical director of Mayo Clinic Medical Transportation. "One man demonstrated to his girlfriend

his ability to kiss an iguana, and the iguana bit him. He worried: Will I get rabies?"

Certainly most people turn to the Mayo Clinic with more prosaic, albeit serious and often critical, health issues. It's the oldest and largest private

medical practice in the world. More than 500,000 patients are treated every year, at the mother ship in Rochester, Minnesota, or the satellites in Arizona and Florida. Some have been referred by their own physicians at home, and some just show up at the door moaning, "Help—migraines." And they moan in many languages. "We've had Spanish interpreters since the 1920s because of wealthy people coming up from Mexico, Cuba and South America,"

FACT



Mayo Clinic patients who got massages after heart surgery experienced a major decrease in pain, anxiety and muscle tension.

says Matthew D. Dacy, director of Heritage Hall, the clinic's museum, and the de facto historian. "Now probably a hundred countries send their patients to us. Our concierge service has interpreters, dieticians, clergy—whatever they may need."

Mayo has been an iconic (and ironic) name in health care for more than a century—a place surrounded by cornfields but considered the gold standard or the last-chance saloon by royalty (both actual and media-ordained). It's where Lou Gehrig was diagnosed with the disease that now bears his name, where King Hussein of Jordan underwent a bone-marrow transplant to fight lymphatic cancer, where the Dalai Lama had a recent checkup and was pronounced in excellent health (except for a slight irritation in his eyes).

The why and how of Mayo's reputation is based in its three-shield logo: clinical care, research and education (with a nod to one-stop shopping). "Any patient comes in the door with two burning questions," says Stephen J. Russell, M.D., Ph.D., dean for Discovery and Experimental Research. "One is: What is it and how did I get it? And the other is:



What can you do for me? If we can't answer those questions, we're doing the research about the environmental factors, the genetic factors and how the disease works. And if we can't do much to alter the natural history of the disease, we have research going on to address that, too."

Rochester was just a stage-coach stop when William Worrall Mayo, M.D., arrived in 1863 as an examining surgeon for the Union army in the Civil War. He stayed because his wife said, "We're not moving again," and 20 years later, when a tornado destroyed much of the city,



Clockwise from top: William Worrall Mayo with sons Charles Horace (left) and William James, ca. 1910; the Mayo brothers at work, ca. 1900; the Plummer Building in 1930 was used for primary care and lab work.

he cared for the wounded and helped raise donations to build a hospital staffed by nuns. (St. Mary's is still in service as one of the two facilities used for Mayo patients who require hospitalization; there's a VIP floor of wood-paneled suites with a Cordon Bleu-trained chef, safes for jewelry and spa robes.) Dr. Mayo's two sons inherited the practice at the dawn of medical specialization, building a constellation of partners skilled in pediatrics, orthopedics, obstetrics and other

fields beyond their ken. One of the partners was a physician with the heart of a systems engineer who created what is still the infrastructure of Mayo Clinic: the unified medical record. In the early 20th century, patient information traveled via pneumatic tubes; today the results of a lab test can be on multiple computer screens an hour later.

Marjorie Merriweather Post chartered a train from California to bring her father, the Grape-Nuts king, to Mayo for an appendectomy. And shortly after Charles Lindbergh completed his historic flight to Paris, the Mayo brothers funded an airport, realizing that any modern clinic should be accessible by plane. The old train depot is now a Mexican restaurant.

One wall of the Mayo Building lobby is inscribed with the names of \$10 million donors, mostly grateful former patients—names that include Hilton, Guggenheim and the president of the United Arab Emirates. But Mayo has been

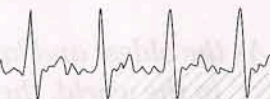
In and Around Rochester

There's no Ritz-Carlton in Rochester, Minnesota—no Four Seasons or Mandarin Oriental or Peninsula, either—and the city's idea of an Italian restaurant is the Olive Garden. This is the

dirty little secret behind any visit to the Mayo Clinic: You'll get world-class medical care, but it's the badlands for eating or sleeping. Saudi princes and celebrities have stayed at a hotel-within-a-hotel called the **International Hotel**, on the top two floors of the Kahler Grand Hotel (from \$400; 20 Second Ave. SW; 507-280-6200; internationalhotelnm.com),

built in 1921 by a friend of the clinic's founder. The suites are traditional (read: old-fashioned) but graceful, with kitchens available for those who bring personal chefs—and a speed-dial button to Mayo.

