

# TMC | PULSE

NEWS OF THE TEXAS MEDICAL CENTER — VOL. 6 / NO. 10 — NOVEMBER 2019

## High Cholesterol: An Ancient Problem

p. 18

PREVENTING  
MUSCLE DECLINE,  
p. 7

HELPING VETERANS  
BREATHE EASIER,  
p. 26

HEALTH RISKS OF  
MICROPLASTICS,  
p. 28

# There is no wrong way to take a CME ethics course.



Join more than 100,000 medical professionals who get free CME with Texas Health Steps Online Provider Education. Choose from a wide range of courses relevant to your practice, including short tutorials and podcasts on topics like Medicaid guidelines, ethics and mental health — all available 24/7. **Learn more at [TXHealthSteps.com](https://TXHealthSteps.com).**



**TEXAS**  
Health and Human  
Services

*Texas  
Health  
Steps*

## FEATURED COURSES



### ADDRESSING ACEs:

Learn how to identify, treat and reduce the effects of trauma and toxic stress and reinforce resiliency in young patients. Earn ethics CME.



### INTERPERSONAL YOUTH VIOLENCE:

Implement proven strategies to identify, intervene in and prevent behaviors such as bullying, self-injury and suicide, dating violence and sexting. Earn ethics CME.



### TEEN CONSENT AND CONFIDENTIALITY:

Learn about legal requirements for obtaining consent and maintaining confidentiality while treating adolescents. Earn ethics CME.



# Nationally Ranked

## Cancer Care

When it comes to overcoming cancer, it's more than offering new hope through discovery. It's about providing the highest possible level of care as one of only three NCI-designated Comprehensive Cancer Centers in Texas. It's about giving patients access to the largest clinical genetics program in the nation at Baylor College of Medicine. It's about giving our patients, their families, and the community more.

More at [ComprehensiveCancerCenter.org](http://ComprehensiveCancerCenter.org).

**BEST  
HOSPITALS**

**U.S. News** & WORLD REPORT

**NATIONAL  
CANCER  
2019-20**

## Baylor St. Luke's Medical Center

DAN L DUNCAN  
COMPREHENSIVE  
CANCER CENTER

Baylor  
Medicine





Mark Mulligan/Houston Chronicle. Used with permission.

### WILLIAM F. McKEON

*President and Chief Executive Officer, Texas Medical Center*

Imagine you're a high school student and you dream about attending college when you graduate. Your financial needs are significant—you know college will require scholarships—but, fortunately, your grades are strong and your extracurricular achievements are considerable. The future looks bright.

Then, the news hits you when you arrive home from school one afternoon. Your 18th birthday you were looking forward to next week? There won't be a celebration. Your foster parents inform you that, since you soon will be an adult, the guardianship payments they receive for caring for you will end. As a result, they say, it's time for you to move out—immediately.

For a while, you find temporary refuge with friends. But as the months drag on, and through no fault of your own, you eventually end up living on the street and fending for yourself. Suddenly, you're homeless.

Every year, young men and women in every city in the United States become part of the homeless community. The scenario described above is all too common. More than a quarter of foster children become homeless within a few years of leaving the foster system. These young adults—in some cases, teenagers—are likely not the people you see panhandling on street

corners. In fact, you probably won't see them at all, as they're in the shadows—especially vulnerable and afraid.

Fortunately, here in Houston, the nonprofit Covenant House Texas provides a safe haven for these young people. Staff and volunteers travel the city daily, searching for young adults and providing them with food, housing, job training and life skills lessons, as well as medical, dental and mental health care.

The stories I hear when I visit Covenant House are heartbreaking, but they also fill me with a renewed sense of purpose and hope. I'm always impressed with how ambitious and eager these men and women are, despite the obstacles they've encountered.

As I drive through our city each day, I'm reminded of these young people who face tremendous adversity and I'm hopeful that we will find them before they fall victim to even greater harm. I am proud to work closely with Covenant House. I invite others to join me in supporting this important organization that defends some of our community's most vulnerable residents.

A handwritten signature in black ink that reads "William F. McKeon". The signature is fluid and cursive, with a long, sweeping underline.

### SLEEP OUT: EXECUTIVE EDITION

More than 4 million young people in the United States will face homelessness this year. You can help. [Join business leaders in Houston](#) who are raising critical funds and awareness to ensure these young people have a safe place to sleep at Covenant House. On **November 21**, spend part of the night getting to know the youth whose lives will be better because of your work—then spend the rest of the night sleeping on the street in their place. *For more information, email [fbroussard@covenanthouse.org](mailto:fbroussard@covenanthouse.org) or call 713-630-5670.*

## TMC | PULSE

Vol. 6 No. 10

November 2019

President and Chief Executive Officer  
William F. McKeon

Communications Director  
Ryan Holeywell

Pulse Editor  
Maggie Galehouse, Ph.D.  
[mgalehouse@tmc.edu](mailto:mgalehouse@tmc.edu)

Assistant Editor  
Cindy George  
[cgeorge@tmc.edu](mailto:cgeorge@tmc.edu)

Staff Writers  
Alexandra Becker  
Britni R. McAshan  
Shanley Pierce

Photojournalist  
Cody Duty

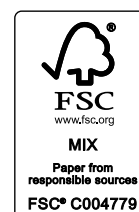
NEWSROOM  
713-791-8812  
[news@tmc.edu](mailto:news@tmc.edu)

ADVERTISING & DISTRIBUTION  
Joseph Gray  
713-791-8829  
[newsads@tmc.edu](mailto:newsads@tmc.edu)  
[distribution@tmc.edu](mailto:distribution@tmc.edu)

READ US ONLINE  
[tmc.edu/news](http://tmc.edu/news)

FOLLOW US  
 @TXMedCenter  
 @texasmedcenter  
 @thetexasmedicalcenter

*TMC Pulse* is an award-winning monthly publication of the Texas Medical Center in Houston, Texas. Permission from the editor is required to reprint any material.



11

Getting Fitted  
with a Custom Hip

20


Talking to a Genetic  
Counselor

22

Using Mini Brains to  
Maximize Research

32

How Loneliness Compounds  
Age-Related Diseases

- 
- A woman with dark, curly hair, wearing a blue suit and a dark blue bow tie, stands in profile, looking to the left. She is positioned in front of a large, aged map of Harris County. The map is yellowed and features various place names and geographical features. The text 'MAP OF HARRIS COUNTY' is visible on the map. The woman's hands are clasped in front of her.
- 4 Vitals: New screening tool for PTSD shows promise
  - 10 Next Med: Raising the quality and quantity of donor lungs
  - 13 Curated: Horizon's Hope garden
  - 14 Spotlight: Harris County Judge Lina Hidalgo ►
  - 34 Field Notes

**ON THE COVER:** An intricately wrapped mummy at the Louvre Museum in France.



## New screening tool for PTSD shows promise

A new screening tool to test for post-traumatic stress disorder (PTSD) in veterans could be a game-changer in diagnosing a condition that has relied on patients to report their own symptoms.

Researchers at New York University, Harvard University and the U.S. Army have developed the biomarker screening tool. Their findings, published in the September issue of *Molecular Psychiatry*, identified more than 300 candidate biomarkers and selected 28 of them for the final panel, including epigenetic signals, metabolites, microRNAs, heart rate and certain proteins believed to be associated with PTSD. The biomarker panel was able to differentiate veterans with and without PTSD with 81 percent accuracy.

"This is really the tip of the iceberg. Having 28 biomarkers that they validated at least once, that's already a great accomplishment," said David P. Graham, M.D., associate professor of psychiatry and behavioral sciences at Baylor College of Medicine and the Michael E. DeBakey VA Medical Center. "It's really going to, down the road, I think, help us better understand the biology underlying PTSD."

For clinicians, one of the major challenges in mental health care is connecting patients to the best treatments as quickly as possible, Graham said. A PTSD biomarker screening tool that will continue to be developed and refined could revolutionize the diagnosis and treatment of mental health.

"Right now, we really have no way to

choose one treatment over another for a given individual," Graham explained. "It would really help us fine-tune what we do to treat people."

Approximately 11 to 20 percent of veterans who served in Operations Iraqi Freedom and Enduring Freedom suffer from PTSD, along with 12 percent of Desert Storm veterans and 30 percent of Vietnam War veterans, according to the U.S. Department of Veterans Affairs (VA).

PTSD symptoms fall into four major categories: intrusive thoughts, avoidance, arousal and reactive symptoms, and negative changes in thoughts and feelings. Currently, in order to be diagnosed, patients must disclose and self-report symptoms to health care providers. Due to the stigma of mental illness in the military, though, PTSD is thought to be widely underreported.

A biomarker panel could remove associations of disgrace or shame associated with mental illness to pave the way for more accurate reporting.

"How many people feel stigma from having diabetes?" Graham said. "None, because ... it's a biological issue and people get treatment for it. This is going to start putting the biology into PTSD that we don't currently have. I can only see that as being helpful."

In addition, although rare, some veterans have falsely claimed to suffer from PTSD to receive disability payments from the VA, experts said.

"Because of that, some of the people may read the symptoms and project

those symptoms," said Asim Shah, M.D., professor and executive vice chair of the Menninger Department of Psychiatry at Baylor. "I'm not saying everybody does, but people can. Based on that, if you have a definitive test, it has a big role, especially in the military population, to determine which patients test positive or negative for PTSD."

Further development of the new screening tool—with broader parameters—would yield more detailed results.

The recent study was limited to a small sample size of male combat veterans with and without PTSD. It did not include women. PTSD can also be caused by sexual trauma and assault, with approximately 23 percent of women reporting being sexually assaulted while serving in the military, according to the VA.

Additionally, the biomarker panel detected PTSD among veterans who reported a history of both PTSD and major depressive disorder versus those who reported PTSD alone, which raises the question of whether the test picked up biomarkers for depression or PTSD.

