



For the Heart

Summer 2014

Your Newsletter

from Saint Luke's Cardiovascular Consultants

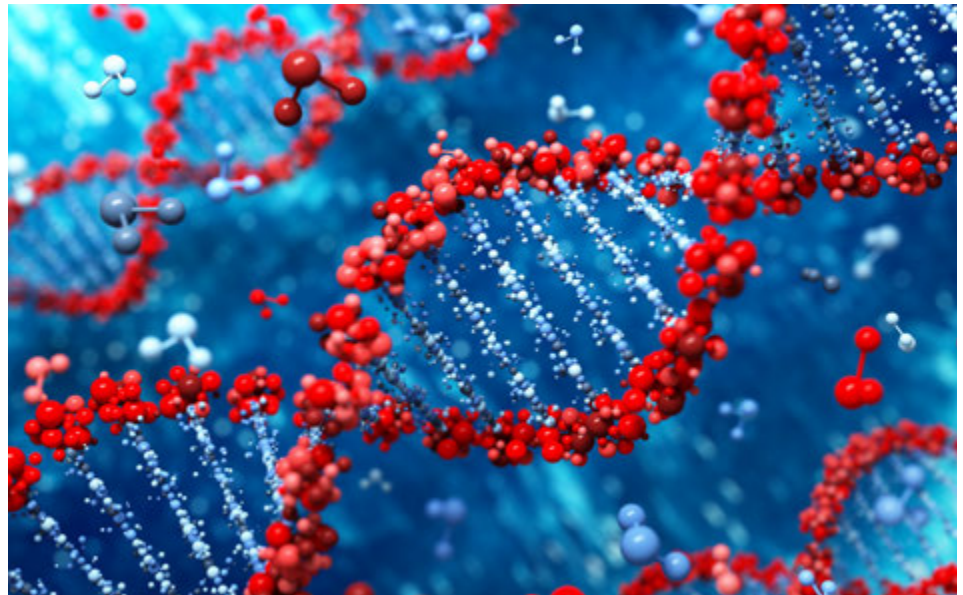
Inside...

- p4 Golden Rule of Health
- p6 Statins Perk Up Erectile Function
- p7 Quotes on Courage and Wisdom
- p10 Paravalvular Leak Closure
- p13 Tips for Mindful Eating
- p14 Play to Your Heart's Content
- p18 Foods that Love Your Heart

Welcome to the Brave New World of Personal Digital Medicine

By James H. O'Keefe, M.D.

A revolution is just getting underway that will transform the medical landscape and has the potential to markedly improve your own health and longevity. This will evolve to be among the most important developments ever in the history of medicine, perhaps even more significant than the understanding of germ theory and the discovery of antibiotics. Digital personalized medicine will allow average citizens to easily and inexpensively collect data about everything from their unique genes, to their patterns of sleep and exercise, to their personal hour-to-hour fluctuations in blood pressure (BP), blood glucose and hormones.



Information is Power

The first step in changing anything is measuring it accurately. After that it's simple: when we know better...we try to do better. If we can detect the beginnings of disease earlier, we will be able to avert its devastation long before it

ever gets a foothold in your system. In their recent *Wall Street Journal* article, "How Digital Medicine Will Soon Save Your Life," Eric Topol and Robin Cook wrote, "Sick care—the current model of waiting for you to get sick and then trying to alleviate symptoms and make you well—will become true health care, where prevention is the mantra and driving force."

This revolution is being propelled by the emergence of many rapidly evolving technologies including: ultra-sophisticated smart phones and/or wearable computers, cloud computing, nanotechnology and gene sequencing robots. Import-

tantly, this digitalization of medicine will tailor your health care to your individual needs and genes. Treatments will be customized to each person's unique genetic makeup, risk measurements and history.

Today, therapy is generally prescribed based upon population characteristics. Patients are lumped into groups as a function of their symptoms, age, or results of simple tests such as cholesterol or BP levels. Drugs are then used as a one-size-fits-all blanket treatment for everybody, even though they might be helping only a fraction of the group.

Continued on page 2

Brave New World of Digital Medicine

continued from page 1

By utilizing data easily recorded and accessed via digital devices, and taking into consideration your precise DNA, we will be able to use specific treatments that will be effective, safe and necessary for you. And we will also avoid subjecting you to therapies that are likely to be ineffective and/or dangerous.

Giving a drug to a person who will not benefit from it subjects that individual unnecessarily to expenses and potentially dangerous side effects. For example, rather than prescribe statins to lower blood lipids to everyone with high cholesterol, we now calculate each person's individual risk based on traditional risk factors like BP, cholesterol, diabetes, smoking and age, and then if they are over age 40 for men or 45 for women, we also usually have them undergo a CardioScan (a five-minute, non-invasive \$50 high-tech test).

A Coronary Calcium Score of zero means that the person has absolutely no hard plaque present in their coronary arteries. So if someone has gotten through the first 45 years of their life, for example, without developing any plaque in their coronaries, then they may be able to focus on diet, exercise, stress reduction and other natural therapies to lower cholesterol and cardiac risk without resorting to powerful cholesterol drugs.

On the other hand, even if your cardiovascular risk factors (like BP, glucose and cholesterol) suggest that you are at low risk, but your CardioScan shows that plaque is growing in the arteries supplying your heart, we know that we can prevent heart attacks and premature death in you by using potent statins to bring your cholesterol down.



Are We in the Cloud Now?

Cloud computing is another technology that will revolutionize your medical care. In the not-too-distant future you will be able to store in "The Cloud" all of your medical information including prior tests, conditions, medicines, allergies, doctors, genetic data, family medical history, prior surgeries, insurance and any other personal health information.

Admittedly, "The Cloud" sounds nebulous, but this breakthrough technology (which is already available) will allow each of us to have a secure, always accessible personal medical record that resides on the Internet—probably for free if Google's version wins out!

This will empower each person to control his or her own medical and genetic data and share it instantly, whether they are in their local doctor's office, on a cruise ship in the middle of the Caribbean or an emergency room in Rome, by simply connecting to the Internet and signing in with a secure password.

The Doctor's Phone Will See You...

Currently, on my personal smartphone I have technologies that allow me to record a high-quality ECG, measure heart rate, steps taken, miles walked, calories burned and sleep time. In my day-to-day life I often use all of these features.



For instance, when someone is telling me they are having symptoms like chest pain or heart rate irregularities, I ask them to hold my iPhone with both hands, enabling me to view and record an ECG in real time to make sure they are not having serious heart problems, like atrial fibrillation (AFib) or a heart attack. Soon, smartphones also will be able to analyze blood chemistries by inserting a test strip into a device (some already exist) plugged into a phone equipped with an app.

Home Digital Medical Devices to Consider Now

Already there are a couple of digital tools that I believe most households should have today. Most importantly, you should own an automatic blood pressure (BP) cuff. My favorite is the Omron line of BP cuffs. I would suggest purchasing the simplest one: Omron Series 3. This is an inexpensive (\$35) and easy-to-use upper arm cuff that will give you an accurate digital reading in just a few seconds.



Make sure you that when you measure your BP, you're relaxed and seated with your arm resting comfortably on a surface that is about at the same level as your heart. Your blood pressure will vary, sometimes widely, depending on your circumstances. By following your blood pressure at home you can figure out natural strategies like exercise, diet, rest, fasting, meditation, etc. that might work for keeping your BP normal (less than 140/90).

A glucose monitor (glucometer) is another helpful digital device for home use. There are several good options for a home glucometer including One Touch Ultra2, Accu-Chek, and FreeStyle. These are surprisingly inexpensive—about \$10 to \$20. By checking your blood sugar about an hour after eating, you can learn an amazing amount about your

specific metabolism and what sorts of foods and beverages are best for you. The goal is to keep your blood sugar between 70 and 100 most of the time; even after you eat it's best if your blood sugar doesn't rise above 110.

Better the Devil You Know Than the Devil You Don't

Gene sequencing machines are becoming increasingly fast, accurate and affordable, allowing us to read and understand the billions of bits of DNA data in each person's unique genome. This will enable medical science to collect and analyze the DNA from millions of people, yielding critical genetic insights that will uncover each person's unique vulnerabilities. Armed with this information we can focus on strategies that will prevent the specific diseases for which we are predisposed, and to choose the right the drug when one is needed.

Wearable tech is the term for smart digital devices that you wear on your body. This craze is just getting underway, and is not going to slow down anytime soon. Indeed, experts predict that wearables will revolutionize our everyday lives in the coming decade. Smart watches that monitor your steps taken, exercise intensity, calories burned, and sleep quality and quantity are already available. These bracelets are rapidly becoming more sophisticated and affordable. My favorites are: Jawbone, Fitbit and Garmin's Vivofit. Apple is rumored to be developing an iWatch that when it's released, may set the new standard for wearable tech.



