

FROM THE HEART

Newsletter from
 **Saint Luke's**
 CARDIOVASCULAR CONSULTANTS

Silver Linings of the Pandemic

By James H. O'Keefe, MD

The Great Influenza—the deadliest pandemic ever—was first reported in 1918 in the sparsely populated county of Haskell, Kan. This was an H1N1 flu virus that likely mutated in a pig and spread to humans on a farm in the southwestern corner of Kansas.

Subsequently, a few new recruits from Haskell County reported to Camp Funston, located within Fort Riley, near Manhattan, Kan. At this camp, 56,000 U.S. soldiers were in training, waiting to be shipped out to Europe to fight in World War I (WWI).

At least one of these young volunteers from rural Kansas unknowingly carried the novel and lethal virus on arrival to Fort Riley. He went on to infect some of his fellow recruits, many of whom fell ill in transit to, or shortly after arriving in France.

From there, the contagious virus spread like wildfire around the globe. The Great Influenza eventually infected about 500 million people, or one-third of the world's population. It killed at least 50 million individuals,

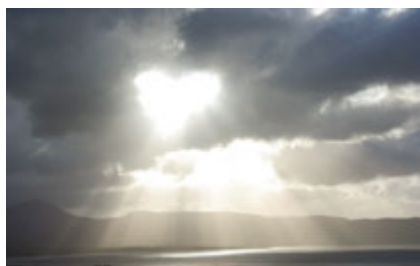
including 675,000 Americans, at a time when the world's population was only one-fifth of what it is today.

My grandparents were born between 1903 and 1908. They survived the Great Influenza, and then suffered through WWI, the Great Depression, and World War II (WWII).

Tough times don't last, but tough people do. My grandmothers always seemed to be happy and hardy, strong women of family

and faith. On the other hand, one of my grandfathers died of alcoholism shortly after WWII, and alcohol nearly killed my other grandfather before he "quit the drink for good."

In early March 2020, we suddenly found ourselves in an unimaginably dire worldwide catastrophe, and now we're living through perhaps the worst "tough time" of our collective lives. The weight of this crisis can crush us—or it can make us stronger. Look at what our grandparents lived through—it's not for nothing that they are called the Greatest Generation.



Get the COVID Vaccine ASAP

By James H. O'Keefe, MD

Ever had polio? How about smallpox, tetanus, or diphtheria? Of course you haven't, because you were vaccinated against these and other debilitating, often fatal diseases as a child. Smallpox was a common viral illness that killed about one in every three people who became infected. Over the past 1,600 years, smallpox ended the lives of hundreds of millions of people around the globe. An effective vaccine completely eradicated this disease with the last documented case being in 1977.

One of the reasons worldwide life expectancy surged upward over the past half-century is that we have developed safe and effective vaccines that prevent many of the most lethal viral and bacterial illnesses.

Now we have vaccines against the SARS-CoV-2 virus—the cause of COVID-19 infection. The two vaccines that have received FDA Emergency Use Authorization thus far are manufactured by the American pharmaceutical companies Pfizer and Moderna.

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Silver Linings of the Pandemic

Our current pandemic has presented us with ongoing challenges and disruptions. It's easy to get dragged down, especially with the sensationalized negativity on the news.

Alternatively, we can offer ourselves a perspective shift by looking for things that may have actually changed for the better, and things for which we are grateful. With this thought in mind, I asked my friends, family, and co-workers if they had found any silver linings in the black clouds we've been living under in 2020, and here's what they said:

Christina LeGay

"With gyms closed, my fiancé and I turned to the outdoors and at-home workouts, which have included a lot of yoga. Through all the uncertainty at the start of the pandemic, and now the second-wave, yoga has connected us in a new way and allows us both to center ourselves. One of the most empowering quotes from our favorite online yoga instructor is, 'All the strength and energy you need resides within you.' I have repeated that many times to myself since and have shared it with friends and family."

Allen Jetmore, MD

"People are riding bikes like crazy, and fishing too. There have not been so many kids fishing since the 1950s!"

Ryan Holiday

"As much as time has blurred together for some of us, it's also slowed down. Don't you feel like you've been really living lately—even though you're doing less? You're more focused. You're more rooted. You know what matters."

Randy Thompson, MD

"The pandemic has forced me to slow down my overly busy life. I've been able to spend more time with my wife and adult children, to sleep properly and to exercise more regularly. Despite the stress around us, with respect to our health and sense of well-being we're doing better than before the pandemic."

Andrew Kao, MD

"One of the biggest impressions or surprises for me has been the number of patients who go out of their way to ask how I am doing and to urge me to please stay safe. We have all dedicated our careers to caring for others, never expecting anything in return. These genuine expressions of concern and encouragement from patients have been so touching and very much appreciated. It gives me the extra energy to keep soldiering on, doing what I am trained to do."

Shaun Hamontree

"When we, like many others became victims of the various financial and social burdens that the pandemic brought, my amazing wife and I chose to embrace the tactile all around us. The feel of soil. The real smell of a flower. One note on a piano that you let completely ring out. Staring at my dog's eyes and noticing her pretty chestnut colored speckles."

Over the past months I've noticed how we've both slowed down and relished our moments, both together and in our individual endeavors. And while the stresses are very much there, they're now muted by a home full of slow-brewed love and music we are creating ourselves. These simple



Alex & Andy with new family member, Hank.

pleasures have always been here, we just never stopped and noticed them until now."

Tracy Stevens, MD

"Because of the pandemic, we now have a new member of our family—Hank. We lost our family dog over a year ago. Our son Alex brought home an orphaned shelter dog to foster for the weekend. Hank stole our hearts and we adopted him for good; he has brought us such laughter and pleasure since then. Brian and I escaped to our farm a number of times, and I relearned how to sit quietly and listen to the sounds of nature. I can't recall the last time I just stared up at all the beautiful stars. The experience has been the best treatment for my blood pressure."

As a member of SLCC for over 23 years, I have never been prouder to be part of this amazing group. My colleagues have shown unmatched resilience in addressing the challenges in health care brought on by the pandemic. Although we are working harder than ever, we remain committed to our patients, community, and each other.

The pandemic has also given me an opportunity to visit patients in their homes via virtual visits. I have been able to meet other members of their families, including their four-legged family members who insisted on being part of the visit. I have been given virtual tours in their homes, have seen the family photos and have heard some of the greatest fishing stories after seeing the fish mounts on the walls!”

Laura Schmidt, MD

“My twins, Eva and Vivian, are getting along so much better now than they were pre-pandemic. They used to bicker and pick on each other constantly; six months at home with only each other has made them best friends. We’re cooking more and eating healthier. We’re now better about making a meal plan and grocery list. By not traveling and eating out, we saved some cash too. Staycations meant finding new ways to have fun at home. I had always wanted to get into gardening and didn’t have the time to do so. My gardens this year were the best they’ve ever been, and I learned again how much I love being outside puttering in the garden.”



Twins Eva and Vivian are now best friends.



Katie playing outdoors.

Katie O’Keefe, Licensed Professional Counselor

“With my work as a psychotherapist now on a telehealth platform, I can work virtually anywhere, which means I can spend weeks at a time with my mother in North Dakota. And without a commute time and a much lighter ‘social calendar,’ I have been able to enjoy more play time — hiking, knitting, painting, cooking, more time outdoors, and even neighborhood pickle ball! Prior to the pandemic, with life in full swing, it was more of a challenge to find that healthy work/life balance. As a society, the brightest and most far-reaching silver lining has been our focus on, and boosting of, wellness efforts. The pandemic has exposed just how pervasive our collective struggles are with anxiety, depression, and substance use. Having been stigmatized for far too long, we are now talking much more openly about mental health and wellness. The silver lining here is how people are sharing, seeking out support, and learning new strategies for living and thriving.”