The researchers behind the biomarker panel are currently seeking approval by the U.S. Food and Drug Administration to pursue further testing and expand the parameters of their study to include female veterans and civilians with PTSD, according to the *Journal of the American Medical Association*.

"We're looking for a specific diagnosis, so we need to isolate the biomarkers," Shah said. ■

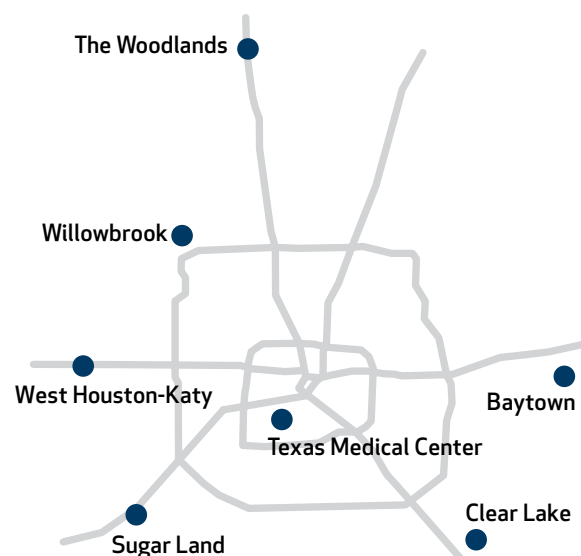




# OUTSMARTING CANCER TAKES LEADING MEDICINE.

**Our nationally recognized  
specialists are finding new ways  
to outsmart cancer.**

From screenings and diagnosis to the most advanced treatments, our leading cancer care is available at seven locations across Greater Houston with personalized guidance and support, so you can focus on healing, surviving and thriving.



HOUSTON  
**Methodist**<sup>®</sup>  
CANCER CENTER

713.790.2700  
[houstonmethodist.org/outsmartcancer](http://houstonmethodist.org/outsmartcancer)



# THE HEART OF INNOVATION

## Setting the pace for cardiovascular care in Greater Houston.

At Memorial Hermann, our team of world-renowned, affiliated heart physicians provides innovative cardiovascular care – from revolutionary new medications, to minimally invasive procedures for correcting atrial fibrillation or repairing heart valves to innovations in heart and lung transplants. These cutting-edge solutions are less traumatic and aim to reduce a patient's pain and recovery time. Our innovations are putting Memorial Hermann at the forefront of advancing heart health in Greater Houston and helping our patients lead a better quality of life.

Learn more about heart care at [heart.memorialhermann.org](http://heart.memorialhermann.org)

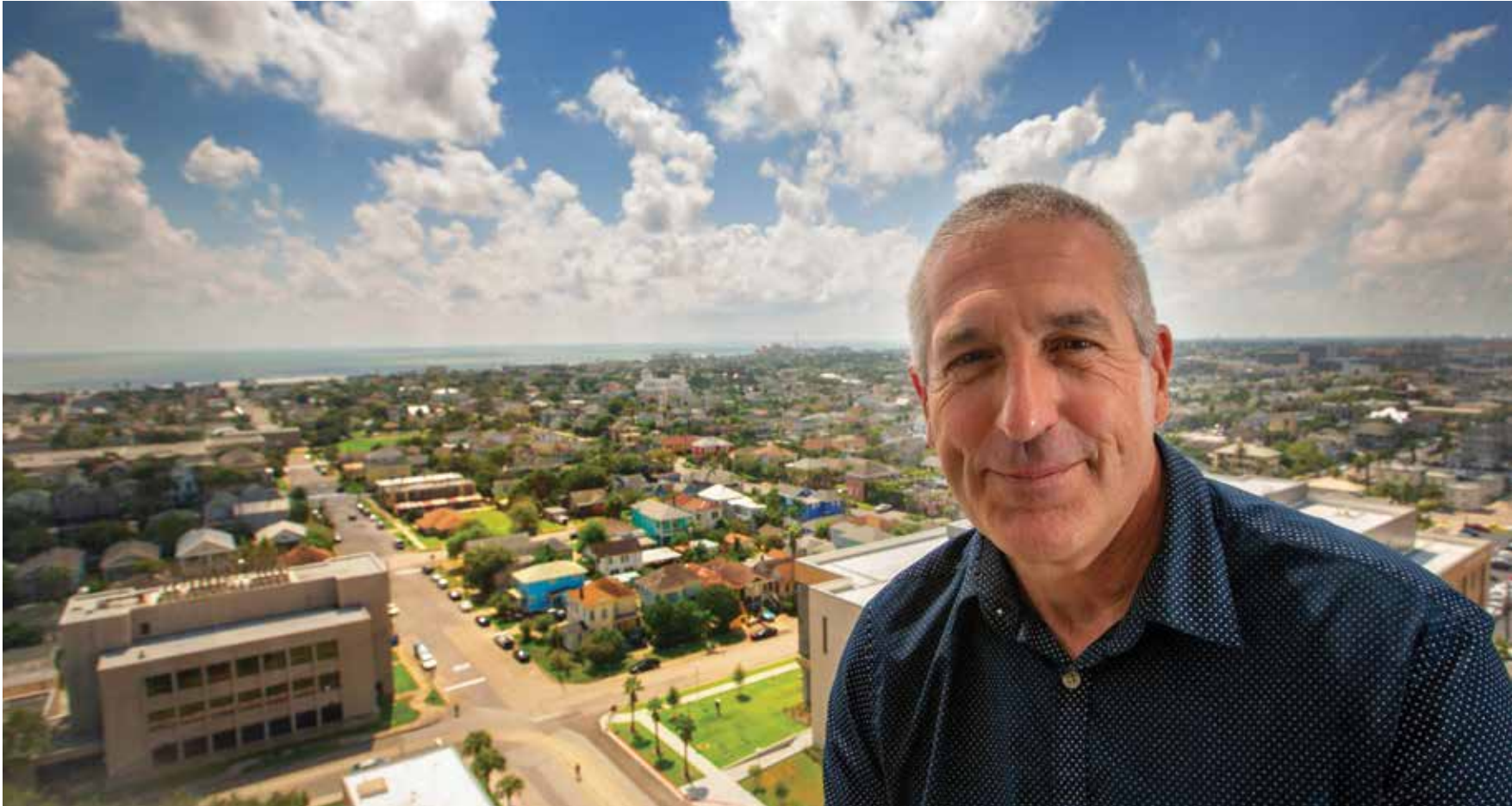
MEMORIAL<sup>®</sup>  
HERMANN  
Heart & Vascular Institute



# Staying Strong

*How a new drug, nutrition and exercise help prevent muscle decline*

BY MAGGIE GALEHOUSE



Stanley Watowich, Ph.D., an associate professor in the department of biochemistry and molecular biology at The University of Texas Medical Branch (UTMB) at Galveston, is developing a drug to help people retain muscle strength as they age.

**W**e lose muscle as we get older. Period. No matter how much we exercise or diet, age-related muscle loss is a fact of life.

Our strength typically tops out around age 35 and then starts to decline—slowly, at first, but accelerating in our later years.

“Think of your parents at age 75,” said Stanley Watowich, Ph.D., an associate professor in the department of biochemistry and molecular biology at The University of Texas Medical Branch (UTMB) at Galveston. “They’re about half as strong as they were when they were 35. That limits their quality of life. Maybe they can’t lift the grandchildren. Maybe they have trouble walking.”

Watowich wants to change that.

He and his team are developing a drug, now known as RT-001, to help people retain muscle strength as they age—a pill that would allow our muscles to act younger even as we get older.

“We know we really decline at 60,” Watowich said. “But can we change that trajectory? If we can, you’re going to stay stronger as you age. You’re going to have a better quality of life.”

This holy grail of health works by targeting one enzyme in the body.

“There is a molecule—an enzyme—that controls how metabolism occurs in different cell types,” Watowich explained. “As we age, this enzyme increases in the muscles. We don’t know why, but it does, and it interferes with the

muscle stem cells’ ability to become activated. When you’re younger, muscle stem cells get activated, go to damaged muscle, proliferate, grow and fuse and they repair the muscle. As you age, you still have these stem cells, but they no longer get activated, in part because the metabolic state has been impacted by this enzyme, called nicotinamide N-methyltransferase (NNMT).”

Watowich’s drug turns off NNMT.

“By stopping it from working,” he said, “we kind of reset the stem cell to a point where it functions as if it’s in a younger person.”

Results from a study of the drug’s effect on aged mice were published earlier this year in *Biochemical Pharmacology*. ➡



**Above:** Doug Paddon-Jones, Ph.D., the Sheridan Lorenz Distinguished Professor in Aging and Health at UTMB, researches muscle mass and function in healthy and clinical populations. **Far right:** Watowich holds a sample in his lab.

Watowich and his team showed that in older mice treated with the drug, muscle fiber size and muscle strength nearly doubled. In addition, no adverse effects of the drug were found.

Watowich has been working on RT-001 for three years and it will be at least another four, he estimates, before it is released to the public. More testing is yet to come.

“The idea is to see how much compound you can give clinical models over a month-long period,” he said. “You’re looking to make sure you’re not causing problems and you want to establish an upper dose.”

The drug does not mean that adults get a pass on eating well and exercising, he asserted. The pill will be more effective for people who take care of their bodies.

“Our drug actually stimulates the stem cells and allows them to repair injured muscles,” Watowich said. “It’ll work better the more you work the muscles, but it’ll even help maintain daily activity.”

### Activity, drugs, nutrition

Physical activity and diet play a vital role in protecting muscle health.

In the department of nutrition

and metabolism at UTMB, Doug Paddon-Jones, Ph.D., studies how to retain muscle strength and how to consume proteins to help with this process.