When asked about where to eat, one Mayo physician advised, "My house," and shared the name of a well-stocked market three miles away. **Zest Market**



& Cafe (B 1190 16th St. SW; 507-424-0080; zestmarket.com) is also a terrific little eatery. In the downtown area is a sophisticated tapas bar called **Söntés** (4 Third St. SW; 507-292-1628; sontes.com).

Three airlines fly to Rochester: American Eagle (through Chicago), Delta (through Detroit or Minneapolis/St. Paul) and Allegiant (through Phoenix).

not-for-profit since 1919, when the founder's sons signed a deed of gift, ensuring the longevity of the place by giving it away. They put themselves and everyone else on salary, and today all 2,000-plus staff doctors are salaried, removing any incentive to order additional tests or second opinions unless they're in the best interest of the patient. There have been many honors and firsts. Mayo had the first blood bank in the country, the first CT scanner in North America, and two Mayo doctors won the Nobel Prize for discovering cortisone.

You won't see unshaven doctors in scruffy scrubs

LIKE ON TV SHOWS, and the reason is to respect patients.

"If you have something that's been tough to diagnose or tough to treat, there's probably somebody at Mayo Clinic who's the world's expert in that," says cardiologist Sharonne N. Hayes, M.D. "But even if you don't have a complex disease or illness, there's a reason to come here because of the importance of your time. Often we can do in three or four days what would normally take three or four weeks elsewhere, because we're all under one roof."

Speed and skill are the reasons Yousif B. Ghafari has been doing an annual "executive checkup"

Answers to Some Nagging Questions

What diagnostic test should I have that my doctor and I may have overlooked?

It's the ankle-brachial index test (ABI), says Sharonne N. Hayes, M.D., a specialist in cardiovascular diseases. "ABI is a quick, noninvasive but underutilized way to check your risk of peripheral artery disease, a condition in which the arteries of your legs or arms are narrowed or blocked, which implies a high risk for heart attack and stroke." Another useful measurement is waist circumference: A high-risk number for a man is more than 40 inches; for a woman, more than 35 inches. Where you accumulate fat is probably more important than the amount of fat; too much belly fat puts you at high risk for type 2 diabetes and heart disease, even if you have a normal body mass index. "And no," says Dr. Hayes, "liposuction or a tummy tuck does not reduce risk. The problem we're talking about is called visceral fat inside the abdomen, unlike the subcutaneous potbelly or saddlebags that could be removed with cosmetic surgery. That is the fat that increases risk, and the only way to get rid of it is to lose weight."

Will doing crossword puzzles or other brain activities protect against dementia?

"The lifestyle factor that has the most evidence for preventing dementia is exercise," says Donald D. Hensrud, M.D., chairman of Preventive, Occupational and Aerospace Medicine. Some studies have shown that brain-challenging activity helps preserve cognitive function, but there's not a lot of real proof that it works or which types of challenges are best. Anything that's good for the heart—like exercise and proper nutrition—is generally good for the brain, says Brent A. Bauer, M.D., director of the Complementary and Integrative Medicine Program. "But I also encourage my patients to develop a formal stress management program—meditation, guided imagery, yoga or one of the many

mind-body practices widely available. Intriguing studies show that people who engage in daily, long-term stress management practices actually have less brain shrinkage with aging. While I don't make any promises that it will prevent dementia, it is something that has good science behind it, is inexpensive, can be done by anyone, and even if it doesn't help the brain, there are lots of other documented health benefits." One other thing that Dr. Bauer recommends is to have your vitamin D level checked. "There are several trials that suggest low vitamin D may be associated with increased risk of dementia," he says, "and since low vitamin D is related to other health risks such as osteoporosis, it's worth taking."

Why does it seem that some people lose weight on a high-protein diet while conventional wisdom says that a calorie is a calorie?