Felice Gersh, MD

“As COVID took hold, my career was ultra-busy, with a full-time medical practice and frequent lecturing at conferences. COVID initially slowed my medical practice, and all the conferences I was slated to speak at went virtual, ending my travels and reducing

my workload. These changes suddenly provided more time for other activities—leisurely outdoor lunches, hiking local trails, reading books I’d had no time for, and the opportunity to write articles for medical journals. We have this amazing gift—our lives. We can live only in the moment. Facing a pandemic with its potential to steal our lives or those of our loved ones, can lead to fear and inaction, or can enable us to live each day with more awareness and gratitude for what is real and meaningful to us...and that is what I have endeavored to do, and to more deeply appreciate everything and everyone...each and every day of my life.”

Peggy Panis

“Thank God for technology. Video chat and FaceTime were a game-changer when my dad was in the hospital without visitors. We were able to have conversations with the doctors when they made rounds. Seeing and hearing friends and family made the pandemic feel less isolating.”

F. Joseph Glynn

“Pre-COVID, my work required significant travel. Along with the rest of the world, my business travel came to a crashing halt. My wife, Kerry, was always working from home, but now our son Daniel was home from college doing virtual classes, and son Jack was working from our home too. It was wonderful; we had more together time as a family. Homemade pizza, with everyone helping in a festive manner, became a Friday norm. At quitting time, Jack and Daniel would have the soccer ball or badminton rackets out in the backyard. Kerry and I found solitude hiking and biking on obscure trails deeper in the foothills near our Boulder, Colo., home.”

My Mom's Recipe for Staying Fit During and After the Pandemic

By Jessica E. Sturgess, MD, with Mary Sissons

My mom, Mary, first became a certified aerobics instructor 30 years ago. Four years later she started teaching physical fitness classes to senior citizens in our hometown of Port Perry, Ontario in Canada and she has been doing so ever since. She has attended over 20 yearly CanFitPro aerobics conferences because she is passionate about cardiovascular fitness, mobility, and nutrition. I am biased, but I would say that she is truly an inspiration. She turned 70 this year, and you would never guess it. She remains dedicated to teaching her aerobics classes each week and getting out in nature every day. I asked for her thoughts on how to keep our older citizens well during the pandemic.

What motivates you to stay active?

Exercise makes me happy and it gives me energy; so does being outside. Knowing this gets me out the door every day, even if it's raining or cold outside. My Fitbit keeps me honest. I get 10,000 steps a day at a minimum. I am happiest walking alone because I can go at my own pace and listen to my own thoughts. Group fitness is fun too, especially with good music!

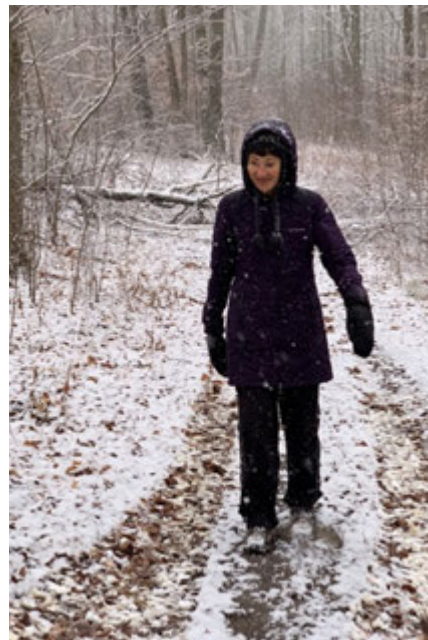
How can seniors keep themselves strong and mobile during the pandemic?

- Aim to be active for 30 to 60 minutes every day, ideally outside and with good company (your canine best friend, for example).

- Weight bearing exercise is so important for maintaining muscle mass. It's also important to maintain upper body strength. Some examples of exercises that are easy to do at home or in an open space with friends include squats, stair climbing, push-ups against a wall or on the floor with bent knees, light weights, and work with a resistance band. These should all be done with an emphasis on good form and joint protection.

- Core strength is key. It's so important for preventing back pain and injuries. Mat work is avoided by many older adults because getting down and back up is a concern. Yoga can help because there are many good transition poses. Chairs can also be used as props for those who can't get on the ground. Core bed exercises can be done each morning while lying in bed in less than 10 minutes. They will get your heart rate and blood pressure up, and then there are no worries about blood pressure drops as you get out of bed. I swear by it. My routine includes toe touches, dead bug, bicycling the legs, bridge raises (double or single leg), runner's hip stretching, and windshield wipers for stretching the hips.

- Balance activities are just as important. Yoga is excellent and many online videos are available that can be used on a laptop or smartphone. Check out Yoga with Adriene—she's the best! There are other simple exercises that can be worked into any schedule, such as brushing your teeth while balancing by the sink on one leg, or balancing while working in the kitchen.



Mary out for her daily walk near Port Perry, Canada.

- Make a point of developing active hobbies, such as gardening and mowing the lawn. These can become part of your routine. Take the stairs whenever possible. Choose the farthest, not the closest, parking spot when shopping. Shop in large stores or malls to get in some walking when the weather is especially bad.

- Outdoor activities such as biking, skiing, snowshoeing, canoeing, kayaking, and hiking are wonderful, and can be easily done with social distancing.

- If going to an exercise class and getting outside are not possible, then simply put on your favorite music and dance or march to it. Music is a great motivator and it can make just about any activity more fun. Use your arms as you march or dance. Walking in the woods or by a lake is always good, but walking anywhere is better than sitting.

- Bodywork, such as going to the chiropractor or getting a massage, should be used as needed. Aging doesn't have to be painful.

What keeps you in good spirits?

Spending time with people who like to laugh and who make me laugh. I do my best to surround myself with people who do not spread negativity. Family time always brightens my day, even if it's by phone or video chat rather than in person.

Gratitude is important. Every night before sleep, I think of three people or things that I'm grateful for.

I love yoga and tai chi, both of which focus on breath and movement.

I stay connected to our community through volunteering at our hospital auxiliary store. It always feels good to give back.

Never underestimate the power of a good night's sleep.

What are your top tips for maintaining a balanced diet?

- Water is #1 on my list. I start the day with a glass of warm water with half a lemon. I drink eight glasses of water a day, plus green or herbal tea. I also love my daily coffee.
- Eat the most for breakfast, less for lunch, and least at dinner.
- Incorporate fresh fruit, vegetables, and lean protein at every meal.
- My favorites are green veggies, like kale and swiss chard, colorful berries, oranges, kiwi, and proteins like tofu, legumes, low-fat cheese, yogurt, fish, and eggs.
- Save treats for the weekend. My must-haves are dark chocolate and red wine, always in moderation.
- Avoid soda/pop, juice, and energy drinks. It's better to eat the fruit and drink pure water instead of downing fruit juice—that way you will get more fiber and fewer calories. Herbal teas are nice alternatives. They are hydrating, relaxing, and contain no calories.