“In the best-case scenario, once you hit 35 or 40, depending on how well you’ve looked after yourself, you lose a little bit of muscle each year,” Paddon-Jones explained. “It’s insidious and slow. From age 40 to 60, you can make up for it with subtle lifestyle changes. Even though you are losing a little bit, your body fat tends to slide up around the same time, so bathroom scales are useless. Your body weight may not change, but body composition is starting to go in a pudgy direction.”

Paddon-Jones and his team have done several bed rest studies, mimicking the inpatient experience in hospitals, to examine the loss of muscle from inactivity and sarcopenia, which is age-related muscle degeneration.

“Some folks on bed rest, the muscle just falls off them,” Paddon-Jones said. “Other people are kind of resilient. From a practical perspective, intervention should be geared to a worse-case scenario, because even if you’re resilient now, you may not be your entire life.”

He advises protecting muscle from a young adult age, because its loss tends to sneak up on people.

“If you want to protect your muscle health, your function, your glucose and metabolism from the ravages of age, inactivity or disease, you’ve really only got three options: exercise, drugs and nutrition,” he said. “In my mind, it’s nutrition that you have to optimize for any of these other areas to work optimally. We want to get patients out of bed, but there’s a risk and a cost associated with that. Same with drugs—they can work, but not for everyone. But we absolutely have to feed every single person, so why not tweak that? You’ve got to eat, but you’ve got to be pragmatic and efficient about it.”

One option for building and repairing muscles is the amino acid leucine, one of the most abundant amino acids in protein-filled foods. Some of Paddon-Jones’ bed rest studies have examined leucine’s effect on the body.

“Leucine is one of the essential amino acids, one of the building blocks,” he said. “It’s special because it serves as a trigger or a switch that turns on the molecular pathways that build and repair muscle. The optimal thing is to turn it on every now and again—little bouts where you increase the leucine.”

Results from bed rest studies have shown that leucine can safeguard against some muscle loss. An average middle-aged man lost about two pounds of muscle from his legs after just one week of bed rest, Paddon-Jones said. But the group that received leucine—four grams delivered three times a day in powder form, for a total of 12 grams daily—fared better.

“The group we gave leucine to, over the first seven days, lost half as much muscle,” Paddon-Jones said. “It has a short-term protective effect. And 12 grams a day? That’s a really small amount.”

Instead of buying leucine as a supplement in a health and wellness store, integrate it into your diet, he added.

“If you ate five ounces of beef, you’d get about three grams of leucine,” Paddon-Jones said. “In a glass of milk you’ll get a good amount,



as well. So you shouldn't buy it. Eat some food. And once you've turned on the muscle building machinery and put the protein there to provide all the building blocks, it's on."

### Human trials

Watowich plans to start testing RT-001 in humans in late 2020.

"By next year, quarter four, we will have filed with the FDA a document showing all the safety studies, all the efficacy studies, how we'd manufacture it, and so on," Watowich said. "We'll begin human trials quarter four of next year."

The first six months of human trials will analyze how the drug behaves in the body, starting with a small dose. If there are no problems, Watowich and his team will increase the dose to the level they think will be the treatment.

"The first study is done with about 40 patients—very small," Watowich said. "We will add a cohort of a group of about 12 elderly people, individuals aged 55 to 70, because as you age you can run into

renal problems."

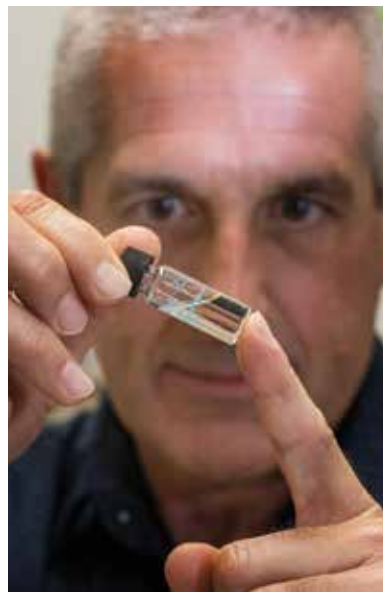
Then, toward the end of 2021, they'll begin an efficacy study of about 300 patients aged 55 to 75—"healthy, normal people," Watowich said, "not gym rats or marathon runners."

With this larger group, the scientists are looking for answers to specific questions.

"What we're asking is, if you go to the gym and you take this pill, will you get much stronger?" Watowich said. "Instead of increasing your strength by 15 percent, can we get you up to 25 percent, 30 percent, 50 percent stronger? We know in mice they almost double their strength. We don't expect to double the strength of elderly people, but can we get them significantly above what would happen if they would just go to the gym?"

If all goes well, the team will then study hip fracture patients recovering from surgery to see if the drug can accelerate recovery.

"In a six- to nine-month trial, can we make post-hip fracture patients



stronger such that they survive, thrive and return to independent living? Only a small fraction of elderly with hip fractures ever return to independent living," Watowich said.

If the team hits all these milestones, the drug could be available by the end of 2023.

Collaborators on RT-001, which will get a snappier name before it goes to market, include colleagues

from UTMB; Chris Fry, Ph.D., formerly of UTMB and now associate professor at the University of Kentucky's College of Health Sciences; Nicholas Young, Ph.D., an assistant professor of biochemistry and molecular biology at Baylor College of Medicine who will be doing some epigenetic profiling; and researchers at The University of Texas MD Anderson Cancer Center, who will be analyzing tissue samples.

In addition, Watowich has spun out a biotechnology company, Ridgeline Therapeutics, housed at JLABS @ TMC, to develop drugs to reverse Type 2 diabetes, obesity, muscular dystrophies and sarcopenia.

One day, Watowich's drug could benefit everyone over a certain age.

"If everything works, you start taking the drug at 40 and you keep up an exercise program—you stay active," he said. "If you do that, you're not going to have as many diseases that affect you in terms of cardiovascular health." ■



INTERCONTINENTAL.

HOUSTON – MEDICAL CENTER

TIME FOR SOME  
HOLIDAY CHEER

*The possibilities for your seasonal festivities are endless in the Medical Center at the newest Four Diamond Hotel | Start planning today*

*Ask about our "Ride the Elevator Home" Rates*

6750 Main Street | Houston Texas 77030

Tel: 713 422 2779 | Fax: 713 422 2492

intercontinentalhouston@ihg.com

www.ichoustonhotel.com



# NEXT MED

New technology and techniques

By Britni R. McAshan

## Raising the quality and quantity of donor lungs

The portable TransMedics OCS Lung System helps physicians evaluate and improve the condition of donor lungs. Each organ is warmed and supplied with fluid, oxygen and nutrients.

Recently, the U.S. Food and Drug Administration approved expansion of the device's use to include donor lungs previously deemed unacceptable, for reasons including geographical distance and advanced age of donor. This expansion should both increase the number of lungs deemed viable for transplant and offer new ways to utilize the donated organs.

"Bridging the divide between a donor and a recipient has always been at the cornerstone of transplantation," said Gabriel Loor, M.D., surgical director of the lung transplant program at Baylor St. Luke's Medical Center and a participant in clinical trials to expand usage of the OCS Lung System.

Loor estimated that 80 percent of the donor organs offered to any one institution are not utilized, whether it be due to geographical distance, the age of the donor or the function and mode of the organ.

"It doesn't necessarily mean that they are not good organs to use," he said. "It just means that it would be nice if we had a little bit more information on them before we committed our recipients to a transplant with them."

As a result of the OCS Lung System's recent trials, clinicians are now able to safely use organs that, ordinarily, would have been rejected, Loor said.

"I can place the organ on this device, evaluate it for several hours and have a glimpse of how it will function in the recipient," Loor said.

Beyond that, he added, the device offers a huge opportunity to push lung transplantation in new directions.

"Many of us believe that now we have an ideal setting to manipulate the organ," Loor said. "Maybe administer gene therapy, stem cells, anti-inflammatory drugs. Maybe we can change the blood type of the organ and offer more organs to more recipients. Maybe we can genetically modulate the organ so it doesn't reject. We really believe that we have a platform that we need to start looking at more creative ways to utilize for the advancement of quality organs and the quantity of organs." ■



# Getting Fitted with a Custom Hip

*New technology takes the guesswork out of surgery*

BY SHANLEY PIERCE



*Kathy LeTourneau had both hips replaced with the Conformis Hip System, which creates custom replacement parts for each patient.*

The pain in Kathy LeTourneau's hips was excruciating—for years. Her doctors in Longview, Texas, finally diagnosed her with osteoarthritis in both hips.

"It was a constant pain," LeTourneau, 68, said. "It just kept getting worse and worse. I'm not one to give up, so I just kept working through it, but I gained weight because I wasn't exercising a lot."

Osteoarthritis, the most common form of arthritis, affects more than 30 million adults in the country, according to the Centers for Disease Control and Prevention. It can develop in any joint in the body, but it is particularly common in hips, since they bear so much of the body's weight. Osteoarthritis can occur for a variety of reasons, including age, obesity, genetics and overuse or repetitive stress on the joints.

The pain in LeTourneau's hips turned small, everyday movements into agony. Lifting her legs and sitting down to get in and out of her car or into her shower-tub combination pushed pain up into her hips. Simple household chores, like vacuuming, became arduous tasks that took a physical toll on her body.

"Everything that we take for granted was really affected," LeTourneau said. "Not being able to do things, like play in the park with my kids or take walks, was hard."

In the hip, the femoral head—the highest part of the femur, or thigh bone—is connected to the large pelvic bone like a ball and socket, with a layer of cartilage between. Synovial fluid lubricates the joints to reduce friction, allowing the leg to move and swivel smoothly at the hip joint. But when the cartilage that provides padding breaks down to the point where there is direct bone-to-bone contact, aches, pains, stiffness, swelling and decreased range of motion and flexibility can occur.

A hip replacement is the common treatment.