A Bright Idea Whose Time Has Come

The era of digital medicine has already dawned, and in the next few years it's full force with arrive with the power of a tsunami. Surprisingly, one of the advantages conferred by digital medicine will be lower health care expenses.

Previously, technological innovations in medicine such as new drugs or high-tech tests have come with high price tags. However, digital medicine will be a transformative technology that should reduce costs—for individuals, their employers and the overall economy. The emphasis on prevention dramatically lowers hospitalizations and costly health catastrophes such as stroke, diabetes, cancer and heart attack.

Also, this enlightened strategy saves money by helping to keep people fully functional and working, and by focusing therapies on only the individuals in whom the treatments are necessary and effective.

The Golden Rule for Health and Well-Being

By James H. O'Keefe, M.D., with
Joan O'Keefe, R.D.

Bill and Mary spend several hours each week holding premature infants to soothe and reassure the tiny babies in a neonatal intensive care unit while the parents and nurses get a break. Mary says, "Cuddling those precious little bundles makes all my problems seem much less overwhelming—it rebalances everything."

Nearly every religion down through the ages has taught some version of the proverbial Golden Rule: people should treat others in a manner in which they themselves would like to be treated. I am convinced that having a purpose beyond your own selfish interests is one of the strongest determinants of our long-term health, attitude, and even life expectancy.

Altruistic activities such as investing one's time and energy in mentoring others, or volunteering to help those in need, tends to promote feelings of well-being and bestow upon us a strong sense of purpose in life.

Evan, our 21-year-old son, has spent a portion of each of the last two summers in Ghana, Africa as a volunteer for Emory's Medical Brigades. In this endeavor he works with a small team of medical personnel providing the basic health needs for people in impoverished villages suffering from serious issues including malnutrition, malaria and HIV.

For Evan these experiences have been life changing. When he finally returns home from these remote outposts he is suntanned, dusty and scruffy...but beaming and full of heart-warming stories. He talks of close bonds he felt with



Evan says he volunteers because, "I love these kids."

the people he served. Evan connects with the children especially. When he was arguing why he needed to go back this year, he told us, "I love these kids." He says, "The genuine gratitude in their eyes makes it all worthwhile."

Try to seek out endeavors that allow you to find meaning outside of yourself. This passion for a cause bigger than yourself reconfigures your gene expression, which can transform your health for the better—preventing depression and strengthening your immunity. On the other hand, hedonic happiness—the short-term gratification one gets from materialistic things like new purchases and selfish pleasures—does not seem to confer these profound benefits to long-term health and longevity.

Why Volunteers Survive and Thrive

The key to volunteering is finding an activity where you feel as though you are making a positive difference, even if it's a subtle, in your little niche of the world.

Edward donates his time to plant and nurture flowers and trees in his neighborhood park. Rachael, age 18, is a senior in high school who loves animals. She donates her time on two Saturdays a month to help walk dogs and play with cats at an animal shelter. These kinds of endeavors kindle a warm glow of deep contentment that makes a real difference to the giver's health.

We Are All One

All life on Earth is connected—and no organism can survive alone. In so many ways life is a wondrous complex cooperative endeavor. For example, plants using sunlight via the process of photosynthesis combine carbon dioxide—the gas we breathe out—and water and to grow food and nutrients that we animals need to thrive. And in a synergistic collaboration, the plants give off oxygen as a waste product, which of course breathes life into us. In turn, animal waste products (both liquid and solid) are loaded with the nitrogen, phosphorus and potassium that makes perfect fertilizer to help plants flourish. In other words, plants and

animals are connected in an elegant, tightly linked, co-dependent cycle that is necessary for survival of all life on the planet.

A recent survey found that four out of five doctors said that if they were stranded on a deserted island without lawyers, they wouldn't need any aspirin. Although it's true that many physicians tend not to be fond of lawyers, my father was an attorney before becoming a judge, and some of my very best friends are lawyers.

Roland is a longtime patient of mine who is a lawyer with a good heart—in more ways than one. He volunteers his legal expertise to help homeless Vietnam vets. Roland himself served in the Armed Forces during the Vietnam War; he was never sent into battle zones. When he sees a haggard vet standing at a busy intersection traffic light holding up a cardboard sign begging for pocket change to get his next meal he thinks, "There, but for the grace of God, go I."

Roland told me, "Life dealt this guy some really bad cards. It's not his fault he's living under a bridge." He has made it a personal mission to provide free legal services to these anguished souls. Roland says, "The least I can do is to give back to make their lives a little less tormented."

Warren's Secret for Longevity with Vigor

Warren Buffett, the "Oracle of Omaha," is widely acknowledged as the smartest and most successful investor in history. He remains on top of his game as CEO of Berkshire Hathaway. He still lives in the same house in Nebraska that he bought in 1958 for \$31,000, and he drives himself around in a Cadillac he bought seven years ago for \$42,000. He doesn't carry a cell phone, and has no computer on his desk.

Although just reading about his diet is enough to make me sick, he

seems to be thriving despite being in the middle of the ninth decade of life. His typical lunch, the same one he's been scarfing down since he was a kid in the 1930s, is a hamburger with fries, washed down with cherry Coke; dessert is vanilla ice cream slathered in chocolate syrup. His beloved snack is See's candy, and his favorite "exercise" is playing cards—about 12 hours of Bridge per week.

So, in many ways Warren Buffet is not exactly a poster-boy for cardio-wellness, yet he will be celebrating his 84th birthday this summer while still enjoying excellent health. Sure, he had a little scrape with prostate cancer a couple of years ago, but Warren received radiation therapy and barely missed a day of work—just a speed bump along the road of life.

When asked what he plans to do with his vast and unfathomable wealth, he says, "There's nothing material I want very much. And I'm going to give virtually all of it to charity when my wife and I die." Warren Buffet, the second richest person in the world, has pledged to give over 99 percent of his \$60 billion to help make the lives of underprivileged people around the globe safer and better. He is combining his accumulated fortune with that of his friend Bill Gates (the richest person on Earth) to create a charitable foundation with a noble and altruistic mission: "To help the world's poorest people lift themselves out of hunger and poverty, and to harness advances in science and technology to save lives in developing countries."

I believe that a major reason that Warren Buffet remains so ro-

bustly healthy despite his age and less than ideal diet/lifestyle is that he is intently focused on doing everything he can to make the world a better place.

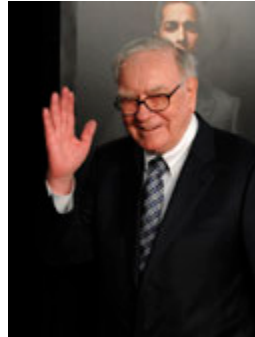
What Goes Around Comes Around

The best way to help oneself is to help those around you. Call it what you want: God's sacred design, Karma, Gaia life force, or evolution via kin selection favoring the survival of cooperative individuals. For life to survive, we need to work together to help one another. Life in its wisdom tends to instill strength and vigor into those who are contributing to the good of the whole, and withdraw vitality from isolated and selfish individuals. Excessive selfishness can ruin lives and destroy health and true joy. You will discover that the more you give of yourself to the people, living creatures, and plants around you, the more fully life will invest back into your own health and wellness.

You don't need to be giving away vast sums of money, curing AIDS, conquering cancer, or solving the global climate change crisis to feel the strength that comes from helping others.

Go out of your way to be considerate and helpful to your elderly neighbor. Be there for your friends when they are going through tough times. Go the extra mile for your co-workers; help a stranger in need. Be a source of happiness and encouragement for the people with whom you interact. Walk your dog, tend your garden or pet your cat.

Sometimes, in our day-to-day existence we tend to take for granted the people who mean the most to us. So I personally am trying to make a point of being a more loving and considerate spouse, parent, son, uncle, brother, physician and mentor.



Statins Perk Up Erectile Function

By James H. O'Keefe, M.D.

Listen up guys—an impressive new study just might convince you that atorvastatin is worth another try. Among men who have both high cholesterol levels and erectile dysfunction, statin therapy substantially enhanced their sexual function, while at the same time lowering their cholesterol. Despite irrefutable evidence that this class of drugs prevents heart attacks, strokes and cardiovascular deaths, many at-risk men who are prescribed a statin by their doctor decide to stop taking the medication, often because of nuisance side effects. In fact, the track record for adherence to statin therapy is downright dismal—over half of people who are started on a statin stop it on their own within the first year.

Canary in the Coal Mine

Erectile dysfunction is a very common problem among males over age 40, affecting about 18 to 30 million American men. Problems with erectile function can be the result of any number of common issues such as high BP, obesity (belly fat in particular), diabetes, high cholesterol, tobacco use, chronic stress and depression. Like the proverbial canary in the coal mine, erectile dysfunction can be the first warning sign that trouble is brewing in a man's vasculature. Erectile dysfunction, which typically results from inadequate flow in the blood vessels of the penis, can be an important clue that cardiovascular

disease might be festering silently below the surface in other arteries too.