New Research Finds Promising Therapy to Prevent Alzheimer's Disease

A new study authored by Saint Luke's Mid America Heart Institute cardiologist James O'Keefe, MD, suggests that therapies to block a hormone called tumor necrosis factor, or TNF, can greatly reduce the risk of developing Alzheimer's disease.



Dr. O'Keefe and his fellow researchers—including two of the world's premier Alzheimer's prevention physicians—Dr. Gary Small from UCLA, and Dr. Richard Isaacson from Cornell—hypothesized that taking inhibitors to reduce chronically elevated levels of TNF could prevent Alzheimer's disease and improve mental health.

The physicians conducted a comprehensive analysis of all published scientific studies and concluded that TNF-blocking agents are consistently associated with a decreased risk of Alzheimer's disease. The most potent TNF blocking agents are injectable biological drugs including etanercept (Enbrel) and adalimumab (Humira) used to treat autoimmune diseases like rheumatoid arthritis and psoriasis.

Curcumin, the active ingredient in the spice turmeric, is a natural compound sold as a supplement that also strongly reduces TNF levels in the body. Theracurmin, a highly absorbable form of curcumin, was effective in improving memory in a small randomized trial in older adults without dementia. It was also effective for reducing beta amyloid plaques and tau tangles—the pathologic findings seen in the brains of Alzheimer's patients.

"This is so exciting because inhibiting TNF looks like the most promising approach for preventing this devastating disease," Dr. O'Keefe said. "The data are remarkably consistent from observational studies, small randomized trials, and animal data. TNF inhibition is a scientifically plausible strategy that could reduce the risk of developing Alzheimer's disease by 50 to 70 percent. I've been working on research and education my whole career and published 423 scientific articles; I don't think I've ever been more excited about the potential importance of a new treatment strategy."

Dr. O'Keefe stated that this is still a hypothesis and he hopes this new scientific analysis will convince researchers and pharmaceutical companies to do large clinical trials to further investigate potential brain benefits of TNF inhibitors like Enbrel, Humira, and Theracurmin in populations at risk of Alzheimer's.

Disclosure: Dr. James O'Keefe is Chief Medical Officer/Founder of CardioTabs, a supplement company that sells Theracurmin.

Menopausal Reflections

By Felice L. Gersh, MD

I can vividly recall the sick resignation I felt as I looked at the lab tests confirming what I already knew—at age 43, I had entered menopause. My periods had stopped, and I was getting night sweats and hot flashes.



My tests showed that my estrogen level measured in the low menopausal range, and FSH, a pituitary hormone that rises as ovarian estrogen declines, was sky high. As the significance of my lab results fully registered, I rapidly alternated between sadness and fear for my future. As an OB/GYN doctor, I was well-acquainted with this scenario, but as a woman, I was devastated.

Instead of mourning, I became an expert in the science of ovarian senescence—aging of the ovaries. During a woman's menopausal transition, the ovaries stop making hormones. Most importantly, they stop making estrogen. Estrogen is a hormone, and hormones are messengers, delivering information and instructions to cells.

Ovarian estrogen, called estradiol, is the master hormone of female reproduction. It turns out that Estradiol is also key to female health—mind and body. In this second role, estradiol is a master controller of metabolic homeostasis, which is defined as the ability to maintain a relatively stable internal state that persists despite changes in the world outside.

Estrogen is critical to the production, maintenance, consumption, and storage of energy throughout the body. Energy is the essence of life it-

self; estradiol is its driver and regulator. Virtually every organ in the body has estrogen receptors and requires estrogen for optimal functioning.

Without adequate estrogen, the body can survive, but nothing works quite right. This body-wide dysfunction manifests as a state

of chronic low-grade inflammation, referred to as “inflammaging.” We now know that menopausal inflammation is the driver of the diseases associated with aging—osteoarthritis, osteoporosis, Alzheimer's Disease, and of cancers such as breast, uterine, and colorectal.

Estrogen deficiency also underlies the most common cause of death of postmenopausal women—cardiovascular disease. Without adequate estrogen, the lining of arteries becomes inflamed, causing hypertension. Atherosclerosis and unstable plaque can develop. Cholesterol levels rise and oxidation (likened to rusting) of cholesterol occurs. Insulin resistance increases, raising the incidence of prediabetes and diabetes. The heart muscle can develop a state of energy deficiency, making it “stiffer,” and its electrical conductivity may falter, leading to an increasing incidence of arrhythmias.

The more I learned about menopause, the more frightened I became. But I also learned that there is much we can do to optimize postmenopausal health. By eating the right foods, timed to our inborn rhythms, by getting plenty of sleep and exercise, by living with the natural rhythms of the 24-hour day, and by focusing on

love and happiness, we can maintain our metabolic health.

These are the daily rhythms and protocols that I live by:

- Eat predominantly plant-based foods with only small amounts of healthy animal products.
- Eat a large healthy breakfast, a medium lunch, and a small early dinner, and stop snacking.
- Keep a regular bedtime and be sure to get 7-8 hours of sleep.
- Exercise regularly and sweat!
- Focus on meaningful relationships and find purpose in your life.

Additionally, I believe every menopausal woman should seriously consider taking human-identical, often called bio-identical hormones as soon as she enters menopause.

The pervasive fear of estrogen arose from a large study done by the Women's Health Initiative, which studied equine (horse) estrogen combined with a synthetic progestin. They gave women these hormones that didn't naturally exist in the female human body.

Of course, the outcomes were different and not as favorable had human hormones been studied. Those “foreign” hormones do not deliver the same messages to cells as our “real” estrogen. But when women take the hormones naturally found in our bodies and given the right way to achieve physiologic hormone levels, the messages delivered are the right ones, and the desired state of metabolic homeostasis can be maintained.

When I went through menopause, I had to make the same gut-wrenching choice that all women face—do I be-

lieve that Mother Nature knows best and that losing my hormones is what's best for me, or do I follow the science and choose to maintain youthful hormones even though my body can no longer produce them?

The natural world is full of events that are both natural and horrific. Salmon die after spawning. Black widows eat their mates. Menopause is natural, but it does not grant women enhanced health. Based on my scientific studies, I chose to replace my estrogen and progesterone.

Throughout menopause, I have harnessed the innate abilities of my body to stay healthy, combined with bio-identical hormone therapy. This has enabled me to live with excellent health throughout the many years that have come and gone since I first got the news of my very early menopause. Despite the heightened health risks that come with early menopausal onset, I suffer from none of the diseases and conditions I mentioned earlier, in spite of the fact that I am now well into my 60s.

Because I am healthy and energetic, I am free to follow my passions. I still practice full-time integrative women's health care at my office. I lecture nationally and internationally and write prolifically. I am a forensic medical expert on high-profile cases. I am always busy doing work that I find interesting and fulfilling. And I am not a medical miracle. I have many patients who made the same choices I did, and they are in excellent health, just like me!

A long health span can be achieved. Women statistically live longer than men, but with far more chronic diseases, yet this need not happen. The initial shock of learning of my early menopause has long since dissipated. By choosing the healthiest lifestyle and by taking safe and efficacious hormones, I lead the life I love.