After a colleague from work underwent a successful knee replacement surgery by Terry Clyburn, M.D., an orthopedic surgeon at Houston Methodist Hospital, LeTourneau decided Houston was where she needed to go. Fortunately for her, Clyburn, an expert in implanting customized knee replacements uniquely tailored to each individual patient using technology from a company called Conformis, was just starting to use the Conformis Hip System, as well. He was one of the first 10 surgeons in the nation to offer custom hip replacements and is currently the only surgeon in Houston performing them. ➡





*Terry Clyburn, M.D., is an orthopedic surgeon at Houston Methodist Hospital.*

## Patient-specific design

In September 2018, LeTourneau met with Clyburn to discuss her X-rays and total hip replacement surgery for both hips.

The hip prosthesis consists of a stem that is inserted into the thigh bone, a head joint (ball) that fits into the stem and a cup that is inserted into the socket of the hip joint. Typically, during hip replacement surgery, surgeons select parts for the thigh bone and the socket from a list of five to seven available sizes from medical device manufacturers.

“You take a wild guess at what might fit,” Clyburn explained. “[The computer system] brings you the template for that and you put it onto the X-ray and look at it. If it’s too big or too small, you just pick a size up or down, and you keep doing that by trial and error until you get the size that fits most appropriately.”

It’s not the most perfect fit, but the most appropriate fit.

“It’s like going to the shoe store,” Clyburn said. “If you have big feet, or wide feet, or short wide feet, or feet that are a little bit different left to right, which most people do, you’re never, ever going to find a pair of shoes that fits you perfectly.”

Custom-made hip replacement parts, on the other hand, provide a perfect fit.

Clyburn starts with a detailed CAT scan of the patient’s pelvis and femur to capture every dimension of the hip anatomy. Conformis then creates a 3D virtual model of the patient’s hip,

which doctors use to make adjustments and corrections—whether it be widening or narrowing the hip, known as the “offset.”

“If we don’t widen the hip the appropriate amount, it causes weakness of certain muscles and can cause the patient to have a limp,” Clyburn said. “If we make it too wide, it can cause pain over the side of the hip because it’s pushing out against some of the structures on the outer part.”

The new patient-specific design is sent to Conformis engineers, who then create the implant parts out of titanium alloy, along with customized 3D-printed tools and guides for the surgical procedure.

On the day of surgery, the socket can be placed in a variety of positions relative to the patient’s anatomy, but there are certain positions that are more likely to create complications, including dislocation of the hip. Surgeons strive for the “safe zone”—the optimal position of the socket that minimizes the risk of problems.

“When we’re templating the hip using a traditional technique, we visualize in our head how we want to put the cup in,” Clyburn said. “Then when we go in during surgery and we put the cup in, we do our best using the computer ... to put the cup in the position that we think is optimal.”

However, studies have shown that even the most skilled surgeons reach the “safe zone” only 60 percent of the time during a traditional hip replacement.

The Conformis Hip System, though, takes the guesswork out of surgical planning and targets the precise position for the parts, minimizing the need for the patient to go under the knife again so the implants can be readjusted.

“The more form-fitting the device is to the individual’s bone, the better the success rate of bone growing into it and stabilizing the implants,” said Clyburn, who has performed more than 15 hip replacement surgeries using the Conformis system in the last year.

On Oct. 24, 2018, LeTourneau underwent surgery on her right hip.

“Later that day I told Dr. Clyburn, ‘Okay, I’m ready to do the other one,’ ... because the surgery just went so well,” LeTourneau recalled.

Nearly a year later, on Sept. 4, 2019, she returned to Houston for surgery on her left hip.

As a grandmother of two, LeTourneau was more than happy to travel four hours to Houston from her Longview home for an operation that would relieve her pain and improve her mobility.

“Four hours seems like nothing to get to where I am today,” she said. “I remember one time after the surgery, my granddaughter said, ‘Grandma, can you skip?’ I thought, ‘Skip? That has been years and years,’ but I said, ‘Well, let’s try it.’ And I was able to do it after my surgery. It seems simple, but it’s just simple things that I couldn’t do I could do again.” ■





# CURATED

The Intersection of ARTS and MEDICINE

By Britni R. McAshan

A burst of color 21 stories above the Texas Medical Center, Horizon's Hope garden offers Houston Methodist patients and staff the healing benefits of nature.

Plans for the rooftop garden began to bloom last fall when Renee Stubbins, Ph.D., senior research oncology dietitian, and Ashley Verzwylt, an oncology infusion nurse liaison, submitted a proposal for a natural oasis on the roof to the Center for Health and Nature. The center, housed at Houston Methodist, is a partnership between Houston Methodist, Texas A&M University and Texan by Nature, a nonprofit conservation group.

Now, more than a year later, the garden has sprung to life at Houston Methodist Hospital-Outpatient Center.

"It can be so crazy and stressful up here," Verzwylt said. "Once you see that view and ... this huge, impactful mural and the flowers, it just melts all of that stress."

After Verzwylt and Stubbins were awarded funding by the center for the garden, members of the community reached out to get involved. Architects and planners donated their time to design a safe, relaxing space.

Houston's prolific muralist, Gonzo247, formally known as Mario E. Figueroa Jr., painted a mural to accent the garden. Rich shades of blue, orange and pink, reminiscent of a Texas sunset, blend seamlessly into a hill of wildflowers.

"Gonzo did such a good job," Stubbins said. "He matched our

vision perfectly. ... Some people might think it's a little disorganized, but I really wanted it to look like a meadow."

Still in its early stages, the garden is not yet open to anyone except the Houston Methodist staff maintaining it.

For now, the garden, which is visible from multiple patient rooms, will provide pleasant views and be part of a clinical trial with Texas A&M University to test the benefits of nature in a hospital setting. Patients will be randomly assigned to one of three rooms while receiving regular chemotherapy infusions: a room with a view of the garden, a control room with no windows, or a room where the patients will experience nature via a virtual reality headset. The trial will examine whether interaction with nature improves the patient experience.

Stubbins and Verzwylt hope to gain funding to make the safety additions required to allow patients to spend time in the garden.

"Our goal is to make it different from other gardens," Stubbins said. "To do that, we are going to have elements of music therapy and art therapy. I think when you have that combined with green therapy, it is just this perfect harmony."

Stubbins and Verzwylt have already received positive feedback about the garden from patients. And it was patients who named the garden Horizon's Hope.

"We had narrowed it down to four or five names and most of them had the word 'nature' in it. We let our patients choose from there and, ironically, the name they chose was the only one without 'nature' in it," Stubbins said. "When we were focusing on seeing nature, they were focusing on seeing hope." ■



Deborah Freer, Houston Methodist project manager; Peter Caldwell, senior designer at landscape architecture firm Asakura Robinson; Ashley Verzwylt, Houston Methodist nurse; Renee Stubbins, Ph.D., Houston Methodist dietitian; Hank Hancock, artist liaison with Skyline Art Services; and artist Gonzo247 pose in the garden.

A year ago, **LINA HIDALGO** became the first woman and the first Latina to be elected County Judge in Harris County. Hidalgo, 28, serves as the presiding officer of the Harris County Commissioners Court, the county's main governing body, which oversees a \$4.3 billion budget. As Harris County Judge, Hidalgo is also the director of emergency management. The Colombia native, who immigrated to the Houston area as a teenager, decided to run for office after the 2016 election. *TMC Pulse* spoke with Hidalgo just a few days after Tropical Storm Imelda battered the region.

**Q | I planned on asking you first about health care, but we just dealt with Tropical Storm Imelda. This was your first major flooding experience since you took office. What did you learn about managing flooding on a large scale?**

**A |** When we came into office, we had to deal with the fires at ITC [Intercontinental Terminals Company], at chemical manufacturer KMCO, and ExxonMobil. We commissioned an independent gap analysis of our systems that was very much focused on air monitoring and enforcement of laws in these chemical facilities, but we also looked at operations and our office of emergency management. We identified gaps I inherited. We had been working on those, and that paid off in the flood. There was increased coordination—for example, there's one website for emergency information. Folks today can go to ReadyHarris.org. It has information for survivors on how

to file insurance claims, how to muck and gut a home, how to get into the system for aid that may become available. It has information for people who want to help on where to donate and where to volunteer. During the disaster, we had information on road closures and bayou and channel levels. Part of this is about consolidation and coordination; the response to these disasters is only as good as your ability to work together. Having one place where people can go is really important.

We also had a 160 percent increase in the number of high water rescue vehicles available since Hurricane Harvey. We have a department coordinating the sheriff's assets, the constables' assets, the fire marshal's assets and the other departments' rescue vehicles. We were able to meet all demand in terms of rescue. Harvey was bigger, of course, but we were able to get there.

There are other things we didn't

have time to implement. A better notification system is something that will still take a few months. Right now, people have to go online to sign up and get alerts. We have tens of thousands of people who've signed up, but there are millions of people in the county. Unless you signed up, you don't get alerts unless it's a National Weather Service alert. We require approval from the federal government for what are called "push notifications," where folks receive an alert on their phone, whether or not they signed up.

The good news is residents listened. We could have had much worse outcomes in terms of deaths. Any death is an enormous tragedy, and when this started, I sat down with the whole team and we were thinking about what the impact might be. It was certainly less than what we expected. That tells me people did a good job doing their part, staying off the roads, not driving into deep water. We need to keep beating that drum. ➡







**Q | What about the plans in the longer term to reduce flooding in the region?**

**A |** There's a superhuman effort on flood control projects. They are literally decades overdue. We took an independent look at whether these projects could be done any faster. The estimate was it would take 10 to 15 years. We have it firmly at 10 years to get all of them done now. Some we can speed up. All the drainage projects were going to take five years, but now it's going to be three-and-a-half.

We're not afraid to ask hard questions of developers. We're requiring them to detain more water—to use more of their land that they've already purchased for detention. We now know what the new rainfall rates are and that if they go with their original plans, they'll end up flooding people downstream.