Drs. Kostis and Dobrzynski presented their findings recently at the 2014 Annual Scientific Sessions of the American College of Cardiology, and the findings made quite a stir among the cardiologists attending the meeting. Their study included a total of 647 men, with an average age of 58 years who were randomized to statin therapy or placebo. After only four months, the statin lowered the LDL cholesterol (the bad kind) as expected from 138 to 91. Surprisingly though, the statin also

improved the men's erectile-function scores by approximately 25 percent, which is about half the improvement seen with any of the very potent billion-dollar blockbuster ED drugs—Viagra, Cialis, or Levitra.

More studies will need to be done before we can be certain that statins improve erectile function, and the drugs are not approved for this

indication. Still, for the average male pondering whether or not to take the cholesterol drug that his doctor prescribed for him, this tendency for statins to substantially augment erectile function might be the decisive factor that motivates him to swallow that little pill every day. Think of statin therapy as a two-fer: it's a therapy that can kill two birds with one stone—lowering cholesterol while improving erectile function.

Statin Tips

My favorite statin for both men and women is atorvastatin (generic Lipitor). It is an inexpensive generic that you can get for \$8 per month, even if you don't have insurance (if you split pills). Atorvastatin is highly effective not only for lowering cholesterol, but more importantly, for preventing heart attacks, bypass surgery, stents, strokes and possibly even dementia. The frequent side effects noted with statin therapy (typically aches and pains in the joints and muscles), usually can be minimized by taking a supplement of CoQ 10 (look for a highly absorbable form) and by making sure your vitamin D is in the normal range (30 to 80 ng/dL).

Most statins increase the risk of developing diabetes by about 10 percent. This is a particular concern if you have obesity, borderline-high blood glucose levels, the metabolic syndrome (pre-diabetes), or a family history of diabetes. For such individuals I often recommend pitavastatin (trade name is Livalo). This drug lowers cholesterol as well as atorvastatin, but doesn't increase blood glucose or the risk of new-onset diabetes. The main downside of Livalo is its cost—it's still on patent and thus is much more expensive than the generic statins such as atorvastatin.



Quotes on Courage, Wisdom and . . .Grandmothers

By James H. O'Keefe, M.D.



"The world breaks everyone and afterward many are strong in the broken places."

~ Ernest Hemmingway

"My grandmother started walking five miles a day when she was 60. She's 97 now, and we don't know where the hell she is."

~ Ellen DeGeneres

"Courage is not something that you already have that makes you brave when the tough times start. Courage is what you earn when you've been through the tough times and you discover that they aren't so tough after all."

~ Malcolm Gladwell

"Behind every great man is a woman rolling her eyes."

~ Jim Carrey

"You are only one workout away from a good mood!"

~ Michelle Kruse, Registered Dietitian at the Duboc Cardio Wellness Clinic

"Do what you can, with what you have, where you are."

~ Theodore Roosevelt

"You don't get a body like this by sitting on the couch 10 hours a day... you have to eat a steady diet of junk food too!"

~ Anonymous patient

"Joanie, what other people think of you is none of your business. And besides, you wouldn't worry so much about what they thought of you if you knew how seldom they ever do."

~ Kathleen Olsen, advising her teenage daughter Joan (my wife)

"Those who have a strong sense of love and belonging have the courage to be imperfect."

~ Brené Brown

"A word to the wise ain't necessary; it's the stupid ones who need the advice."

~ Bill Cosby

"Jamer, you can learn something from every single person you meet during your life."

~ Dorothy O'Keefe, my grandmother, giving me advice when I was a college student

"Go to Heaven for the climate, Hell for the company."

~ Mark Twain

"There are only two options: make excuses or make progress."

~ Kim Buehler, Physician Assistant

"We are what we think. All that we are arises with our thoughts. With our thoughts we make the world."

~ Buddha

"A lot of people are afraid of heights. Not me, I'm afraid of widths."

~ Steven Wright

"Between two evils, I always pick the one I never tried before."

~ Mae West

"It is not the critic who counts; not the one who points out how the strong person stumbles, or where the doer of deeds could have done them better. The credit belongs to the person who is actually in the arena, whose face is marred by dust and sweat and blood; who strives valiantly; who errs, who comes short again and again, because there is no effort without error and shortcoming; but who knows great enthusiasms, the great devotions; who spends himself or herself in a worthy cause; who at the best knows in the end the triumph of high achievement, and who at the worst, if he or she fails, at least fails while daring greatly, so that their place shall never be with those cold and timid souls who neither know victory nor defeat."



~ Theodore Roosevelt

Keeping Bones Hard and Arteries Soft: Eating for Skeletal Strength and Cardiovascular Health

By James H. O’Keefe, M.D., with Joan O’Keefe, R.D.

Joan’s mother Kathleen was a remarkably healthy and enlightened woman. Decades ahead of her time in her dietary habits, she was steaming vegetables, baking fish and skinless poultry, eating a daily salad of leafy greens dressed with olive oil and vinegar, and drinking moderately each day at happy hour.

Kathleen stayed mentally sharp and had no real chronic medical problems, except one—osteoporosis. On Mother’s Day two years ago, she fell and fractured her hip and passed away four weeks later, just three months shy of her 99th birthday.

As great as her diet was, she never understood the importance of calcium, vitamin D, and weightlifting. As a result, her skeleton gradually weakened through the decades and by age 90, she began to fall and suffer compression fractures in her spine. It broke our hearts to see how those painful broken bones tormented Kathleen in her last decade of life, and Joan vowed to never let that happen to herself or Kathleen’s granddaughters.

Calcium, the most prevalent mineral in the human body, is the key nutrient for building strong bones and teeth, yet it also plays vital roles in cell conduction, muscle function, hormone regulation, and heart and blood vessel health. About seven out of 10 Americans do not consume the current recommended dietary allowance for calcium, and if you don’t get enough dietary calcium, your body will leach calcium from your bones and teeth.



Joan with her mother, Kathleen. Though Kathleen lived to be almost 99 years old, she suffered with osteoporosis and died of injuries related to a fall.

So not surprisingly, today the lifetime risk of osteoporosis or osteopenia (weak bones) is about 50 percent. Among adult women over age 45, osteoporosis accounts for more days spent in the hospital than many other diseases such as diabetes, heart attack, and breast cancer. Shockingly, fractures due to fragile bones are the primary cause of hospitalization and/or death for U.S. adults over age 65. Furthermore, 44 percent of nursing home admissions are due to fractures. A Mayo Clinic study reported that compared to 30 years ago, bone fractures have risen more than 32 percent in boys and 56 percent in girls, probably due to insufficient intake of calcium and low vitamin D levels.

But be wary of traditional calcium supplements because they appear to predispose to arterial calcification and plaque formation, and possibly also increase risk for myocardial infarction. (See Figure 1).

So clearly, we need better strategies for maintaining bone strength and reducing fracture risk, while

at the same time supporting ideal cardiovascular (CV) health.

Mineral supplements made from bones, when taken with a meal, may provide a more practical means to ensure adequate calcium intake without increasing cardiac risk. Ingestion of microcrystalline hydroxyapatite (the form of calcium found in the bone) produces less of an acute spike in blood calcium levels compared to soluble calcium salts typically used in standard supplements, and thus may be less likely to increase vascular calcification and heart attack risk.

Bone meal supplements provide virtually all of the essential building blocks (calcium, phosphorous, zinc, strontium, silicon, iron, proteins and aminoglycans) needed to build bone tissue. In a placebo-controlled randomized trial, women who took 1,000 mg of calcium in the form of bone meal in conjunction with oral Vitamin D showed a significant increase in bone thickness, whereas those who took 1,000 mg of a standard calcium carbonate supplement did not. (See Figure 2).

In a paper to be published in the near future, we outlined the following steps which may be helpful for building strong bones while maintaining soft and supple arteries:

1 Calcium is best obtained from dietary sources rather than supplements.

2 Make sure to consume adequate animal protein, ideally by eating fish, seafood, skinless poultry, eggs, and non-fat or low-fat dairy at least twice daily. Serving size should be

modest, about the size of the palm of your hand.

3 Try to consume about 1,000 mg each day of calcium.

4 Keep your vitamin D levels in the normal range (30 to 80 ng/mL). About three in four Americans have abnormally low vitamin D levels, which increases risks for both osteoporosis and heart disease.

5 Increase intake of fruits and vegetables to promote the health of both your heart and skeleton. Make sure you have at least two colors with each meal. If you have dessert, choose berries or other healthy fruit. An increased consumption of fruits and vegetables coupled with a decreased intake of highly processed foods is the most effective dietary strategy for improving your overall health.