Get the COVID Vaccine ASAP

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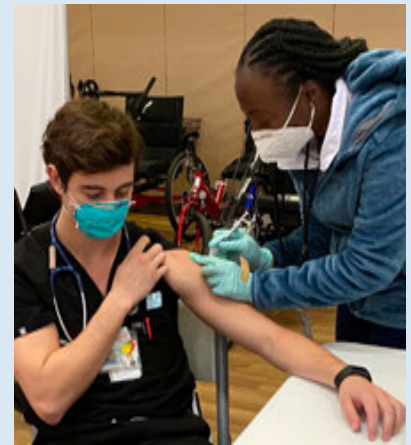


Both of these vaccines, which are based on mRNA technology, have been scientifically proven to be 95% effective in preventing COVID infection. They were even more effective in preventing severe and fatal cases. It is remarkable that in the 30,000-person Moderna trial, their mRNA vaccine was 100% effective in preventing severe COVID disease and death. Importantly, these vaccines by Pfizer and Moderna have been tested in 75,000 people and were found to be very safe, in addition to being highly effective, as judged by an independent panel of vaccine experts.

After getting the COVID vaccine, your B-cells learn how to produce antibodies custom-made for attaching to and destroying the SARS-CoV-2 virus. Your body will also squirrel away a store of long-lived memory B-cells that know how to produce those specific antibodies. So, if your immune system ever detects the SARS-CoV-2 virus in your system, it will jump into action, quickly building up an army of immune cells equipped with weapons tailor-made for killing these nasty invaders before they get a foothold.

Although these vaccines are very safe, you should expect minor symptoms during the first 24 hours after getting the shot. The most common complaints are fatigue, muscle aches, headaches, and chills. These are not adverse reactions—they are evidence that your immune system has detected a foreign invader and is mounting a defense against it. These vaccines contain mRNA that codes for the spike protein on the surface of the SARS-CoV-2 virus, but they can't cause an infection. Even so, your body responds to this potential threat and learns how to defeat the virus should it encounter it in the future.

In summary, the mRNA vaccines against the SARS-CoV-2 infection are a monumental triumph of American science and technology. Astoundingly, our scientists in less than one year have produced a game-changing vaccine that will keep us safe from COVID-19. My son Evan, who graduated from medical school earlier last year, has recently received the Pfizer vaccine because he is on the front lines caring for COVID patients in an Intensive Care Unit. I too have gotten my COVID vaccine, and I will make sure everyone else in my family gets it as soon as they can. You and everyone you care about should also get the vaccine. The sooner we are all vaccinated, the sooner we can resume our normal lives.



Evan getting his COVID-19 vaccine.

Why Andorrans Have the World's Best Life Expectancy

By James H. O'Keefe, MD

In early February of 2020, just before the coronavirus pandemic caused the world to grind to a halt, I had the opportunity to visit Andorra—a tiny nation perched high in the Pyrenees Mountains on the border between Spain and France.

Though just 50,000 in number, Andorrans are renowned for their happy and hardy nature; and they enjoy the longest life expectancy of any country. For this reason, I have always wanted to visit Andorra to experience their culture first hand and get a feel for why they have such exceptional longevity.

When I was invited to the Global Omega-3 conference in Spain, I pulled up a map of Europe and saw that Andorra was only 135 miles north of Barcelona—where the meeting was to be held. I jumped at the opportunity and invited my son Evan and daughter Kathleen to join me.



Evan and Kathleen in Andorra.

Our 3-hour road trip from Barcelona to Andorra was an awe-inspiring drive through snowcapped peaks and alpine lakes. We went through 20 tunnels, some of them several miles long, and the road was constantly switching back and forth with hairpin curves and steep climbs. Thankfully, the highway was meticulously maintained and there were few other vehicles on the road. I realized one of the reasons that so few people live in Andorra is that it would have been nearly impossible to get there in centuries past.

Andorra, comprised of a scant 181 square miles, has always maintained neutrality, never getting into conflicts with its neighboring countries. Plus, its secluded setting in the middle of snowcapped peaks has allowed them to live undisturbed for 1,200 years.

Skiing is their national sport in the winter. When the days get longer, and the bright sun melts the snow, the Andorrans hike along streams, kayak in lakes, and climb up into the mountains. In the summer, competitive cyclists come to Andorra to train on the steep and winding roads.

Though Andorra is a mountainous country, it is only 100 miles from the Mediterranean Sea. Through the ages, the Andorrans have followed a version of the traditional Mediterranean diet they call Catalan cuisine, with its emphasis on vegetables, nuts, berries, and olive oil. Fish from the alpine lakes remains a staple, but the Catalan diet also includes moderate amounts of lamb, chicken, and goat cheese, with a glass or two of red wine at the evening meal.



Everyone we met was friendly and relaxed and they all seem to know each other, which may in part explain why there is almost no crime in Andorra. Their health care system is very good, with a strong emphasis on prevention.

Evan and I snowboard, whereas Kathleen prefers to ski, but we all agreed that our time cruising down the pristine slopes in Andorra was one of our favorite winter adventure trips ever. There were no lift lines, and the lift ticket prices were about half of what they are in Vail, Beaver Creek, Aspen, or Keystone. The altitudes at the peaks of the ski areas in Andorra are about 8,000 feet, compared to 12,000 feet at the peaks of the Colorado resorts. This made exercising in the Pyrenees much less taxing than we were used to in the Rocky Mountains.

According to the World Health Organization, the average Andorran lives for 85 years—the best life expectancy of any country, with Japan coming in a close second.

We got to know one local citizen, Alex, a 36-year-old chef who owns and operates a superb little restaurant called La Cort in the mountain village of Soldeu, where we stayed.



His relatives have generally lived into their 80s and beyond in good health, and his grandfather lived to age 96. When I asked him why he and his fellow Andorrans enjoy such remarkable vitality he said, "It's very quiet and relaxed here, with no traffic, honking horns, or stress."



Enjoying Alex's cooking and his stories were highlights of our Andorra trip.

Indeed, we noticed that the people strolling around the cobblestone streets never seemed to be in a hurry. Alex told me, "We breathe fresh air, and drink pure water." The mountain air did seem crisp and fresh; and their crystal-clear water comes from glacial runoff and alpine lakes. Alex told us that as a boy he and his friends routinely drank water straight from the lakes and streams.

Andorra is not a wealthy nation, but there is virtually no poverty. The economy is based on banking and tourism. The low tax rates encourage many Europeans to deposit money in Andorran banks, and there is no tax on food or liquor, so some locals use gin as their windshield washer fluid because they can buy it for about \$2 per liter.

Alex says sometimes Andorrans' slow pace of life can irritate some visitors. "Grandpas play card games on outdoor tables at restaurants, and sometimes we take two hours to do something that can be done in half an hour." I will have to admit that we noticed the service was not the speedy pace we are used to in the U.S.

He also said, "It is a very nice place to raise your children. It's super safe, which means people are not concerned about their security at any point. If you feel safe and calm, then you enjoy your life better." We certainly enjoyed life while we stayed in Andorra, which seems like a long-ago, surreal dream looking back now from the depths of the pandemic. But this too shall pass, and one day soon we will all be able to get back out there, exploring our amazing planet once again.