We just gave the county attorney's office permission to file suit on flood plain regulation violators. That includes elevation requirements, fill requirements, detention requirements. They'll basically be able to sue immediately without coming to commissioners court for approval, which helps them to be more effective.

We're also working on a project to map flood risk. In a few months to a year, we'll be able to tell folks what the risk is. It's not so much whether they're in the flood plain. It evaluates risk based on drainage and elevation, so people can know and can make their own decisions. We're doing everything we possibly can and thinking outside the box.

**Q | Dr. Umair Shah, who leads Harris County Public Health, has talked a lot about the mental health impact of going through repeated flooding. How does the county government, or the community as a whole, address what we've been through the last few years?**

**A |** It's traumatizing. To keep getting battered by something like this



*Hidalgo discusses the air quality in east Harris County during a press conference in March 2019, after elevated levels of benzene were detected near a Houston-area petrochemicals storage facility that caught fire.*

is a recipe to be truly emotionally affected. Part of the way we look at it is we're all first responders in a way. We're trying to help everybody do what they do best and match needs to resources.

More broadly, we know we face dire funding limitations from the state in terms of mental health service provision. But we also recognize that if we can do a better job coordinating existing mental health resources, we can better help people. We just passed an item to put the jail in the same medical records systems as everyone else. When you don't have enough funds, the last thing you can do is be inefficient. Right now, our approach on mental health is to stretch every dollar by getting at coordination and efficiencies.

**Q | Texas is the most uninsured state in the nation. Nearly 18 percent of residents—some 5 million people—have no health insurance. Our state government did not expand**

**Medicaid, so much of this becomes the county's responsibility. Here in Harris County, nearly a quarter of the population is uninsured. Beyond advocacy, what's the long-term plan? How is this sustainable?**

**A |** It's a massive challenge and we're doing it with one hand behind our back because of the refusal to expand health care through Medicaid expansion. The Episcopal Health Foundation did a study that said at least 50 percent of people in Texas have refrained from accessing health care in the last year because they couldn't afford it. You don't want that to be happening. How are we going to solve this problem? We commissioned an investigation that should be done later this year that aims to address precisely this question. We're eagerly awaiting that, especially with regards to health care access on the east side of downtown. The HCA hospital there flooded during Hurricane Harvey, and there are folks who have no

hospital nearby. From our conversations with private hospitals, there's no interest on their part in opening another one.

The other point is about social determinants of health and looking at health holistically. There's really a movement to talk about health and not health care. Once you see people in the hospital—that should be the last resort. The question is, what can we do to be smarter about it?

**Q | You have a personal connection to the Texas Medical Center, where you once worked. What was your role at the TMC?**

**A |** I was working as a medical interpreter. They'll send you to different hospitals. This was around 2014. I was going to UTHealth, Texas Children's Hospital and TIRR Memorial Hermann—all over. I saw several times a mother coming in with a little boy or little girl who has prediabetes because of lack of access to healthy food. I saw the man who can't access dialysis

Credit: Godofredo A. Vasquez/Houston Chronicle via AP

because of the lack of funding.

I volunteered at Ben Taub. I will never forget this. A mom was there with her daughter. The daughter suffered from mental health issues. It wasn't their first rodeo, and the doctor and the mom were essentially telling each other—through me—that the smartest path forward was for the mom to press charges against the daughter so she could get adequate mental health care in jail. The mom had heard this before. She knew how limited the care at the emergency room was. You really see how the failure to expand Medicaid, the failure to look at health as a holistic issue, affects everyday people.

**Q | Tell me about your family and the route you took to Harris County. What were your impressions when you first showed up in this community as a teenager, and what does it mean for this community to have someone like you as Harris County Judge?**

**A |** It was a shock. I grew up going to these expensive international schools. That's the only reason I can speak English without an accent. I knew that a big chunk of my parents' income went to those schools. When we moved here and they said we were going to public school, I wasn't sure what to expect. It turned out to be this incredible school that had facilities that were nicer than the ones I knew growing up in these fancy private schools.

For me, I didn't know government could do that. I know we are far from a world where every public school is a great school. But I happened to be in a good one—Cypress Falls High School in northwest Houston—and it had nice facilities compared to what you'd see even in a private school in Latin America. There were all these sports teams. We had a film room. We were dissecting pigs in biology class. The school buses ran on time. It was incredible.

That got me thinking about how government can be a tool for good. Growing up in Colombia, government had always been something to stay away from, something very corrupt. I had always heard stories of what that corruption means. It meant violence and broken communities. That sent me on a path to hold government accountable. Of course, I learned that not all government in this country is perfect. My thinking was, 'This is an incredible place. There's a potential for government to be good. So how can I make sure it is doing that?'

I decided I was going to be an advocate and I was going to work around civil rights and free expression, supporting the press, artists and attorneys. Then the 2016 election happened and I decided that was too roundabout a path. I needed to just do it myself.

What my background means is we have someone with different perspectives. I bring the voice of the mothers—it's most often mothers who were there with their children at the hospital. I bring their voices when I'm at commissioners court. There's this deep responsibility to make the most of a society where you can shine a light on what's broken and you don't have to fear for your life. That, for me, is a treasure.

People say to me, 'Why did you run? Weren't you scared? It's such a big position.' Where I was born, back then at the height of the drug war, if you did something like this—journalists, opposition politicians, they die every day. The fact that you can raise questions? We have to make the most of that. I'm in a hurry to get things done. ■

*Harris County Judge Lina Hidalgo was interviewed by TMC Communications Director Ryan Holeywell. The conversation was edited for clarity and length.*

# SIENNA

## The Good Life

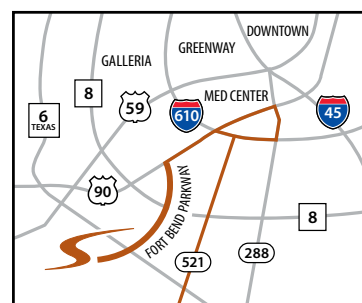


*It's fun growing up here!*

- Seven on-site Fort Bend ISD schools K-12
- Acres of parks + trails, resort-style waterparks
- On-site fitness centers, golf, tennis, sports complex and stables

**20+ MODEL HOMES**

**Low \$200s - Million+**



Johnson  
DEVELOPMENT CORP.



SIENNATX.COM



# HIGH CHOLESTEROL: AN ANCIENT PROBLEM

BY ALEXANDRA BECKER

---

## New study finds plaque in the arteries of mummified corpses

---

Clogged arteries didn't originate in the era of fast food, after all. Using a special technique to examine mummies, a new study reveals that our ancient ancestors suffered from unhealthy levels of cholesterol—levels similar to those of modern humans.

"We were wondering if [high cholesterol] is a disease of the modern age or not. I've had that question since medical school," said Mohammad Madjid, M.D., lead author of the study that appeared in the *American Heart Journal* in October. "We know atherosclerosis starts very early, from the teen years or even earlier. By the age of 18, 20, many people will form plaques in their arteries. We have seen this in our modern-day studies. But then we look at our ancient ancestors and my study found that, actually, the majority of adults at that time had very similar amounts of cholesterol in their arteries."

Madjid and his team used a technique called near-infrared spectroscopy to examine arterial tissue from preserved corpses. The samples came from five individuals who lived between 2000 B.C. and, approximately, 1000 A.D. The three men and two women ranged in age from 18 to 60. Four lived in South America and the

fifth resided in the Middle East.

In the past, researchers have used computerized tomography (CT) scans to study the hearts and arteries of ancient remains, but this is the first time a team has employed near-infrared spectroscopy to examine mummies. Madjid, an assistant professor of cardiovascular medicine with McGovern Medical School at The University of Texas Health Science Center at Houston (UTHealth), noted that while CT scans can show calcification of arteries, they cannot detect levels of cholesterol. Near-infrared spectroscopy can. The technique, he explained, uses a catheter to send signals to the mummified tissue, which returns unique molecular signatures that indicate the presence of different components inside the arteries.

"Every component, like water, fat, cholesterol or bone—they each have different molecular signatures, like a fingerprint," said Madjid, who is also affiliated with UT Physicians and the Memorial Hermann Heart & Vascular Institute - Texas Medical Center. "The technique is widely used in medicine and industry and we know how cholesterol looks. ... [The technique] is non-destructive and non-damaging to the tissues, which is very important if you want to work with mummies."



High cholesterol can lead to plaque buildup in the arteries, which causes atherosclerosis or narrowing of the arteries. When arteries become too narrow, they can block oxygen and cause a heart attack. The presence of cholesterol-rich plaque is one of the first markers of blocked arteries, which is why detecting levels of cholesterol—rather than relying on the presence of calcification—is so revolutionary when it comes to studying ancient corpses.

"You'll find calcification in the arteries in some mummies, but calcification is a sign of older-aged plaques," Madjid said. "Cholesterol-rich plaques can happen very early."

This revelation about ancient corpses doesn't mean people today should ignore a healthy diet and lifestyle thinking atherosclerosis is inevitable, the cardiologist said.

**Middle:** Mohammad Madjid, M.D., holds an arterial tissue sample from an ancient mummy. **Right:** Madjid, assistant professor of cardiovascular medicine with McGovern Medical School at UTHealth, poses beside a preserved corpse at the Houston Museum of Natural Science's Hall of Ancient Egypt.



Rather, people should place more emphasis on treating and preventing high cholesterol through lifestyle choices and, if necessary, medication.

"I see patients with high cholesterol every day. I see patients with plaques in their arteries every day, and I treat those plaques with medications, ballooning and stenting and angioplasty," Madjid said. "This study has a good message for us, actually. It looks like, as human beings, we are susceptible to developing these plaques. There is an interplay of genes—and it looks like that goes back many thousands of years—and there is also a combination of lifestyle. You really want to detect

these plaques very early and prevent them from giving you a heart attack."

Lifestyle factors that contribute to inflammation, such as poor diet, smoking, pollution or infection, are especially harmful in compounding the effects of atherosclerosis and should be avoided, he added.