6 Concomitantly increase potassium consumption while reducing salt intake. You can do this by eating more fresh produce and drinking low-sodium V-8 juice.

7 Try to increase your consumption of magnesium by eating foods such as fish, seafood, nuts, pumpkin seeds, beans and leafy greens.

8 Try to increase the intake of foods rich in vitamin K, such as leafy greens.

9 Consider eating bones (from sardines, canned salmon or chicken) or take a supplement that is based on organic bone meal. These are rich sources of many nutrients needed for building bone; and the calcium-hydroxyapatite in bones is very well absorbed and does not spike the blood calcium the way standard calcium supplements do.

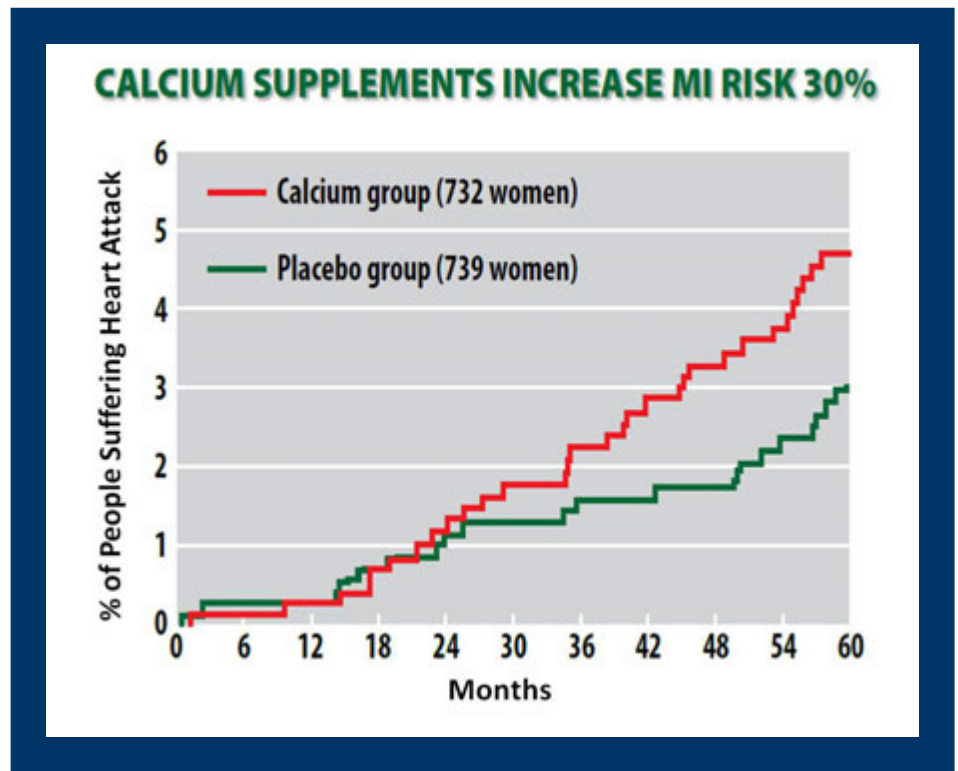


Figure 1

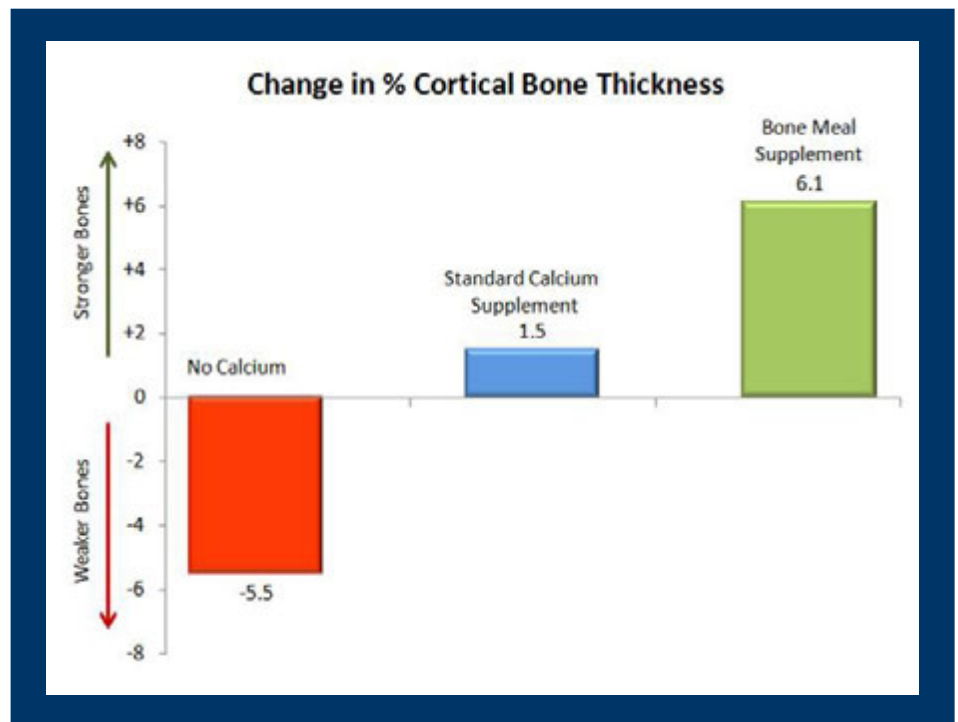


Figure 2

10 Get some safe sunshine, but not more than about 15 or 20 minutes of unprotected sun. Expose as much skin as you can during this short period. If you are out in the

sun longer than this, make sure you apply sunscreen so as to avoid sunburn. Sunshine is good for bones and your heart, to say nothing of the boost in mood it provides.

Paravalvular Leak Closure Restores Vitality

After 76-year-old Everett Cleveland had surgery to replace his aortic valve in 2009, he had the energy and stamina to keep up with his everyday routine, including mowing the lawn.

Then several months ago, he began noticing he was more out of breath than usual. "I just didn't have any strength, and I felt like my condition was deteriorating," he says.

Though Cleveland tolerated the problem for several months, he brought it to his cardiologist's attention when he came in for a check-up in early 2014. Diagnostic testing revealed that the valve replaced in 2009 wasn't functioning as it should.

More than 60,000 prosthetic valves are implanted surgically in the United States each year. "Up to 20 percent of these patients may experience problems later on, such as leaking of blood around the sewing ring of the valve," says Adnan Chhatriwalla, M.D., interventional cardiologist and Medical Director of the Structural Heart Disease Program at Saint Luke's Mid America Heart Institute. "Some problems show up immediately, and some years later, like Mr. Cleveland's."

In the past, the only option to repair these valves was another surgery. "For many of these patients, a second surgery can put them at risk for additional complications or even death due to advancing age or other medical conditions," Dr. Chhatriwalla explains.

But a new procedure offers these patients an effective option for valve repair, without undergoing surgery. Called paravalvular leak closure, the procedure is performed like a cardiac catheterization.

Using highly-sophisticated



Adnan Chhatriwalla, M.D., left, with his patient, Everett Cleveland, the first individual at Saint Luke's to undergo paravalvular leak repair.

ultrasound technology and diagnostic equipment to guide their movements, the patient's medical team inserts a catheter into the femoral artery, or vein in the groin, then advances it to the leaking valve.

The catheter is loaded with the repair device used to close the leak, which actually looks like a tiny plug. Dr. Chhatriwalla and Ken Huber, M.D., president of Saint Luke's Cardiovascular Consultants, have undergone extensive training in paravalvular repair.

"This is a very specialized procedure that is best performed by experienced interventional cardiologists at high-volume cardiac centers such as Saint Luke's," Dr. Chhatriwalla says. "Dr. Huber and I are making a dedicated effort to be sure paravalvular leak closure is available to our Kansas City area patients, and that they do well."

Cleveland was the first patient to undergo the procedure at Saint

Luke's March 18, 2014. "This was a good option for Mr. Cleveland," Dr. Chhatriwalla says. "He was an excellent candidate and is doing very well."

Cleveland agrees. "I was only hospitalized overnight," he says. "I'm feeling much better and am looking forward to doing my yard work this summer, and to my grandson's graduation."

Paravalvular leak closure is just one of several options available to repair or replace heart valves at Saint Luke's Mid America Heart Institute. "Working with our excellent diagnostic, interventional and surgical teams, we can evaluate and provide the most appropriate treatment for each individual patient," Dr. Chhatriwalla adds.

Saint Luke's currently is the only center offering paravalvular leak closure in the area. For more information, call 816-932-8258.

Coffee, Tea and Memory

By James H. O'Keefe, M.D.