"The vast majority of data does support that a calorie is a calorie, with some caveats," says Dr. Hensrud. "People tend to underestimate the calories they consume, and this effect may be more pronounced among those trying to lose weight. One recent study showed that there may be small differences in energy expenditure—how many calories you burn—depending on the type of food you eat. And protein does seem to have an effect of increasing satiety."

Very low-carb/high-protein diets cause water-weight loss and put the body into a different metabolic state called ketosis, so that it burns its own fat for fuel; that reduces appetite and helps someone adhere to a diet, says Dr. Hayes. In several studies comparing different diets, early weight loss is sometimes faster with the high-protein diet, but long-term loss (after six months) is similar. "It's an initial advantage that isn't maintained," says Dr. Hayes. "And unfortunately, neither a high-protein nor a low-fat diet is sustainable for most people. The quit rates for all diets are the same."

Does stress really cause ulcers?

"Only very rarely," says Dr. Hayes. "And it's usually in people who are already very ill, on multiple meds or in the hospital. The vast majority of ulcers are caused by an infection called *Helicobacter pylori*. The next

most common cause is the use of drugs that damage the stomach lining such as aspirin or ibuprofen."

And yet it's not surprising that Dr. Bauer has another answer from the world of integrative medicine. "What we can say with some clarity is that the mind and body are clearly connected. For a long time, science tended to think of the two as separate entities, but we now know that stress can suppress immune function, increase inflammation, slow wound healing, raise the risk of heart disease and diabetes and even impact our genes. What is interesting is how stress manifests so differently in different people. One person may develop migraines, another may experience a heart attack, while another gets more colds. In this milieu of responses, that some people develop ulcers in part due to stress is very probable."

Are multivitamins good for you?

Not really, says Dr. Hayes. "If someone has a vitamin deficiency, or a very poor diet, there may be some benefit or indication. But the vast majority of studies that have looked at multivitamins—or even higher doses of individual nutrients and vitamins like beta-carotene, calcium, vitamin E or folate—have shown no benefit and, in some cases, harm. It all comes down to reemphasizing the need to eat a wide variety of fruits and vegetables and to get one's nutrients from food, not supplements."

"This is a controversial area," says Dr. Hensrud. "One recent trial showed some protection against cancer, although not against any specific cancers. Overall, the evidence seems to suggest more harm than benefit, while a healthy diet is associated with a very large potential to prevent disease."

Should I refuse those new airport scanners and opt for a pat-down?

"At this point, there is no direct evidence that they cause harm," says Dr. Hensrud. "The amount of radiation is minuscule for an individual and much less than the radiation experienced at altitude when flying." But he is looking forward to the results of a study about the health effects of these scanners (called backscatter machines) being conducted by the TSA with the National Academy of Sciences.

at Mayo for ten years, ever since he turned 50 and his friends in the Young Presidents' Organization deemed it essential. "It's for people like me who are pushy," teases Ghafari, an international architect from Dearborn, Michigan, and former U.S. ambassador to Slovenia. "I go in for an appointment and see lots of people in the waiting room, but within minutes my name is called." His schedule over 48 hours is dictated by head-to-toe, age-appropriate testing and any current concerns—EKG, liver enzymes, blood sugar, thyroid function, cholesterol and triglycerides, mole check, plus this year a podiatrist for toenail discoloration and the ophthalmologist for changes in night vision.

"Mayo is Mayo for two reasons: people and technology," says Gianrico Farrugia, M.D., director of the Center for Individualized Medicine. "We specialize in merging technology with individualized care."

The mandate for the next

decade is about using someone's own DNA to generate new tissue and help cure diseases. "Ten years ago the first human genome was sequenced, and then there was a sort of radio silence," Dr. Farrugia explains. "There was an expectation that medicine would suddenly change, but it did not." Last year Mayo decided that genomic medicine should be incorporated into patient care, and there are current clinical trials about the genes associated with breast and colon cancer. "It's now relatively easy to get the information," says Dr. Farrugia. "What's really hard is how to make that information useful to the patient. One genome is a huge amount of data—the equivalent of 42 million Twitter messages. Our strength is how we interpret the data. We have an electronic medical record that goes back to the beginning of Mayo, and we have every surgical specimen that has ever happened here. Putting those things together, we are in the optimum

position to drive the next generation of patient care."