Take-home Longevity Tips from the Andorrans:

- **Get outdoors to get some exercise, sunshine, and a dose of nature.**
- **Relax, slow down, and enjoy the company of others.**
- **Eat a Mediterranean diet. By the way, a little fresh, red meat won't kill you.**
- **Drink lots of clean water.**
- **Try to avoid polluted air.**
- **Surround yourself with people you trust.**

Extra-Virgin Olive Oil: Golden Foundation of the Mediterranean Diet

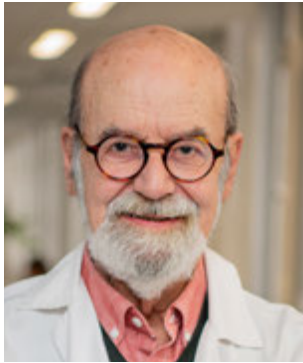
By Emilio Ros, MD, PhD

Extra-virgin olive oil (EVOO) is the flavorful, tasty, and nutritious culinary fat of the traditional Mediterranean diet—characterized by a high consumption of olive oil, nuts, fruits, vegetables, legumes, and whole grains; moderate consumption of fish, poultry, eggs, and fermented dairy products (yogurt and cheese); but low consumption of red meat, processed meats, sweets, and sugar-sweetened beverages. Alcohol is allowed in moderation, mostly as wine consumed before or during a meal.

The Mediterranean diet/lifestyle involves consuming fresh, local, seasonal, and ecologically friendly foods (sustainability), eating a variety of foods (biodiversity), limiting serving sizes to modest portions (frugality), sharing time and food with family and friends in the kitchen and at the table (conviviality), being physically active each day, and prioritizing daily rest and relaxation. This is not merely a Mediterranean diet; it is the Mediterranean culture!

Unlike most other healthy diets, the Mediterranean diet encourages a high-fat content, mostly due to generous intake of nuts and olive oil. Importantly, using EVOO for dressing salads and cooking vegetables improves their palatability, thus facilitating consumption of substantial quantities of greens and other veggies.

Have you tried to eat cooked green beans, peas, and carrots (or any other



veggies) plain, without EVOO and a dash of salt? Maybe you use canola, corn oil, or safflower oil, but to we Mediterranean citizens, these oils are almost tasteless and do not encourage us to eat our greens. If you have traveled in Spain, Italy, or Greece, you will have noticed that their restaur-

rants always have a bottle of EVOO at the table to pour generously on your foods.

You've probably heard that the Mediterranean style of eating is one of the healthiest dietary patterns around. The scientific evidence is abundant and irrefutable. There is consistent evidence from many large prospective studies that increasing adherence to Mediterranean-style diets by different populations is associated with a reduced risk of overall mortality, in addition to lower rates of cardiovascular diseases (heart attack and stroke), high blood pressure, diabetes, and neurodegenerative diseases, such as Alzheimer's disease. In summary, people following the true Mediterranean diet enjoy healthier and longer lives.

I live in Barcelona, on the shores of the Mediterranean Sea, and have followed this diet since I was a kid. At home we have always insisted on fresh, seasonal Mediterranean products. We eat together around a table whenever possible, and eat slowly, savoring the meal, and enjoying the company. There is always olive oil at the table and a glass of red wine for

lunch and dinner. This was how my father reached age 99 and my mother 89. They were in good health and cognitively intact, which is no small feat! As we shall see, olive oil should get much of the credit for the beneficial effects of the Mediterranean diet.



Mediterranean Gold

Olive oil is obtained from the fruit of the olive tree (*Olea europaea*), which was first cultivated in the Middle East at the dawn of the agricultural revolution 10,000 years ago. The olive tree, its fruit and oil were central in the ancient civilizations and trade of Assyrians, Phoenicians, Egyptians, and Greeks. The Romans widely cultivated olive trees in all suitable areas with a mild climate along the territories of the Roman Empire, particularly in Hispania (known as Spain in modern times), which still is the top olive oil producer in the world.

The Roman emperor Hadrian, born in Spain, adopted a branch of the olive tree as the symbol to represent Roman Hispania. Much later, after the devastating wars of the 20th century, a white dove carrying an olive branch was chosen as the worldwide recognized symbol of peace.



Besides using olive oil as culinary fat and for produce preservation, the ancient inhabitants of the Mediterranean utilized it as a basic ingredient of medicines, skin lotions, perfumes, body massage oil, lubrication of machinery, maintenance of metal tools, and for lighting lamps at dusk.

In the 16th century, the Spanish conquistadors brought olive sprouts to the Americas, where olive trees thrived in areas with a climate similar to the Mediterranean, including parts of Argentina, Chile, and California, where high-quality olive oil is still produced today. Last but not least, olive trees, which can live for hundreds of years, are beautiful with their twisted trunks, silvery leaves, and green/black tantalizing fruits.

My personal history with olive oil goes back to 1945, the year of my birth. As a boy, my mother used to send me to the local market to buy olive oil, sold only in bulk at that time. So I went with an empty, 1-liter green-colored bottle, and I was always amazed at the contraption that delivered the oil. It was like an ancient gas pump that drew the oil up from a tank below the floor to fill a glass container with a golden oil alive with awesome bubbling.

When this container was full, the grocer (a gentle graying middle-aged lady always dressed in dark colors, with a worn grey apron), put a cork in the bottle, and then I hurried back home, taking extra care not to fall or spill the precious oil. My prize for the errand was a delicious “pan con

tomate,” one half of a ripe tomato rubbed on bread toasted until it is reddish, then topped with a little salt and olive oil. This is still a favorite treat for me and my family even today—great for breakfast or a light dinner with a French omelet!

Olive Oil: Quality is Key

As in the Roman times, EVOO is produced using a traditional stone mill for cold-pressing fresh-picked olives. This is pure “olive juice,” high in oleic acid—a healthy fat—in addition to potent anti-inflammatory and antioxidant components from olives that imbue EVOO with a somewhat bitter taste.

Indeed, the intensity of that black-pepper-like burn at the back of your palate is proportional to the amount of polyphenols present in the olive oil. You can also perceive this slight pungent sensation at the back of your throat due to polyphenols in other healthy natural foods like walnuts, pecans, pomegranate seeds, and some berries.

Ordinary or refined olive oil is obtained from high-acidity, left-over olive oil by extraction methods that use chemical solvents, bleaches, and deodorizers. Heavily processing the oil eliminates color, odor, and flavor, making the olive oil taste more neutral, but this also removes all of the health-promoting antioxidant compounds.

Health Benefits of EVOO

When it comes to olive oil, the quality is crucial for bestowing health benefits. Astoundingly, a recent study found that, for every 10 grams (about 1 tablespoon) per day increase in consumption of EVOO, there was a 10% reduction in the risk of cardiovascular complications like heart attack and stroke. In contrast, consumption of refined olive oil, low in polyphenol

antioxidants, had no health benefits.

Antioxidant molecules such as polyphenols in extra-virgin olive oil are believed to underlie many of the benefits of olive oil for the heart, including lower rates of cardiovascular diseases, atrial fibrillation, and diabetes.

These salutary effects have been confirmed by scientifically sound randomized trials, mainly the landmark *Prevención con Dieta Mediterránea* (PREDIMED) study, conducted in Spain, and for which I was privileged to design and enforce the dietary intervention.

This study recruited nearly 7,500 older men and women at high cardiovascular risk. One-third of the participants were assigned to a traditional Mediterranean diet supplemented with EVOO (to consume at least 4 tablespoonfuls per day), another third of participants to a Mediterranean diet supplemented with nuts (30 g/day of a mixture of walnuts, hazelnuts, and almonds), and the remaining third, to a diet low in fat, meaning little olive oil and no nuts.

After five years, both groups of the Mediterranean diet—those consuming the EVOO, or those consuming the nuts, enjoyed a 30% decrease in the incidence of adverse major cardiovascular events. These results provide first-level scientific evidence of the cardioprotective properties of EVOO within the context of the Mediterranean diet.