Alzheimer's and other forms of dementia are among the most debilitating diseases we see in medicine today. Unfortunately, there is little we can do to help our patients already diagnosed with these memory disorders. But new studies recently released are starting to shed some light on the benefits of coffee and tea consumption on memory, and other aspects of health.

One of the newest studies found that green tea appears to boost memory by enhancing functional brain connectivity. This study was conducted by researchers in Switzerland. They recruited 12 healthy male volunteers to consume either a milk whey-based soft drink containing 27.5 grams of green tea extract, or a similar drink without green tea.

The participants were given working memory tasks while undergoing functional magnetic resonance imaging scans. The scans showed increased brain connectivity in the participants who consumed the drink containing the green tea extract. While much more research is needed to conclude that green tea can improve memory, this study did suggest it might increase short-term connectivity in the brain.

Another recent study showed that caffeine consumption may boost memory. This study was conducted at Johns Hopkins University and looked at caffeine's impact on memory, demonstrating that it may enhance certain memories for up to 24 hours after being consumed.

The National Institutes of Health and the U.S. National Science Foundation funded this study, which

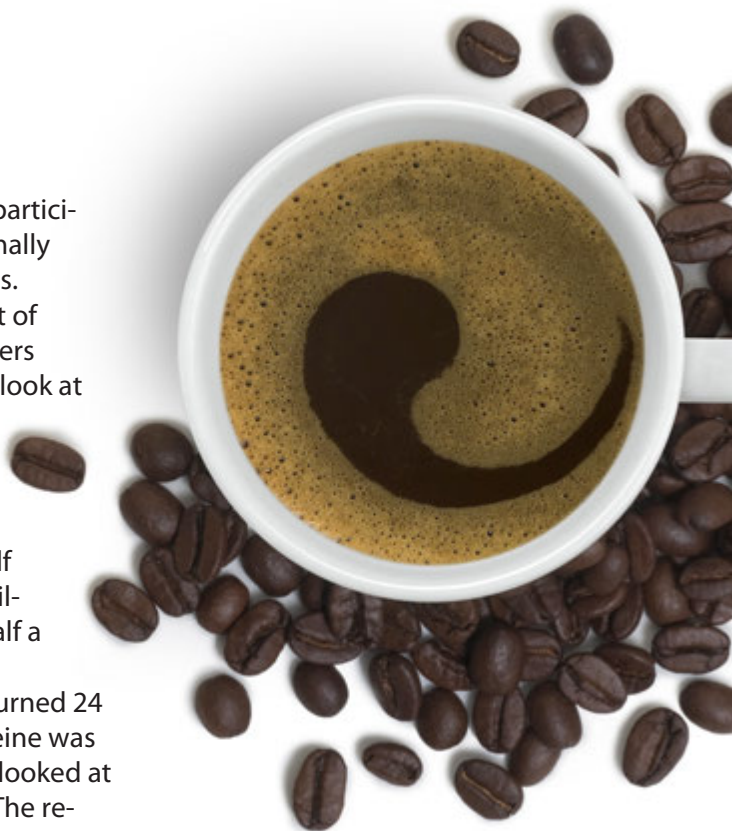
included more than 100 participants who were not normally coffee, tea or cola drinkers.

To assess the impact of the caffeine, the researchers asked the participants to look at hundreds of common everyday images on a computer screen. Five minutes after looking at the images, they gave half of the participants 200 milligrams of caffeine and half a placebo.

The participants returned 24 hours later, after the caffeine was out of their systems, and looked at more images of objects. The researchers asked them to label the pictures as old, new or similar to the original images they had looked at. People who had received the caffeine were better at distinguishing the similar pictures from the original ones.

Though the study didn't prove that caffeine improves memory, it did demonstrate that caffeine enhances the brain's process for making items more permanent in the participants' memories. The caffeine didn't have to be in the form of coffee (tea or dark chocolate work too), but a dose of at least 200 milligrams was needed to see memory improvement. As a point of reference, an average-size cup of coffee contains about 160 milligrams of caffeine.

As an aside, coffee consumption specifically also has been linked to lower diabetes risk, though in this case, it's not the caffeine, but the antioxidants in coffee that are thought to have the positive impact.



The bottom line is that both coffee and tea continue to demonstrate health benefits, especially if you are concerned about your brain and your heart. Coffee and tea are calorie-free and full of healthy antioxidants too, which may account for some of the health benefits in these studies.

Just one caveat though—don't overdo it! Coffee and tea both contain caffeine, which can be a problem for many individuals who are sensitive to it. If that's the case for you, drink the decaf version. And, it's best if you learn to enjoy these beverages unsweetened. Both sugar and artificial sweeteners make them less healthy.

Finally, if you can't or won't drink green tea regularly, consider taking a daily green tea supplement. These supplements have been shown to help support healthy, normal cholesterol and blood pressure levels.

Chill Out! Anger Can Harden Your Heart

By James H. O’Keefe, M.D., with Suzanne Arnold, M.D.

We all know “that person.” You may even be “that person!” You know, the one who is perpetually angry, mad at the world, and is constantly flipping out in traffic, in line at the grocery store or in conversations with family and friends.

Unfortunately, that “hot-headed” attitude does more than damage your image. It can damage your heart. Two recent articles published in the esteemed *European Heart Journal*, along with an editorial by my colleague Dr. Suzanne Arnold, systematically evaluated the link between anger and adverse cardiovascular outcomes.

Researchers found that in the two hours after an angry outburst, a person’s risk of heart attack increased nearly five-fold. The risk of stroke increased more than three-fold and the risk of ventricular arrhythmia (potentially dangerous heart rhythms) also increased. They also found that pre-existing issues such as high blood pressure, smoking, and the presence of known heart disease increased the risk of anger-induced cardiovascular catastrophes.

The effects of these episodes of anger were also found to be cumulative. In other words, the more risk factors you have and the more often the angry outbursts, the higher the risk of heart attack and stroke, especially if you already have a history of heart attack, stroke or diabetes. Though the study’s authors emphasized that anger doesn’t necessarily cause heart problems, it is linked to them and can be the “straw that breaks the camel’s back.”



As a physician who has treated thousands of patients who have suffered heart attacks over the course of my career, I have to say that I am not surprised by these findings. Many heart attack patients share this characteristic. In fact, hostility is the only factor trait in the old “Type A Personality” that seems to be toxic for the heart. Other features of this syndrome, such as ambition, chronically feeling time pressure, and conscientiousness appear to be harmless to the heart in the absence of anger and hostility.

Through evolution, our bodies were designed to respond to stress with a cascade of changes, usually referred to as the “fight or flight” response. In times of crisis the heart pumps faster and harder, arteries carry more blood to muscles, and platelets become stickier, making life-threatening bleeding less likely if an attacker takes a bite out of you. That response may have worked great for our ancestors, but it isn’t always best in modern society.

So what’s a person to do? If you have a “short fuse,” try to relax and tell yourself it’s definitely not doing your heart any good to blow up every time somebody irritates you. Here are four healthy habits to help you “chill out” and resist the temptation to “blow your top.”

1 Breathe deeply and move your body. Deep breathing, yoga and exercise are all great ways to reduce stress and improve your heart health. Try signing up for a yoga class or enjoy a daily walk. We recommend you exercise 20 to 50 minutes most days. Aim for 150 minutes of moderate exercise each week, and remember to include 20 to 30 minutes of weight lifting two to three times a week.

2 Eat healthy. I know it’s easier said than done to eat right, and it’s especially difficult to do if you’re stressed out. But, if you have a poor diet, your body has more difficulty coping with stress, which makes you more vulnerable to. . .you guessed it. . .stress. It can become a vicious cycle. A healthy diet can help you moderate everything from your blood pressure to your blood sugars to your weight and cholesterol.

3 Sleep tight. A good night’s sleep goes a long, long way toward reducing stress. Just think how exhausted and upset you felt the last time you had two or three sleepless nights in a row. You’ll feel more rested and less likely to anger easily if you get seven and one-half to nine hours of sleep each night.

4 When you feel angry and are about to lash out, stop and count to 10 while you take some slow, deep breaths. This age-old strategy works amazingly well. While you are counting, ask yourself, “Will this incident matter in five years?”

And finally, talk with your doctor about your health habits and mood. We can analyze your cardiac health, offer advice and suggestions for other healthy lifestyle changes, and keep you and your heart happy!

Tips for Mindful Eating from Our New Dietitian

By Michelle Kruse, R.D.

My sister Danielle has always maintained a slender, fit body without much effort. While the rest of my family was trying the latest diet trend or extreme exercising, Danielle never worried about what she was eating. Danielle wasn't just blessed by the gene pool; she was simply listening to her body and enjoying her food. Danielle has always been able to decipher true hunger from other feelings. She eats when she's hungry, stops when she's full, and enjoys her food without guilt.