The biggest Post-It note consumption at Mayo is surely at the Center for Innovation. It's the country's first group of embedded designers in a medical facility, a techy in-house industrial-design studio that looks as if it were modeled after the offices of Google or Facebook and whose goal is nothing less than transforming the experience of health care. A sign at the entrance reads: "Think Big, Start Small, Move Fast." (And someone has tacked on: "Breathe Deep.") All those Post-Its filling the walls are incubating ideas, perhaps exam rooms redesigned from the patient's point of view or a "smart mirror" that could ask if you took your medication and coordinate with devices that record changes in weight or

FACT

Mayo's old train depot was the Western White House during the Munich crisis that led to World War II, when F.D.R. lived in a private railroad car while his son James had surgery for a gastric ulcer.

blood pressure or glucose or hand grip strength.

Everyone at Mayo seems to have drunk the Kool-Aid, including the electrician who frets about the most convenient placing of outlets and the cleaning woman who declares that she saves lives (if she's keeping the room free from infection, she's right). "We're not known as the heart place or the cancer place or the knee place," says Dacy. "We do all those things, but we're known for comprehensive care, and people work together in this collegial way. The customer service philosophy is powerful. We have a dress and decorum committee—you won't see unshaven doctors in scruffy scrubs like on the TV shows, and the reason is to respect patients." Monkey bites and all. ■

For more information, go to mayoclinic.org.

Ten Stars



BRENT A. BAUER, M.D. Director, Complementary and Integrative Medicine Program

Dr. Bauer brought massage, music, acupuncture, meditation, guided imagery and animal-assisted therapy to patients' bedsides to supplement recovery.

GIANRICO FARRUGIA, M.D. Director, Center for Individualized Medicine



Until now everybody with disease X got the protocol for that disease. But the future of harvesting a patient's genetic information for customized therapy has arrived. Dr. Farrugia's group is sequencing the human genome, interpreting the data and getting that information into patient care.

SHARONNE N. HAYES, M.D. Division of Cardiovascular Diseases

Medical events in a young woman's life, such as fibroids or a hysterectomy, may affect her future cardiovascular health. Dr. Hayes is studying the connection between complications in pregnancy and increased risk of heart disease for both mother and baby.

RICHARD D. HURT, M.D. Director, Nicotine Dependence Research Center

Dr. Hurt was a chief witness in the lawsuit against Big Tobacco, resulting in a \$6.2 billion award. A former chain-smoker, he's now devoted to helping smokers quit and to research about who gets addicted in the first place.

MICHAEL D. JENSEN, M.D. Division of Endocrinology, Diabetes, Metabolism and Nutrition



People with fat around the hips and thighs are much less likely to get diabetes and heart disease. Dr. Jensen and his colleagues are trying to learn about the protective factors of "healthy fat" and apply those principles to people who are getting sick from their fat.

JAMES L. KIRKLAND, M.D., PH.D. Director



NATHAN K. LEBRASSEUR, PH.D. Robert & Arelene Kogod Center on Aging
When cells get old, there are specific changes called cellular senescence. What if you could get rid of the aging cells as they build up

in the muscles or the heart or other tissue? Drs. Kirkland and LeBrasseur are part of a team working to find such drugs.

STEPHEN J. RUSSELL, M.D., PH.D. Dean for Discovery and Experimental Research

Millions of dollars are spent every year on studies that include mixing cells with various materials outside the body to create new tissues and organs. And there are medical devices in the pipeline such as "intelligent" artificial limbs or deep brain stimulators to control tremors with an electric current.

ANDRE TERZIC, M.D., PH.D. Director, Center for Regenerative Medicine
Regenerating human body parts has always been the realm of science fiction. Dr.



Terzic's team is making it a reality by working on turning adult stem cells into "smart cells" that could repair the heart or regrow bone or joint tissue, and there are potentially broad applications for Parkinson's and Alzheimer's.

RICHARD G. VILE, PH.D. Molecular Medicine



Program When melanoma spreads to other parts of the body, the cells become adaptive—evading the immune system—and that makes them significantly more dangerous than the original tumor cells. Dr. Vile is using genetics and viral therapy to create cancer assassins, reeducating the immune system so that the dispersed tumor cells are attacked as the enemy.