Of note, the 30% reduction in heart attack and stroke achieved with the supplemented Mediterranean diets is similar to the best results obtained using drugs such as statins, but without the side effects; and no prescriptions needed!

In spite of the high-calorie content of olive oil and nuts, in the PREDIMED

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Kathleen's and Leonard's Secrets to Longevity

By James H. O'Keefe, MD

Dr. Emilio Ros, MD, PhD, is a brilliant endocrinologist/researcher who lives and practices in Barcelona, Spain. We have become friends while working together on various nutrition-related endeavors for the American College of Cardiology. Emilio graciously accepted my invitation to write an article for *From the Heart* about olive oil—one of the best foods for conferring brain and heart health, as well as for promoting longevity.

Emilio grew up in Spain on the Mediterranean coast eating a diet naturally rich in nuts and extra-virgin olive oil. He also designed and carried out the PREDIMED Trial—widely considered perhaps the most important diet study ever done.

The other diet expert who I consider my most trusted source for navigating the often-confusing world of nutrition is my wife, Joan O'Keefe. Like nearly all physicians, I received no education about nutrition in medical school or during my training to be a cardiologist.

Joan is a registered dietitian who taught me most of what I know about nutrition, which is just one of countless reasons why marrying her was the best thing that ever happened to me. Like



Joan, age 7, with Gourmet.

Emilio, Joan has remarkable instincts about nutrition that run much deeper than her formal education. She grew up as an only child of Leonard and Kathleen, eating what in essence was a traditional Mediterranean diet.



Leonard and Kathleen.

Leonard was born in Hawaii in 1911 to Portuguese immigrants. He was a child of nature—always outside playing barefoot in the sand (he received his first pair of shoes when he was 10 years old). For after-school snacks he and his friends would pick fruit and dive for abalone from the beaches of Waikiki on the Pacific Ocean.

When he graduated from high school, he moved to the mainland where he worked as a longshoreman in San Francisco. That's where he met Kathleen. The two of them settled down and built a suburban home in Walnut Creek, where Leonard turned their yard into an orchard/garden. Leonard's favorite pastime was gardening, and he supplied their little family with a year-round bounty of vegetables, fruits, berries, and nuts.

When I asked Joan what he planted and harvested, she closed her eyes and visualized her childhood yard. "We had a huge vegetable garden, multiple berry bushes, two cherry trees, an apple tree, apricot tree, plum tree,

lemon tree, persimmon tree, guava tree, walnut tree, and an almond tree."

When Kathleen was a young woman, a doctor mistakenly diagnosed her with diabetes. Subsequent tests reassured her that she was not diabetic, but Kathleen took that scare as a warning and decided she would take control of her future health by learning everything she could about nutrition. Kathleen never went to college, but she was a smart woman who became a self-taught authority on the topic of nutrition. While Joan was growing up, she recalls often seeing her mother sitting cross-legged on her bed surrounded by books and articles, earnestly poring over all the information she could find on diet and health.

Leonard worked on the Fisherman's Wharf and would often bring home fresh seafood/fish as the day's catch was being unloaded from the boats. Every day, Kathleen would make a large salad of greens dressed with generous amounts of extra-virgin olive oil and red-wine vinegar. She steamed vegetables and served only whole natural fresh foods, salted to taste.

They never had dessert, but they had happy hour every night before dinner, during which they would often socialize with neighbors on the back patio. They virtually NEVER went out to restaurants, and when they finished dinner at about 6:30 p.m., they NEVER ate anything else. Kathleen and Leonard would go to bed early and fast 13 or 14 hours every night, then awaken early the next morning. They were joyful, active, mentally sharp folks with very good general health until they died of old age rather suddenly—Leonard at 94, and Kathleen at 99.

Kathleen and Leonard developed a nearly ideal diet/lifestyle and followed this for almost a century. Meanwhile the “U.S. diet experts” were advising Americans to avoid all dietary fat and instead eat 11 daily servings of bread and other carbs—a diet almost guaranteed to increase belly fat and raise the risk of diabetes.

Fast forward to Joan. Well, the apple didn't fall far from the tree. Joan's unerring intuition on diet and lifestyle arose organically during the first 19 years of her life while she lived with Kathleen and Leonard.

Luckily for us, our four children and I were indoctrinated into that diet and lifestyle, which not coincidentally is



Joan in her favorite part of the grocery store.

quite similar to the traditional diet followed by peasants living on the shores of the Mediterranean Sea. Much like

Leonard, they derived most of their food from their gardens, orchards, vineyards, and the ocean.

Gardening is one of my favorite hobbies too; though we purchase our peasant Mediterranean food at the supermarket. Joan prepares meals almost exactly like Kathleen taught her, and I have stopped even suggesting we go out for dinner—Joan's a homebody.

As Emilio will enthusiastically tell you, the traditional Mediterranean diet and lifestyle is a delicious way to eat and an enjoyable way to live. Give it a try—pretend you're a Mediterranean peasant—transported to 21st century America.

Extra-Virgin Olive Oil

Continued from page 11

study body weight did not increase in the Mediterranean groups. The reason may be that olive oil and nuts are satiating, allowing one to eat less of other foods.

Furthermore, the oils in nuts and EVOO are preferentially burned for energy rather than stored as body fat. I have never been overweight, despite pouring lots of olive oil on my food my whole life. My wife, who is also slim, scolds me for using too much olive oil, but I know that it's good for me.

Conclusions

The Mediterranean diet best fulfills the need for nourishment, health, and pleasure. Extra-virgin olive oil is the foundation of this diet, and is obtained by cold pressing ripe olives so as to retain their healthful antioxidant polyphenols. By the way, olive oil sales increased by 30% during the COVID lockdown in Spain, meaning that people were doing more cooking at home the Mediterranean way!

Olive oil is also healthy for the planet. It comes from the fruit of a tree that can live hundreds of years and catches CO² year-round, so olive oil is highly sustainable and helps to lower greenhouse gases. Hence, olive oil helps mitigate climate change and fosters planetary health, besides enhancing human existence. Use olive oil and let food be thy medicine!



Journey from Broken-Heart Syndrome to Heart of a Healer

By Jessica Love, MSN, APRN, FNP-C

In our lives, there are experiences that change us forever. An unforeseen event occurs that completely shifts our perception of our internal and external worlds. And if we open our hearts and listen closely, it's often an opportunity to learn valuable life lessons.



severe illness, or being the victim of a violent crime.

Whether it's fear or dread, love or affection, envy or sadness, anger or hate, pride or shame—every emotion instantaneously registers its effects on your heart. Perhaps you won't be surprised to learn that

In March 2016, I woke up on life support in the cardiovascular intensive care unit (CV ICU), with a breathing tube down my throat and multiple IV lines pumping medications into my body. I remember a physician asking me to shake my head “yes or no” in response to questions and to squeeze her hands. She seemed relieved when I was able to follow these commands.

The physician explained to me that my heart had stopped, and it took 7 minutes of full-on resuscitative efforts before my heartbeat was restored. During this time, I had a seizure, which raised concerns about how long my brain was deprived of oxygen. I was diagnosed with Takotsubo cardiomyopathy, also called stress-induced cardiomyopathy, or broken-heart syndrome. It is one of the most extreme examples of a stress-induced illness.