Sound impossible? We're all born with the ability to feel hunger and fullness, but over the years, we confuse these feelings with other emotions and lose our ability to decipher true hunger. You can train your mind and body! Here are five techniques to start eating more mindfully (and be healthier, lose weight and feel less guilt):

1 Journal. One of the first things I ask my patients to do is to journal. While most groan at the thought of recording everything they eat or drink (even those few M & Ms while passing the bowl), I assure them that their logs are absolutely necessary for me to be able to help them. By the next appointment, most patients have discovered the trick—logging isn't so much for me as it is for them. You can't change what you're not aware of. The journals are an exercise in mindfulness.

2 Stop, breathe and think. Ask yourself: Am I truly hungry? Do I always eat at this time of day? Am I feeling stress, anxiety, boredom or some emotion other than hunger? Am I thirsty? Am I eating just



because the food is there or it is being offered? Write this in your journal. As you become more aware of the reasons you eat, you can

find healthier alternatives such as a walk, calling a friend, a bubble bath and more.

3 Be curious. How does your food make you feel? Do you feel more energy, guilt, tiredness, etc. after eating that food or meal? How does it make you feel one to two hours later? If you have diabetes, how does your blood sugar respond to that choice? Again, record your feelings. Awareness of feelings—good or bad—and their food connections will help you to make choices that feel good.

4 Explore your senses. Take a good look at your plate. What colors do you see? How does the food smell? How does it feel in your mouth? Is it crunchy, smooth, silky, rich, warm, slippery? Does it taste savory, sweet, salty? The more senses you use in a meal, the more satisfied you will feel.

5 Always eat in a setting where you feel relaxed and "present in the moment." This can be difficult for those of us used to eating on the run between commitments.

Be honest: How many times have you sat down to watch TV with a bag of snacks and an hour later been ridden with guilt over eating the whole bag? Or, how many times have you taken just a tiny bite of a cookie, brownie, etc. only to keep coming back for more "tiny bites" and eventually felt the guilt of eating the whole thing?

The goal of mindful eating is to erase feelings of guilt by being fully aware of what you're eating and to find pleasure in food. Turn off the computer, TV, cell phone, and other distractions. Turn on your senses, and enjoy your food.

Editor's Note: Michelle Kruse, R.D., dietitian, is the newest member of our staff in the Charles and Barbara Duboc Cardio Wellness Center. One of the benefits of being a member of the center is free consultations with her. Michelle is a very bright and dynamic nutritional expert who will be happy to tailor a diet that would be ideal for you. Call 816-751-8327 or visit www.cardiowellnesscenter.org for more information.



Play to Your Heart's Content

By James H. O'Keefe, M.D.

One of my patients asked me, "Dr. O'Keefe, because I am a strict vegan, and I run hard for over an hour on a treadmill in my basement every morning at 5 a.m., do you think I will live longer?" I said, "Probably not...though it certainly might seem longer."

Adults are supposed to stop playing and get serious about life, but nothing lights up the brain like play—whether it's a kid or a grown-up having the fun. As humans, we are designed to play throughout life. If you can find activities that involve movement for pure enjoyment, you will be much more likely to make them a regular part of your life.

Play is a state of being, where you focus on the experience of having fun in the moment, not on accomplishing some goal. In our culture, play is seen as unproductive, trivial or even a guilty pleasure. Once we grow up, we are supposed to focus our time and efforts on personal and professional responsibilities; for some people playtime gets squeezed out of their lives. And that's a shame, because play is just as essential for adults as it is for children. Play brings novelty and joy into our lives, and improves problem solving, creativity and relationships. The opposite of play is not work—it's depression. Stuart Brown, M.D., likens play to oxygen. "It's all around us, yet goes mostly unnoticed or unappreciated until it is missing."

Being playful comes natural for me, and it's one of my favorite aspects of being a dad. When I'm playing with my children I get to act like

a kid again. Last month on Spring Break, Joan and I were vacationing with the kids at a beach. We played all week long with a mix of teenagers and adults—volleyball out in the sun and the sand, barefoot soccer on a soft grassy field, walking on the beach, and snorkeling in the sea. No hard-core workouts allowed—this was all pure fun. Compared to working out alone, exercising around others leaves us feeling more mel-low and blissful thanks to higher endorphin levels. Do you enjoy team sports like softball and basketball, or group yoga or aerobics sessions; how about boxing classes, golf, tennis, walking, biking or jogging with one or more friends, or lifting weights in a gym?

You know that emotional rush you feel when you hear your one of your favorite songs? That's brain chemistry in action. Studies show that listening to music you enjoy stimulates your brain to crank out dopamine, the neurotransmitter most closely linked to excitement and exhilaration.

When you dance or exercise to music you enjoy, you will magnify the health and mood benefits of physical activity.

"You can't stop the future. You can't rewind the past. The only way to learn the secret...is to press play."

Jay Asher

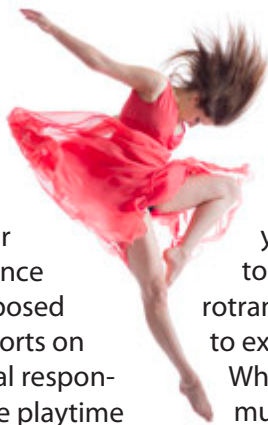
Good Clean Fun... in the Dirt

Playing in the dirt is another of my favorite ways to spend some

leisure time. There is something about digging in the soil and tending to plants that resonates with my soul and brings me joy. Springtime is such a natural high, especially after a long and brutally cold wintertime. Nothing chases away the winter blues faster than getting outside on a nice spring day to do some gardening—one of America's favorite hobbies. Remarkable new studies show that some of the bacteria found in soil can naturally stimulate release of serotonin in the prefrontal cortex—like Prozac does, except you earn this pleasure by planting trees, flowers and vegetables rather than swallowing pills from the drugstore.

Getting your own dose of good clean dirt is as easy as strolling in the woods or tending to a garden or lawn. My good friend Allen takes me out mushroom hunting and we traipse around in the woods collecting morels...and ticks (inadvertently). He threatens to blindfold me while he drives us to his hallowed and secret mushroom foraging spots so I won't be able to find them on my own.

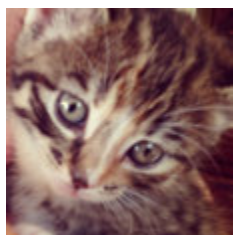
You won't be shocked to know that people are generally happier on the weekend, than during the work-week. This is in part because when you are away from work, your time is yours to do with as you please—and that turns out to be very important for your sense of well-being. You can make your weekends particularly relaxing and invigorating if you spend some of your free time playing outdoors with people you love. And you don't need to wait for Saturday or Sunday to get outside and play with your friends and family. Try to wedge some playtime into the week too.



Animal Play

Animals know how to have fun and are usually eager to play with their human friends. My wife Joan is always playing with one of our three dogs or three cats. Lola, a one-year-old kitten, is our most playful creature. She follows Joan around the house in the morning as the two of them play “make the bed.”

While Joan is tucking in the bed sheets, Lola jumps underneath the covers to hide, prompting Joan to jostle about the feisty little feline, who is “fighting back” while purring loudly.



Animals who live with us make us healthier and happier. In fact, recent studies show that pet owners feel better about themselves and tend to have more courage. Dog, cat or horse; it really doesn't matter—though I find that mammals are much more fun to hug than say...a lizard. Even just taking your dog out for a walk counts as playful fitness. When I am feeling a little tired or discouraged, I can just look into their adoring eyes, pet and talk to them while they lick me on the face or purr—it never fails to make me smile and lift my spirits.

Fun in the Sun and Water

Vitamin D deficiency is linked to Alzheimer's disease, depression, and heart disease. The best way to naturally raise your vitamin D levels: expose some skin—the more the better—to direct sunlight. Don't expose enough to get sunburned, but enough to leave you with a very faint pink tinge to your skin, which usually takes about 15 to 20 minutes



One of my long-time patients, Dirk, enjoys fishing at the nearby Lake of the Ozarks in his spare time.

of strong midday sun during non-winter months. As a guide, if the sun is over half way up in the sky (45 degrees) from the horizon (0 degrees) to directly overhead (90 degrees) your skin will be able to make some vitamin D when it's exposed to the sun.

A recent study from England found that ocean views and other blue spaces are the best landscapes for making us feel happier. Wallace J. Nichols in his new book *BlueMind* describes how being around water and gazing at oceans, lakes, or rivers inspires feelings of awe and wonder, “It spurs the brain to release a mix of dopamine, oxytocin, and endorphins,” Nichols explains. “It gives us a sense of oneness with the universe.” We may not have an ocean, but we have water everywhere. Kansas City is known as the “city of fountains,” so make it a point to enjoy the sights and sounds of our many fountains scattered around the metro area.