"It's not only cholesterol sitting there which causes a heart attack. It's cholesterol with inflammation on top of that within the artery wall—that's the killer," said Madjid. "Humans are very susceptible to atherosclerosis ... but the message is that heart attack is totally preventable. We can detect these plaques, we can prevent them

and we can treat them."

The mummies studied for this research succumbed to infection or disease—not high cholesterol, he noted. Like most ancient humans, they didn't live long enough to die from atherosclerosis, but the sharp rise in human life expectancy means humans today can and do.

Madjid, who has been fascinated by ancient cultures since primary school, hopes to expand his research to mummies from other parts of the world to see if cholesterol levels vary by geographical region and time period. ■



# Why You Should Talk to a Genetic Counselor About Your At-Home DNA Test

*Patients need experts to translate and interpret complex data*

BY SHANLEY PIERCE

Kathryn Heiss has endured inexplicable fatigue and chronic pain for years. She bruises easily, suffers abnormal scarring and has developed hypermobile joints, but for a long time she did not know why this was happening to her body.

After scouring the internet for answers, the Katy, Texas, resident suspected she might have Ehlers-Danlos syndrome, a condition that affects the connective tissues in the body and could lead to health complications.

In December 2018, she sent a sample of her DNA to AncestryDNA.

"I initially used AncestryDNA to help find and connect with living family members that I never knew existed," Heiss said. "I'd always been interested in my family's genealogy and history, so taking a DNA test to see how my genes affect me—and where they came from—seemed like the next logical step for me in my research."

Heiss, 25, who trained with the U.S. Navy, downloaded her raw DNA data and combed through approximately 700,000 lines of genomic information. Based on the results, there was a possibility that she had inherited Ehlers-Danlos syndrome. But because the results were too broad to be definitive, Heiss decided to see a geneticist and genetic counselor at the Michael E. DeBakey VA Medical Center.

That was a smart move, experts say.

Genetic counselors play an important role as translators and interpreters of complex genetic information, helping people more clearly and accurately understand their test results.

"We're also there to provide resources and help them navigate what may be reliable and what may be less reliable," said Daniel Riconda, program director of the Genetic Counseling Program



*Kathryn Heiss spoke to a geneticist and a genetic counselor after a sample of her DNA determined she likely has a form of Ehlers-Danlos syndrome.*

as breast cancer, ovarian cancer, Alzheimer's disease and Parkinson's disease—raising questions about how the tests should be interpreted and who should be interpreting them.

"The ability to get access to, not just genetic information, but all kinds of health information has really changed in the last decade or so. Things are much more toward direct-to-consumer access, as well as online access," McGuire said. "That really challenges how we think about the traditional health care professional-patient relationship. From my perspective, the gold standard is to be able to sit in a room with somebody and to get the information in a way that is put into context for you from the beginning."

Before direct-to-consumer genetic tests, genetic information was often delivered face-to-face with a doctor who would explain the results and how to proceed, but the prevalence of these testing kits has removed the health care professional from the conversation.

Genetic testing is "an evolving science," Riconda said. "In the end, home genetic testing, direct-to-consumer testing, is here to stay. The question is how best to respond to the consequences, benefits and limitations of it."

at Baylor College of Medicine. "When you look at the internet and the vast wealth of information out there, sometimes it's hard to know what is science and what is science fiction, what is anecdote, what is biased or unbiased. Although by no means do we have all of the answers to all of the questions, we may be able to provide some guidance to some of the resources that are more or less useful in that regard."

Direct-to-consumer genetic tests have surged in popularity in recent years, with a growing population of consumers dabbling in recreational genomics and sending off their DNA to companies such as Ancestry.com and 23andMe to learn more about their traits, ancestry and health.

More than 26 million people had used an at-home DNA test kit by early 2019, according to the *MIT Technology Review*.

"We, by nature, are super curious people. We want to know information," said Amy Lynn McGuire, J.D., Ph.D., director of the Center for Medical Ethics and Health Policy at Baylor.

But genetic tests can also deliver devastating news to consumers about their increased risk of certain health conditions, such



While genetic testing can provide multiple benefits and insights into suspected genetic conditions and disorders, it also has its limitations. Direct-to-consumer genetic tests are not meant to be used as a comprehensive, clinical diagnosis; results are an approximation at best.

"Some of the direct-to-consumer companies, like 23andme, test for the BRCA mutation, which if you have it gives you a significantly increased risk of breast and ovarian cancer. But there are thousands of mutations in that gene that are associated with that risk; 23andme is only testing for three of them," McGuire said. "Not having pre-test counseling, somebody may not fully appreciate that and they may get a result back that could be negative without knowing that there are 997 other variants, to throw out a number, that they need to look at it if they're really concerned about their family history."

Ultimately, experts advise people to do their homework beforehand—to know what results they might get back and what's being tested, to understand the limitations of the tests—and to rely on health care professionals for guidance.

"Genetics is one piece of the puzzle when it comes to our health in most circumstances," McGuire said. "In most cases, you're looking at risk prediction and probabilities. People need to take into consideration all of the other factors—like their family history, their lifestyle, their symptoms, their environment, all of the things that play into what makes us healthy and makes us sick."

Heiss has no regrets about taking the time to see genetic experts at the VA, who explained her test results. Because Ehlers-Danlos syndrome is a group of disorders, her geneticist is currently running a series of tests to identify exactly which form she has. But at least now, Heiss said, she is equipped with more information about what's going on with her body and why.

"I know preventative measures I can take to improve my overall quality of life and I'm now also more aware of the kinds of complications I can run into," Heiss added. "I've been able to better prepare myself for struggles I may have in the future while making sure I can keep living my life without putting my body at risk for injury." ■

# *Beauty* IS JUST THE BEGINNING AT THE TRADITION

INDEPENDENT LIVING ■ ASSISTED LIVING ■ MEMORY CARE



## THE TRADITION-BUFFALO SPEEDWAY

Now Open at 9339 Buffalo Speedway

Call for Information **713-715-1905**

## THE TRADITION-WOODWAY

Opening Spring 2020 at 6336 Woodway Drive

Information Center is Open — Now Taking Reservations — **713-423-6066**

WWW.TRADITIONSENIORLIVING.COM





A black and white microscopic image showing numerous 3D brain models, referred to as 'asteroids', which are fast-growing and used for research. The models are spherical and have a textured, cratered surface, resembling small planets or asteroids. They are scattered across the frame, with some appearing larger and more detailed than others. A blue rectangular box is overlaid on the top left, containing the title and subtitle in white text.

# Using Mini Brains to Maximize Research

Fast-growing 3D “asteroids” are getting closer to mimicking the brain

BY ALEXANDRA BECKER



When neuroscientist Robert Krencik figured out how to fast-track the growth of mini-brains, he shared his process with the scientific community. Over the past two years, his method has been adopted in labs around the world.

Krencik's lab-grown 3D models—commonly known as brain organoids or mini-brains—incorporate star-shaped brain cells called astrocytes. He named his creations “asteroids,” which seems fitting for a scientist based in Houston, a city obsessed with Astros baseball and all things NASA.

For Krencik, a Ph.D. who works at Houston Methodist Research Institute, a scientific breakthrough that accelerated brain research might have been enough. But it was just the beginning.

Now, he is focused on using his asteroids to uncover methods to repair the nervous system while also working to create the next generation of brain organoids—with hopes of better mimicking the actual brain.

“The term ‘mini-brains’ is misleading because they’re not miniaturized versions of the human brain—they’re actually small aggregates of cells. ... Though they do have neural activity and recapitulate some aspects of the brain, they’re still lacking the multiple cell types of the brain and they’re not connected to sensory systems,” Krencik noted.

Still, their potential for studying disease processes or regeneration of the nervous system is staggering.

“To identify drugs to promote repair of the brain—after aging, injury, Alzheimer’s disease, neurodegenerative diseases, stroke—you

need a model system that recapitulates the environment of the human brain. That doesn’t just involve a single cell type, but it involves multiple cell types including a vasculature, and it involves the extracellular proteins and matrix that make up the environment of the brain,” he said.

Krencik meets regularly with the neurosurgery department and Center for Neuroregeneration at Houston Methodist as he works to apply his research to the field of neuroregeneration.

“The large structure of the organoids allows us to study things that are important in neurosurgery, which you couldn’t study with traditional cell culture systems,” Krencik said. “Also, the fact that we can grow these long-term allows us to study regeneration, because the human nervous

system—during development and after injury—takes a long time to form synaptic connections.”

### Significant benefits

Krencik’s lab uses a method called trans-differentiation to rapidly generate neurons from stem cells, which allows the researchers to force cells, through genetic engineering, to directly differentiate into a pure population of neurons within one week—instead of waiting for them to slowly develop over several weeks, Krencik said.

“By assembling neural organoids with both neurons and astrocytes in specific ratios, we can reproducibly and rapidly generate a well-defined version we call ‘asteroids,’ instead of waiting for them to spontaneously mature into neural networks,” he said. ➡



**Above:** Robert Krencik, Ph.D., a neuroscientist at Houston Methodist Research Institute, holds up a 3D printed model of a human brain in his office. **Facing page:** Krencik captured an image of his live asteroids, floating inside a cell culture flask, in culture media, as they are typically maintained. The image was shot through a microscope with magnification. The average diameter of each asteroid is between 200 and 300 micrometers.

“The large structure of the organoids allows us to study things that are important in neurosurgery, which you couldn’t study with traditional cell culture systems.”

— ROBERT KRENCIK, PH.D.

*Neuroscientist at Houston Methodist Research Institute*

After the 2017 publication of his technique in *Stem Cell Reports*, Krencik and his team released a follow-up paper in *JoVE*—the *Journal of Visualized Experiments*—that included a step-by-step video on how to engineer astrocytes into mini-brains.