Approximately 90% of Takotsubo cases occur in females, typically post-menopausal women. It's called broken-heart syndrome because it is often triggered by severe emotional and/or physical stress, such as a natural disaster, death of a loved one,

Takotsubo cases have increased 500% during the COVID pandemic, even among people who have not had the SARS-CoV-2 infection.

The unrelenting and protracted stress of this virus has raised levels of fear, anxiety, and depression to unprecedented levels.

Four-and-one-half years ago, I was a critical care nurse studying to become a nurse practitioner (NP). I lived at a hectic pace, with anxiety and stress as my constant companions, but this was nothing out of the ordinary for me. I idled on a level of high anxiety, a constant worrier, always pushing myself to achieve more.

I believe that I had become desensitized to the “fight or flight” response because I was constantly living with chronically high adrenaline levels. Even so, I am a generally happy person with a wonderful life, supportive friends and family, and in good physical health. I was 30 years old without any of the classic cardiovascular risk factors like diabetes, high blood pressure, high cholesterol, or being overweight. I had learned about Takot-

subo in school, but never in my worst nightmare did I imagine it would nearly end my life.

I woke up the morning of March 1, 2016 feeling lightheaded, dizzy, and weak. I checked my pulse and found my heart was racing. I skipped my usual morning coffee and hurried to a clinical training session for my NP program. The symptoms spontaneously resolved, but suddenly returned later that day.

The physician I was working with recommended I be evaluated in the emergency department. I did not listen, as I thought this was perhaps just a simple panic attack (though I'd never had one before).

By the time I made it back to my apartment on the Plaza, I was experiencing severe chest pressure, shortness of breath, and heaviness in my legs. I was so weak I could not open a can of soup. I kept thinking, “I'm healthy, there's no way that this could be anything more than a panic attack. I can run for miles and I eat cleaner than anyone I know.”

I went to my parents' house in Lee's Summit to check my blood pressure as I was unable to get a manual reading at home. I was also unable to get a reading on their machine, and I noticed my arms were turning very pale.

I finally checked myself into the emergency department at Saint Luke's East and was found to have a heart rate of over 180 beats per minute and systolic blood pressure in the 70s. I watched the emergency department nurses, respiratory therapists, and phy-

sicians working quickly with obvious concern.

My clinical condition deteriorated despite multiple IV medications. My blood pressure was dropping, my heart racing, and I couldn't catch my breath. The physicians recommended I be intubated and life-flighted to Saint Luke's Hospital on the Plaza for further management. I asked to see my parents one more time and told them I loved them very much. The physicians then administered the IV sedation and everything went black...

I woke up several days later in the CV ICU. I was on a ventilator and I remember there being so many IV lines—some in my neck, arms, and groin. I was afraid to move. I had worked as a critical care nurse for many years and I could not believe I was now on the other side of the bedrails.

Attempting to gain some control of a situation in which I felt frightened and powerless, I wrote on paper while intubated, asking about my vital signs, asking to be turned or to have the

breathing tube suctioned, asking what the plan was. With time, the lifesaving devices and medications were no longer needed, and I was transferred out of the ICU.

Although my body was recovering from cardiogenic shock, I was still very much in shock mentally. I remember walking in the halls, trying to regain my strength and realizing I was, by far, the youngest person on the cardiac floor. After suffering from the sudden onset of nearly fatal Takotsubo heart failure, in a matter of days my heart had regained its normal strength.

My family never left my side. My friends came to visit and would say, "Jess, we didn't realize you were that stressed, you should've called us!" The problem is, I didn't feel like I was that stressed. I was later discharged and spent a week at my parents' house. To be honest, I was afraid to go back to my apartment for fear of dying alone in my sleep. After some soul-searching, courage, and prayer, I returned home, and things gradually started to get back to normal.



The NP program recommended I take the semester off, but I declined. I graduated with a 4.0 GPA, as I had planned, but there was something different: my awareness of the mind-body connection. The realization that high levels of stress and anxiety cannot only affect our mental and emotional state, but can also severely impact our physical health.

Caring for our emotional well-being is just as important as caring for our physical needs. The interconnectedness of the mind and body fascinated me. I began practicing yoga regularly, meditating, and reading countless books about the mind-body connection. It became a priority in my life.

I would love to tell you that I no longer have anxiety or stress, but that is absolutely not the case. What I do have are tools to manage it. Sometimes we can't control the external stressors we are experiencing, but we can change how we perceive and respond to them.

If you take only one thing from my story, please pay attention to your stress level and take healthy steps to support your mental and emotional health. In this time of heightened feelings of distress, with extraordinary

Techniques to Reduce Stress and Achieve Relaxation

Meditation	Deep breathing exercises
Yoga/Tai Chi	Being in nature
Laughter	Daily affirmation or spiritual practice
Enjoying a light-hearted book or movie	Pets
Guided imagery	Practicing sleep hygiene
Music, dancing, and art	Spending time with friends and family

Potential Benefits of Practicing Relaxation Techniques

Slowing heart rate	Lowering blood pressure
Slowing your breathing rate	Improving digestion
Maintaining normal blood sugars	Reducing activity of stress hormones
Increasing blood flow to major muscles	Reducing muscle tension and chronic pain
Improving concentration and mood	Improving sleep quality
Lowering fatigue	Reducing anger and frustration
Boosting confidence to handle problems	Improved relationships

Broken-Heart Syndrome

levels of anxiety, fear, sadness, and social isolation, paying attention to your mental health is more important than ever.

Spend some time figuring out what in your life journey needs extra attention, taking into consideration mental, emotional, and physical health. Becoming aware of these multidimensional aspects will empower you to make the changes needed for improved vitality. This requires open-mindedness and vulnerability to investigate these areas. It also requires willingness to do the work. Even the smallest changes, if done consistently, can make a difference.

I am currently an advanced practice provider/nurse practitioner working in cardiology at Saint Luke's Hospital, and I also have the privilege of working in the Charles and Barbara Duboc Cardio Health and Wellness Center. I feel honored to be working with some of the most brilliant cardiologists in the nation. Some were involved in my care when I was hospitalized, in addition to the intensivists, hospitalists, and the amazing nurses from the CV ICU and the heart failure floor.

My journey inspired me with a sense of mission and a strong passion for integrating aspects of the whole person—emotional, physical, and spiritual—when developing a plan to help patients reach their optimal state of health.

Words will never be able to express the gratitude I have for the health care team at Saint Luke's. You saved my life, and now I am able to share my story with others. Thank you from the bottom of my previously broken, but now healthy and grateful heart.

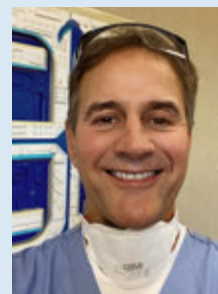
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Dr. O'Keefe

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Words to Live By...

"The surest way to happiness is to seek it for others."

Martin Luther King Jr.

"The best thing about the future is that it comes one day at a time."

Abraham Lincoln

"To achieve great things, two things are needed; a plan, and not quite enough time."

Leonard Bernstein

"Embrace this power, this of being part of a larger whole. We are all just humans doing the best we can. We are all just trying to survive, and in the process, inch the world forward a little bit. Help your fellow humans thrive and survive. Contribute your little bit to the universe before it swallows you up; and be happy with that. Lend a hand to others. Be strong for them and it will make you stronger."

Ryan Holiday

"What progress have I made? I have begun to be a friend to myself."

Hecato of Rhodes

"Regardless of your age, an old person is someone who's at least 15 years older than you are now."