Recently, *The Economist* published an article entitled, “Get a life! Facebook is Bad for You.” The authors discussed how too much

screen time may be harmful for one's mood and work productivity.

A 2013 PLOS study found that excessive time spent on Facebook led to feelings of envy and a lower sense of well-being. Importantly, face-to-face time spent in the company of friends has the opposite effect—more time spent interacting in person translates to a happier mood. In a similar vein, a *National Geographic* survey called the True Happiness Test reported that the happiest people were those who viewed less than one hour of TV daily. Even unplugging from your smartphone, computer screen and TV for one day a week has been shown to improve happiness and work productivity.

Prescription to Play

Bottom line: play is not a waste of time; it's a pure expression of love of life. And if you do it right, play is also good for your health—both physical and mental. So, make it a priority to play, at least a little, every day—doctor's orders!

Exercise is the World's Best Medicine: Just be Sure to Get the Dose Right

By James H. O'Keefe, M.D.

Jake is a blue heeler/husky mix that Jeff adopted six months ago from Wayside Waifs. The two of them go out for a walk at least once a day. Jeff wears a pedometer and gets in about 10,000 steps per day. He has lost 35 pounds, and is feeling wonderful—sleeping soundly and looking fit and strong. When he came in to see me recently, we had to stop one of his blood pressure medicines and reduce the dose of his statin because his numbers were too low!

The American medical system is predominantly focused on treating diseases after they develop rather than preventing them in the first place. Many of the drugs used to treat these diseases often cause bothersome side effects. Cholesterol-lowering drugs are often associated with muscle and joint pains, blood pressure drugs can cause dizziness and fatigue, and Prozac and other widely used anti-depressant drugs often adversely affect sexual function. In contrast, regular exercise, compared to drugs, is inexpensive, safe, and powerful therapy for both treating and preventing disease.

So, exercise is arguably the world's most effective preventive medicine, and is unparalleled for improving health and wellbeing, as well as lowering health care costs. In fact, if a drug were developed that proved to be as effective as exercise for treating and preventing disease and disability, we would need a lot fewer hospitals! Regular exercise helps to treat nearly every illness across all of our body's systems, and

is especially potent against heart disease, depression, anxiety, insomnia, arthritis, osteoporosis, asthma and erectile dysfunction. As beneficial as regular exercise is for the body, it is even more important for your brain. Vigorous exercise works like Miracle-Gro for the brain—stimulating new neuron growth in the memory center (hippocampus). Daily physical activity is the single most important step for preventing Alzheimer's disease.

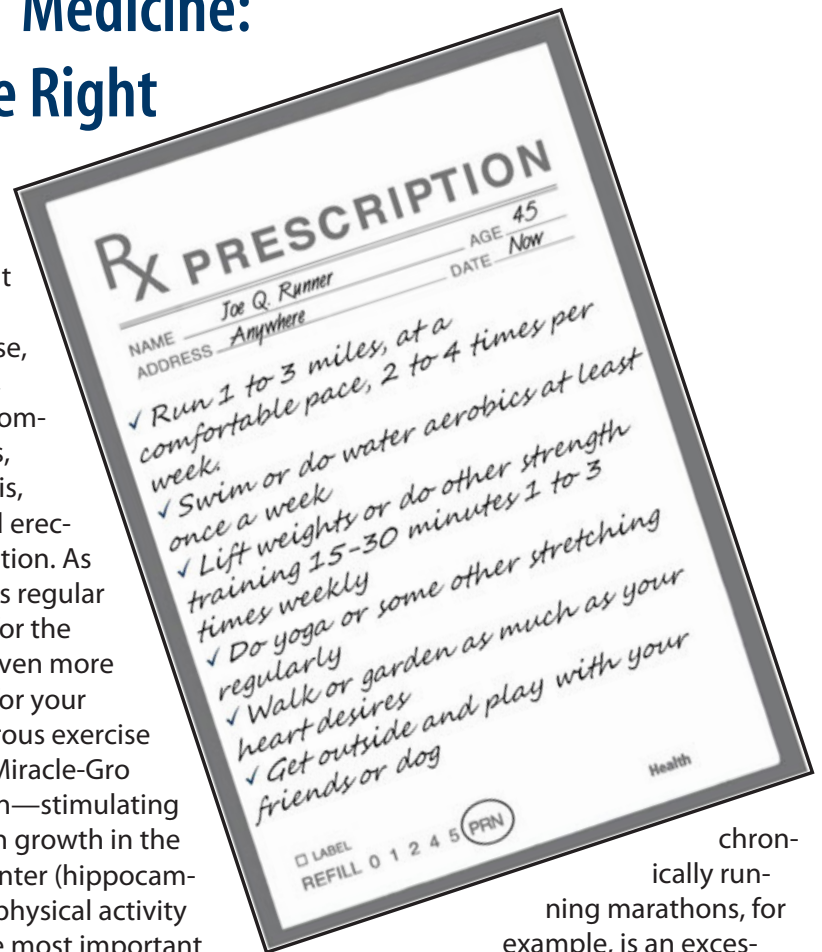
Health care costs are spiraling out of control, and are bankrupting our budgets—both personally and as a nation. Working on one's physical fitness can be free of charge, is easy to do anywhere, and confers benefits upon virtually every single person who does it—lowering his or her risk of early death and improving the quality of life.

Indeed, exercise is best understood as a drug with powerful benefits, especially for cardiovascular health. Yet, as with any potent drug, establishing the safe and effective dose range is critically important—an inadequately low dose may not grant the full benefits, whereas an excessive dose might produce harmful effects that outweigh its beneficial aspects. From both personal and scientific perspectives, I suspect that

chronically running marathons, for example, is an excessive dose of exercise, where the adverse side effects start offsetting the benefits. We and others have shown that extreme exercise, like marathons, ultra-marathons and full-distance (Iron Man) triathlons, may increase coronary artery plaque buildup, despite favorably altering many risk factors such as weight, blood pressure and risk of diabetes. A less extreme, more moderate dose of exercise might be a better strategy for promoting long-term cardiovascular health and durability. We recommend not more than 40 to 50 minutes per day of intense exercise, like running, particularly for individuals over age 45.

Below are two of my favorite strategies for getting folks to automatically increase their exercise, and have more fun at the same time:

1 Get an activity tracker. Wearable computers are the future—and



the future is now. Ditch your old-fashioned watch and get one of these smart little bracelets that will not only tell you the time of day, but will also continually inform you about how many steps you've taken today, how far you've walked or run, along with the number of calories burned, hours you slept, times awakened, and minutes it took to fall asleep.

Wearing an activity tracker is uniquely motivational—you will feel like you are suddenly “getting credit” for your efforts. By tracking your numbers, you will automatically be keeping your physical activity and your sleep habits “top of mind,” so that you just naturally find opportunities to take many more steps each day and prioritize your precious slumber time. I find it really fun to compare my activity and sleep data with my friends who wear an activity tracker too. Sporting one of these wearable computers is like wearing a “hipster badge” of sorts. If you look around closely, you will see an increasing number of trendy individuals with one of these cool activity trackers on their wrists.

2 Get a dog. This is a much more low-tech strategy for improving your fitness, but every bit as fun and effective. You will have an always available and enthusiastic exercise partner to whom you will be accountable. Once you get your pooch into the habit of a daily outdoor exercise session, he or she will make you feel guilty if you wimp-out and stay home. Importantly, studies consistently show that the supreme benefits of exercise are best bestowed by physical activity that is done outside and with at least one friend (canine pals count too). Having a dog makes it very easy to get in the habit of exercising outside daily with “man’s (or woman’s) best friend.”

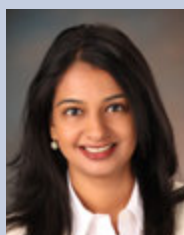
Three Physicians Join Practice

Three physicians are joining Saint Luke’s Cardiovascular Consultants this summer. They include Suzanne J. Baron, M.D., Matthew C. Bunte, M.D., and Deepa C. Upadhyaya, M.D.



- Dr. Baron has just completed a fellowship in structural cardiology with Massachusetts General Hospital, where she also performed fellowships in interventional cardiology and general cardiology. She also completed her residency in internal medicine at Massachusetts General. She earned her bachelor’s and master’s degrees from Harvard University, and her medical degree from Yale University School of Medicine.

- Dr. Bunte recently served as chief fellow in interventional cardiology with the Robert and Suzanne Tomsich Department of Cardiovascular Medicine with the Cleveland Clinic, Cleveland, Ohio. He earned his medical degree from the University of Minnesota, Minneapolis Medical School, Minneapolis, Minn., and a bachelor’s of arts degree from Hamline University, St. Paul, Minn.