The 3D nature of the organoids provides significant benefits for research, and the accelerated maturation of Krencik’s asteroids means more science can be done in less time.

“By growing cells as large aggregates, as asteroids, you can study high density cells in complex three-dimensionality, similar to how they appear in the brain, and then,

importantly, the cells form active connections to each other, otherwise known as neural networks,” Krencik said. “Because you can grow them with intimate associations long-term, it allows them to form those connections, and over time they can even display brainwave-like activity.”

The emittance of brainwaves from these organoids is an exciting step forward in the field. In August, researchers from the University of California in San Diego published a paper in *Cell Stem Cell* describing advanced electrical activity they observed in their brain organoids, which, notably, were created through their own unique method—not like Krencik’s asteroids.

“With the previous technology, we were seeing 3,000 spikes per minute, so neurons were firing at a rate of 3,000 in a minute, but we are actually detecting 300,000 spikes—so we are two orders of magnitude higher than we ever recorded in vitro, and that was shocking. We never expected to see that level of maturation—we never expected to see that from human neurons outside the body,” said Alysson Muotri, Ph.D., a biologist and professor at the University of California San Diego School of Medicine and a senior author of the paper. The brain oscillations followed a typical pattern of development of that of a growing fetus, Muotri added, with highly synchronized waves at approximately four months, but with increasingly complex oscillations by six to eight months.

“The synchronization was just transient, and they become more complex, and that’s what you would expect for the human brain,” Muotri said.

While Muotri stressed that their

## THE WESTIN

HOUSTON  
MEDICAL CENTER

Live Well at Our  
Urban Oasis  
Arriving Early 2020

Arrange your private site tour and be one of the first to see this historic transformation in the heart of Houston’s world-class Medical Center.

To schedule your site tour, contact our attentive sales team:  
[sales@thewestinhouston.com](mailto:sales@thewestinhouston.com)  
713.730.2404

1709 Dryden Road, Houston, TX 77030  
[westinhoustonmedicalcenter.com](http://westinhoustonmedicalcenter.com)





organoids are still far from being close to a “real” human brain, the existence of the neural network-ing required for producing these relatively complex brainwaves could have huge implications for studying human brain development.

“This opens the idea that we can now start to model things that are not only based on gene expression or how the shape of the brain is formed,” he said. “It can actually measure networks, and you could start moving into more psychiatric conditions, for example.”

The surge in brain organoid research is not without debate. Although scientists agree that current mini-brains are nowhere near able to display levels of consciousness, many researchers believe there should be discussions about an ethical framework for the future of the field—especially as there are talks of increased brainwave activity and advanced applications, including transplantation.

Krencik himself is looking at cellular transplantation therapy in

his lab, which would use asteroids to replace brain regions that have degenerated or been destroyed due to injury, disease or stroke.

“We’re currently trying to figure out safe and effective ways we can transplant these into a nervous system,” Krencik said. “One issue with the current method of cellular transplantation is that you put dissociated cells in, and they migrate away from the transplant site. So by transplanting these as intact asteroids, they can remain where desired and they can integrate over time.”

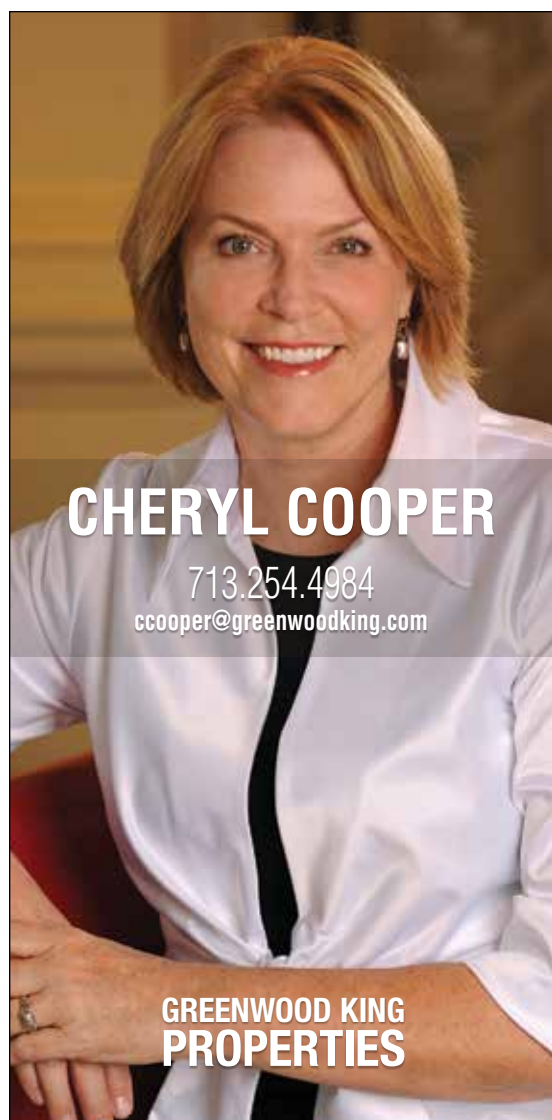
His lab is also exploring methods to pace activity of these neural networks at specific rates using new biotechnologies.

“We’re not just waiting around for these to spontaneously activate. We’re actually forcing them to activate on demand, which would make them a much better and controlled model system,” Krencik said. He added that his lab is also studying brain-computer interface communication and working on assembling organoids specified to different

regions of the brain, for example, combining brain asteroids and spinal cord asteroids so that they can connect together and enable the study of communication between the brain and spinal cord.

It’s a promising area of research that is less time consuming, less costly and more comprehensive than earlier methods, but Krencik stressed the importance of recognizing its constraints as well as its potential.

“The current state of organoids do not have an immune system, they do not have a vasculature, so they are still lacking major aspects of the brain. But I think in future studies scientists are trying to figure out how to incorporate those additional features into the organoids,” Krencik said. “We don’t know where it’s going to go, but it does clearly have a lot of potential, and I think it’s stimulating the research community and education community to be interested in innovative neuroscience.” ■



**CHERYL COOPER**  
713.254.4984  
ccooper@greenwoodking.com

**GREENWOOD KING PROPERTIES**



**1015 7TH 1/2**  
HEIGHTS | LP: \$620,000



**1527 MILFORD**  
MUSEUM DISTRICT | LP: \$3,450,000

Looking for a change? Let experience guide you with your next move.  
Cheryl Cooper, selling real estate for over 20 years in Houston's close in neighborhoods.



**4913 HOLT**  
BELLAIRE | LP: \$1,599,000



**2 W. 11TH**  
MUSEUM DISTRICT | LP: \$1,650,000



# Helping Veterans Breathe Easier

*Implant treats central sleep apnea*

BY BRITNI R. McASHAN



Houston's VA is the first in the country to treat patients suffering from central sleep apnea with an implanted device that regulates breathing muscles.

The remedē system restores normal breathing patterns by stimulating a nerve that runs from the neck down to the diaphragm. Essentially a pacemaker for the lungs, the device treats the least common type of sleep apnea.

"There are two forms of sleep apnea: obstructive, which is the larger patient population, and central, which accounts for about 5 to 10 percent of the sleep apnea population," said Joshua A. Gonzalez, a spokesperson for Respicardia, the company that manufactures the remedē system.

Obstructive sleep apnea occurs when throat muscles and soft tissue in the mouth relax, which narrows or blocks the airway enough to disrupt normal breathing patterns. Typically, this type of sleep apnea is treated with continuous positive airway pressure (CPAP) machines and mouthpieces.

By contrast, central sleep apnea occurs because the brain does not send the appropriate signals to the respiratory muscles. Those who suffer from this type of sleep apnea have few treatment options.

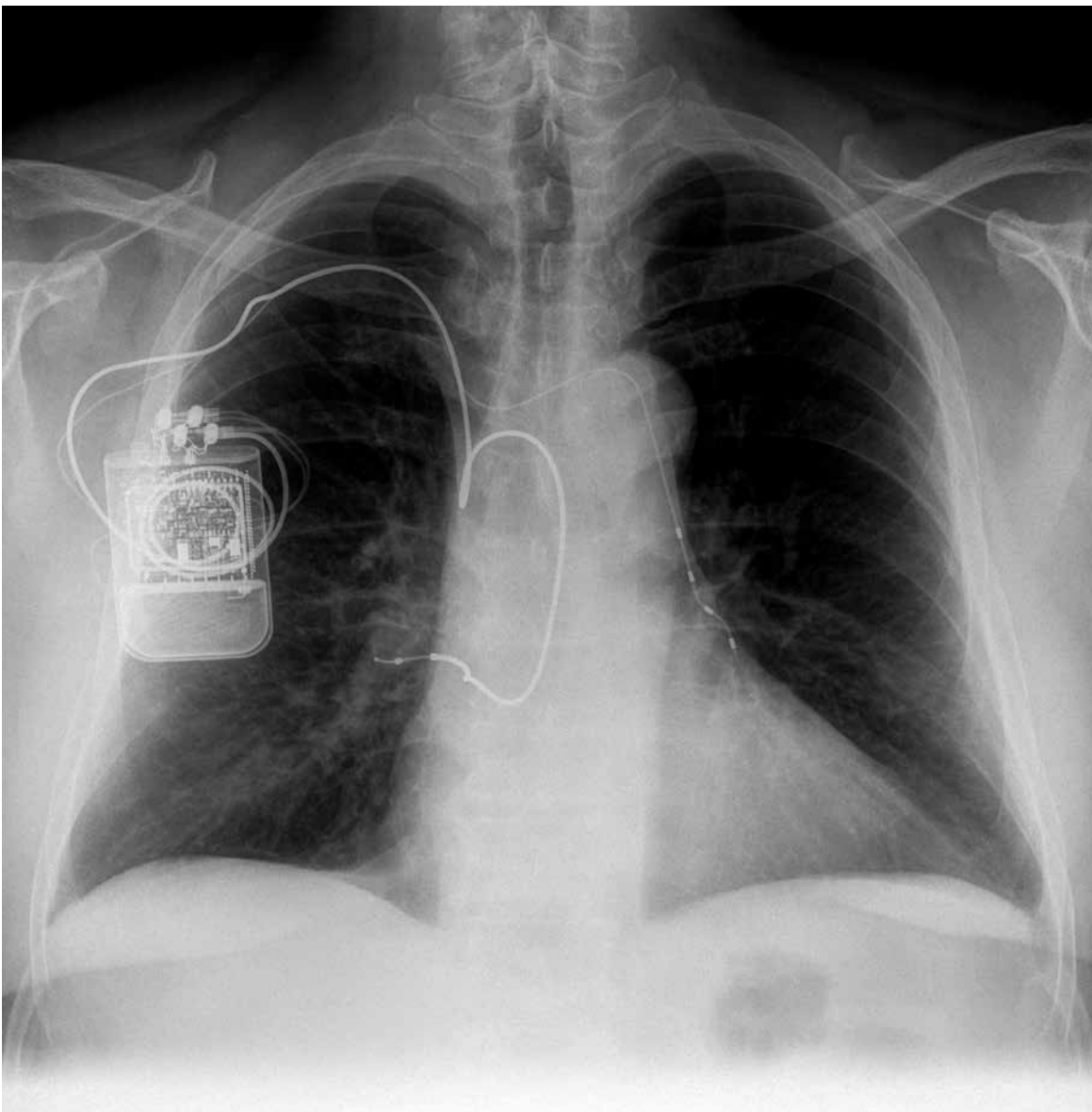
"When they sleep, there is no nerve that stimulates the diaphragm, so there is no oxygen in and out of the lung," explained