James O'Keefe, MD

"If you're waking to an alarm in the morning, you're not getting to bed early enough. Keep moving your bedtime earlier until you awaken naturally, to the sound of birds chirping rather than some grating alarm noise startling you out of a peaceful dream."

Joan O'Keefe

"Trouble knocked at the door, but, hearing laughter, hurried away."

Benjamin Franklin

"For the most transformative things that we do in our lives, the real payoff is not what we get for our efforts, but instead who we become by doing the work."

James O'Keefe, MD

"Have you ever noticed that anybody driving slower than you is an idiot, and anyone going faster than you is a maniac?"

George Carlin

"Change is not a four-letter word...but often your reaction to it is."

Jeffrey Gitomer

"Always remember that you are absolutely unique. Just like everyone else."

Margaret Mead

"All the things I really like to do are either immoral, illegal, or fattening."

Alexander Woollcott

"Men marry women with the hope they will never change. Women marry men with the hope they will change. Invariably they are both disappointed."

Oscar Wilde

"Grief is the price we pay for love."

E.A. Buchianeri

"It would be nice to spend billions on schools and roads, but right now that money is desperately needed for political ads."

Andy Borowitz



Should You Be Taking Your Meds for High Blood Pressure at Bedtime?

By James H. O'Keefe, MD

Recently one of my patients asked, "I have always taken my medicines for high blood pressure in the morning. But I read that it may be better to take them at bedtime instead. Should I change when I take my blood pressure medications?" The answer may be yes, but don't change your high blood pressure medication schedule without talking it over with your personal physician or nurse practitioner/physician assistant.

Surprisingly, for most people blood pressure tends to be highest when they first wake up, even after a great night's sleep. The renin-angiotensin-aldosterone system (RAAS) is a key controller of blood pressure, and its peak activity occurs during sleep. Also, the major stress hormones cortisol and epinephrine peak just before or after rising from bed—as if your body is kick-starting your system so you can seize the day.

This is probably why the early morning hours are associated with the highest risk of heart attack and stroke. It takes a few hours after most medicines are taken for them to achieve peak blood levels. When you take your high blood pressure medications at bedtime, they will be maximally effective during these dangerous early morning hours.

For years, studies have hinted at the possibility that some blood pressure medications might be more effective

when taken before bedtime, but most physicians still recommend a morning schedule for taking them for hypertension—the medical term for high blood pressure.

A landmark study in the prestigious *European Heart Journal* in October 2019 focused on answering the question regarding the best time of day to take blood pressure medicines. A group of researchers in Spain enrolled 19,000 volunteers with hypertension and randomly assigned them to take their antihypertensive (blood pressure lowering) drugs either in the morning or just before bedtime. The two groups of 8,500 patients were virtually identical with respect to age, sex, weight, baseline blood pressure readings, cholesterol level, and the presence of other coexisting serious medical problems.

After following these two groups of study participants for an average of 6.3 years, they found that the drugs were significantly better at lowering blood pressure when they were dosed at bedtime. More importantly, the bedtime dosing also reduced risks for major complications of high blood pressure, including heart attack, stroke, death from cardiovascular (CV) disease, and need for coronary stents or bypass to open blocked heart arteries.

Remarkably, the risk reductions for these CV catastrophe diseases were not just a bit lower; bedtime-dosing of

the blood pressure medicines cut the rate of these major adverse CV events in half. Furthermore, the people who took their blood pressure medications before bed appeared to have no more side effects than the group who took them in the morning. Specifically, the bedtime dosing didn't cause a higher rate of dizziness and falls while getting up at night to use the bathroom.

This very large and well-done study raised a lot of eyebrows among physicians and forced us to rethink how we dose blood pressure medicines. This certainly doesn't apply to all blood pressure drugs, or all people with hypertension. For example, if you are on more than one medicine for high blood pressure, we often prefer to dose some in the morning and others in the evening to avoid side effects and smooth out the 24-hour blood pressure readings.

Even so, this is a landmark trial that will change practice. It is worth discussing the timing of when you take your blood pressure medications with your doctor. However, the best time to take your medications is when you can reliably and consistently take them with the fewest missed doses. It's always a good idea to keep track of your blood pressure at home with your own cuff (we recommend any of the Omron blood pressure monitors), particularly after any changes in medications themselves, or in the dosing schedule.

Renal Denervation: A New Treatment for High Blood Pressure

High blood pressure, or hypertension, is a disorder that affects over 1 billion people worldwide. When left untreated it can lead to a variety of poor outcomes, including heart disease, stroke, and even premature death. Because of this, it is important to diagnose and effectively manage all those who have the disease, typically through a combination of diet and lifestyle modifications, exercise, and medications. Still, many people struggle to control their blood pressure, even with multiple medications.

Individuals with uncontrolled hypertension may be interested in a clinical study that is evaluating the Paradise® Ultrasound Renal Denervation (RDN) System, a new approach using ultrasound energy, to lower blood pressure and reduce the need for blood pressure medications.

The Paradise Ultrasound Renal Denervation System is a device designed to decrease the amount of activity in the nerves leading to the kidney. Overactivity in these nerves can often contribute to hypertension. The Paradise System is delivered via a minimally invasive procedure in which a catheter is placed in the femoral artery, a blood vessel in the upper thigh. From there, the device is brought into the blood vessel leading to the kidneys, and ultrasound energy is used to decrease the activity in those nerves. The catheter is removed leaving nothing behind. Hopefully, after the procedure the patient's blood pressure will be lower and require less medication to control.

Currently, the Saint Luke's Mid America Heart Institute has the opportunity to participate in the RADIANCE II ultrasound renal denervation trial, under the supervision of Jason Lindsey, MD, Primary Investigator. The goal of this trial is first to document the safety of the investigational device and second, to determine whether or not the procedure is effective in improving the participants' blood pressure.

Those involved in the study must be 18 to 75 years old, previously have been or currently are taking antihypertensive medications, and have an average blood pressure of >140/90mmHg and <180/110mmHg on a stable dose of zero to two types of antihypertensive medications.

For further information or to refer a patient to determine whether they may be a candidate for the RADIANCE II trial, please contact Clinical Research Coordinator Dana King at 816-932-4948, or email: ddakon@saintlukeskc.org.

Two Cardiologists Join SLCC

Chetan Huded, MD

Dr. Huded was born and raised in Connecticut. He earned his bachelor's degree at the University of Chicago and medical degree at Geisel School of Medicine at Dartmouth.



His internal medicine residency and chief medical residency were completed at Northwestern University. Additionally, he earned a master's in clinical investigation. Dr. Huded also completed fellowships in cardiology and interventional cardiology at the Cleveland Clinic, where he also served as Chief Cardiology Fellow.

Dr. Huded is board certified in internal medicine, cardiology, nuclear cardiology, and interventional cardiology. He specializes in procedures that treat coronary artery disease, acute myocardial infarction, valvular heart disease, and other structural heart conditions.

Shailja V. Parikh, MD

Dr. Parikh was born in Chicago, Ill., and was raised in Lawton, Okla. She earned her medical degree from the accelerated combined degree program at the University of Missouri-Kansas City.



Dr. Parikh completed her residency in internal medicine and fellowship in cardiovascular diseases at the University of Texas-Southwestern Medical Center at Dallas. During her cardiology fellowship training, she received the American Heart Association Women in Cardiology Trainee Award for Excellence.



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