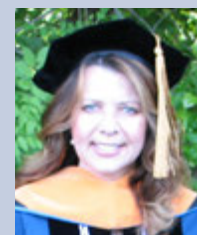
- Dr. Upadhyaya most recently served as the director of echocardiography at Kennewick General Hospital, Kennewick, Wash. She performed a fellowship in echocardiography at the University of California San Francisco, Cardiovascular Medicine, and was a cardiology fellow at the Cleveland Clinic in Florida. She was an internal medicine resident with Case Western Reserve University, Cleveland, Ohio, and an internal medicine intern with Tufts University, Baystate Medical Center, Springfield, Mass. She earned her medical degree from Northeastern Ohio University College of Medicine, and her bachelor’s of science from the University of Akron, Akron, Ohio.

All of the physicians are the recipients of a number of awards and have been published in several peer-reviewed journals.

Congratulations Dr. Becky Captain!

Becky Captain, R.N., M.S.N., D.N.P., graduated summa cum laude from Duke University in May, earning her doctorate of nursing practice.

Dr. Captain’s degree focused on developing leadership skills and scientific knowledge that will enable her to provide evidence-based approaches to long-term patient outcomes. Dr. Captain is the director of the Duboc Cardio Wellness Center.



**Any names of patients used in this newsletter have been changed to protect the privacy of these individuals, except in instances where they preferred that we use their real names. For additional copies of the newsletter, or to have your name added or removed from our mailing list, contact Lori Wilson at 816-751-8480 or e-mail: ljwilson@saint-lukes.org.*

Foods that Love Your Heart and Make Your Brain Happy

By James H. O'Keefe, M.D.

What you choose to consume can have a huge impact on the levels of critical neurotransmitters in your brain. Tryptophan, an amino acid found in some protein foods, is the body's building block for synthesizing serotonin, a neurotransmitter that tends to promote a sense of well-being. Foods rich in tryptophan include: pumpkin seeds, turkey, almonds, walnuts, cashews, split peas, black beans, spinach, egg whites, milk, and game meats like elk.

Fat accounts for 60 percent of the dry weight of the brain. Omega-3 fats in particular are the most critically important fatty acids in the cell membranes of the neurons that comprise your brain. These healthy omega-3 dietary fats, including docosahexaenoic acid (DHA) and eicosapentanoic acid (EPA), appear to support a cheerful mood and good mental health.

A recent study of military personnel reported that suicide risk was highest in the individuals with the lowest DHA levels in their

cell membranes. DHA and EPA are found predominantly in fish oil and cold-water fish such as salmon, mackerel, sardines, and tuna, along with shellfish including shrimp. Nuts and extra-virgin olive oil are other foods that are rich in brain-healthy monounsaturated fats and natural antioxidants. These foods have been shown to lower your risk for Alzheimer's disease and stroke.

Color of Your Urine Affects Your Mood:

Your mood will be better if you stay well hydrated. Surprising, but true—a new study found that dehydration makes you feel irritable and ornery. Getting dry and thirsty activates specific neurons that tell your brain the system is getting dehydrated. This in turn sours your mood and makes you feel cranky. So how much fluid do we need to drink to stay cheerful? Stick to the tried and true advice; 6-to-8 eight-ounce glasses of water per day is your goal. Your water needs will be even higher as you increase your physical activity. The color of your

urine is a reliable marker of your level of hydration: your urine should look clear to pale yellow, closer in color to white wine than Gatorade.

Green Tea and Black Coffee Also Brighten Your Mood

I must confess I'm hooked on green tea. I drink at least four or five cups every day. Wherever I go I carry a few teabags in my pockets or backpack. I just love the way it makes me feel—energized and focused, but still relaxed and happy. These positive effects on mood result from green tea's unique combination of a modest dose of caffeine with L-theanine—an amino acid that is the only compound in found nature or a pharmacy that boosts energy while at the same time lowering anxiety. The latest studies show that both tea and coffee not only brighten moods in the short term, but they lower risk of serious depression in the long run. Drink all the coffee you want—but cut yourself off after about noon to 2 p.m.—to make sure you sleep soundly at night. You can consume all the green tea your heart desires, and though I tend to avoid it within the two to three hours before bedtime, my 14-year-old daughter Caroline drinks green tea most evenings while she studies, and still conks right out when she snuggles into her bed.

Here's One to Your Health and Happiness

My grandmothers and great-grandmothers loved happy hour—having a glass or two of wine or beer, or even sipping a shot of whiskey while they socialized with




family and friends before dinner. It was no coincidence that they tended to outlive their hard-drinking husbands by decades.

We recently published an article showing that light-to-moderate drinkers (those who consume not more than 14 alcoholic drinks a week) tend to have better health, especially heart health, compared to non-drinkers or heavy drinkers. Red wine appears to be best, though any alcoholic beverage can confer health benefits if consumed responsibly. The key is to keep the dose in the safe range: not more than 14 drinks per week, ideally not more than one drink daily for women and up to two drinks per day for men. For many people, when it comes to alcohol, abstinence is easier than moderation. In this instance the old adage holds true: "One is too many and 10 is not enough."

Dark Chocolate— Best in Small Doses!

Cardiologists and nutritionists agree: dark chocolate in small doses can be good for one's heart health. The latest research suggests dark chocolate may help prevent atherosclerosis in arteries by making them more soft and supple, and restoring them to a more youthful condition.

A recent European study found that a once-daily small dose of dark chocolate that is high in flavanol antioxidants that can relax the



muscles in arterial walls and help enhance their natural Teflon-like non-stick surface, keeping the blood vessels dilated and smooth, which allows for enhanced circulation throughout the body. Even just the smell of chocolate has been shown to slow down brain waves and induce a calmer mood in many people.

Natural foods and beverages with deep hues, such as black coffee, green tea and black tea, red wine, dark chocolate, blueberries, blackberries and strawberries are rich in flavanols. These antioxidants rustproof your system, keeping your brain and body youthful, and reducing risk for heart attack, stroke, Alzheimer's and diabetes. But don't look for a "dark-chocolate pill," savor this health food as a treat.

Still, you chocolate lovers need to be careful, because chocolate can stimulate the release of endorphins—natural opium-like neurotransmitters that induce a sense of relaxation and well-being. So, even if chocolate has therapeutic heart benefits, it's like an addictive drug. Thus, it should be used in small doses, or not at all.

To be heart-healthy, it must be dark chocolate that is at least 70 percent cocoa. Here's the tricky part—the correct daily dose is not more than 12 grams, which is about the size of two Hershey's Kisses. Careful though, unless they are Hershey's Bliss Chocolate

Kisses, they won't qualify as the 70 percent cocoa. Still, keep that serving size in mind—it's about the size of two dice—no more. And by no means should you chocoholics take this as a license to binge on Snickers bars and chocolate cake; those standard high-sugar types of processed chocolate will only increase your risks for obesity, diabetes and heart attack.

My good friend Jerry eats a very healthy diet these days. He told me, "Since I stopped eating wheat, my small-dense (bad) LDL particle number has dropped by 50 percent, just as Dr. William Davis wrote about in *Wheat Belly*. Now I can eat nuts, which I could never do before. I also have two small pieces of dark chocolate, which might help my health and certainly is a good reward for eating healthy. I only eat dark chocolate, usually European with the first ingredient being cocoa, cocoa butter, cocoa solids, etc. and not sugar. Also, dropping wheat has made me change my taste buds and lose interest in anything that is processed."





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James H. O'Keefe, Jr., M.D., Editor-in-Chief

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A Secret to Health: Sleep Eight Hours During the Dark of the Night

While I was going to college, I lived with my grandmother Dorothy in her home. At the time I was a night owl—often up late studying or socializing. She would admonish me, "Jamer (my childhood nickname), an hour of sleep before midnight is worth two hours of sleep after midnight." In the decades since then, cutting-edge science has substantiated much of Dorothy's folksy intuition, including that old adage.



Our bodies are hard-wired to sleep during the dark nighttime, and be active during the daylight hours. Many powerful hormones including melatonin, vitamin D, adrenalin, and cortisol fluctuate in a circadian rhythm that allows us to rest more deeply, heal more quickly, and rejuvenate more fully if we go get to sleep by 9:30 or 10 p.m., and rise with the sun about eight hours later. On the other hand, eight hours of sleep between 1 and 9 a.m., for example, will not be as reinvigorating or restorative for your body and brain.

And though you might believe that you function just fine on five hours of sleep, the studies would indicate otherwise. Chronic sleep deprivation can make you fatter, dumber, crankier, and even sicker. In contrast, seven to nine hours of sleep during the dark nighttime hours can calm your high blood pressure, brighten your mood, sharpen your focus, enhance your creativity, bolster your memory, boost your sex drive, and make your immune system more effective at fighting off infections and cancers. So sweet dreams and thanks for reading!

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