Hamid Afshar, M.D., a cardiologist at the Michael E. DeBakey VA Medical Center. "That is the reason why the oxygen drops."

The remedē system stimulates the phrenic nerve to send signals to the diaphragm to restore and regulate normal breathing patterns. Implanted by a cardiologist during a minimally invasive outpatient procedure, the system includes a battery-powered device placed under the skin in the upper chest area with two thin wires that attach to blood vessels—one to deliver the therapy and the other to sense breathing.

Veterans are four times more likely than members of the general public to suffer from some form of sleep apnea, according to the





*Far left: Cardiologist Hamid Afshar, M.D., center, implants the remedē system in a patient at the Michael E. DeBakey VA Medical Center. This page: An X-ray shows the implant.*

*Credit: courtesy Respicaardia*

nonprofit National Sleep Foundation. Even so, some could be misdiagnosed because the symptoms are mistaken for a side effect of post-traumatic stress disorder (PTSD), said Philip Gehrman, Ph.D., an assistant professor of psychology at the University of Pennsylvania's Perelman School of Medicine and a member of the Penn Sleep Center and the Philadelphia VA Medical Center.

"When people wake up out of an apnea, they are oftentimes gasping for air, their heart is racing and it is a surge of the fight or flight reflex," Gehrman said. "People might interpret that as waking up from a nightmare—because waking up from a nightmare would be similar. Once people

are accurately diagnosed with sleep apnea, it will not make the PTSD go away, but it will improve the overall severity of their symptoms."

Gender and age are two factors that seem to support high rates of sleep apnea in veterans.

"If you're looking at the veteran population, we know that being male increases your risk of sleep apnea and the veteran population is roughly 90 percent male," Gehrman said. "Increasing age is a significant risk factor and a large number of patients in the VA system are Vietnam-era veterans."

Central sleep apnea often occurs among patients who are ill from chronic heart failure, stroke and other maladies.

"As a cardiologist, when I look at it, we are treating people with central sleep apnea, but when we treat that, we are also treating a lot of overlapping congestive heart failure, overlapping atrial fibrillation, hypertension and more," Afshar said.

The remedē system was approved by the U.S. Food and Drug Administration in October 2017 and was introduced to the Houston VA this spring.

"It is personal to me to help veterans because they help our country stay safe," Afshar said. "I think our veterans deserve the best." ■

# MICROPLASTIC

Microplastics are everywhere. These tiny fragments of synthetic debris, ranging in size from 5 millimeters to microscopic, have been found in oceans and rivers, fish and shellfish, tap water, beer and sea salt. And that's only where researchers have looked.

As a result, humans are eating and drinking microplastics, which has scientists concerned about the long-term effects on the human body.

Michael Mancini, Ph.D., a professor of molecular and cellular biology at Baylor College of Medicine, says microplastics can leech the chemicals that make plastic so hardy in the first place—including phthalates and bisphenol A, commonly known as BPA. Both are believed to be potentially harmful to human health, and we all risk exposure to these chemicals when we drink out of plastic bottles or heat food in plastic containers.

"If those microplastics contain the endocrine disruptors that we and other researchers have been studying for some time now, then getting them into your body is

going to have the same effect as any other route of entry," Mancini said "I wouldn't recommend dining on that kind of stuff, especially for anyone younger than adolescence, since early, low-dose, long-term exposure to endocrine disruptors seems to be the most harmful."

In animal studies, phthalates and BPA were both observed to act as endocrine disruptors, which can interfere with the hormonal system and cause birth defects, tumors and other developmental disorders. Mancini said that through epigenetics—heritable changes that do not involve alterations to the DNA sequence itself—the effects of these endocrine disruptors can be passed down to subsequent generations.

In other words, it may be too late to avoid the harmful effects of microplastics—or to protect our children and their children from them.

"It's a lot," Mancini conceded. "The epigenetics are really the problem, because it just doesn't go away. At least in animals."



# STICS

BY ALEXANDRA BECKER

## What health risks does synthetic debris pose?

### Samples from a water column

Tucked into the shoreline between Santa Cruz and Carmel-by-the-Sea is Monterey Bay Aquarium Research Institute (MBARI), a private organization dedicated to developing technology for oceanographic study. Built near the inland center of the bay itself, the Institute sits at the head of the Monterey Canyon—a steep, underwater drop with depths comparable to the Grand Canyon. It is one of the deepest submarine gorges along the continental United States and home to a large and diverse body of marine life—and its proximity to land offers a unique opportunity to study the deep ocean.

Often called the “final frontier” on planet Earth, the deep ocean remains widely unexplored. But according to recent findings from scientists at MBARI, even the bottom of the sea isn’t immune to human pollution. What’s more—it’s ending up in our food supply.

Using innovative robotic technology developed by MBARI, researchers gathered samples of a “water column” from the surface all the way down to the bottom

of the sea floor. After filtering the samples with a technique called Raman spectroscopy, which uses a laser to measure the scattering of light by matter, they discovered that microplastics were present throughout the ocean.

“Every sample we had, there was plastic in it,” said Kyle Van Houtan, Ph.D., chief scientist at the Monterey Bay Aquarium and one of the researchers who teamed up with MBARI for the study. “There was actually four times as much plastic below the surface as there was at the surface.”

While plastic itself does not easily degrade, it will break into increasingly smaller pieces. Once these tiny pieces are covered in algae and other biological materials, their buoyancy properties change, which explains their presence throughout the water samples, Van Houtan said. This research was the first time this kind of microplastic sampling had been done on a vertical transect of the ocean—rather than across a large swath of the surface. ➡

The scientists didn't just stop with water samples—they looked at marine life, too. It turned out that the tiny pieces of plastic had also made their way inside sea creatures, from tiny organisms to larger fish—fish that, through the inevitable cycle of the food web, wind up on dinner plates.

"We also looked at two different organisms that occurred throughout the water column, pelagic red crabs, which make their living by filter feeding, and these organisms called giant larvaceans. ... Every crab, every larvacean, every water sample had plastic in it. Everything had plastic in it," Van Houtan said. "The numbers are staggering of how much plastic goes into the ocean every minute, every hour, every day—of how many particles are actually in the ocean right now, in the marine ecosystem, in the food webs and passing to higher-level organisms like sharks and tunas and sea birds, and that ultimately interacts with our food web, because we eat fish that come out of the ocean. We also eat a lot of filter feeds like clams and mussels and oysters, and they're doing the same thing that these larvaceans and pelagic red crabs are doing—they're filter-feeding the water column, so whatever's in the water, they're going to get."

The MBARI study, which was published in *Scientific*

*Reports* in June, isn't the first time microplastics have been discovered in the food supply.

A separate study published in *PLOS ONE* in April 2018 found "anthropogenic particles"—including microplastics and synthetic fibers—in tap water, beer and commercial sea salt. The researchers calculated that the average person ingests more than 5,800 particles of synthetic debris annually, with the vast majority coming from tap water.

And a Belgian study from 2014 found microplastics in shellfish, with estimates that European shellfish consumers ingest approximately 11,000 microplastics each year.

### A reckoning

In recent years, plastic manufacturers, acknowledging the health risks associated with BPA especially, have looked for alternatives to the synthetic compound. But many of the alternatives have been shown to carry similar chemical activity, Mancini said, which means they would also interfere with the hormonal system.

"When BPA-free products were showing up on the shelves and baby aisles and everywhere, manufacturers were so proud of themselves for taking the BPA out and they just grabbed an alternative, which nobody ever tested. We tested a bunch of them, and guess what?



### Go further.

At the TWU Institute of Health Sciences – Houston Center, you can earn your graduate degree in physical therapy, nursing, nutrition, occupational therapy, health care administration or business. Get the support you need every step of the way.

Learn more at [TWU.edu/houston](http://TWU.edu/houston)



**TEXAS WOMAN'S**  
UNIVERSITY

# Announcing the TEXAS HEART INSTITUTE APP

The free Texas Heart Institute App includes over 1000 articles for adults and children and features the latest news, videos, and special events at the Texas Heart Institute.

[texasheart.org/app](http://texasheart.org/app)

también en español

Download on the App Store

GET IT ON Google Play

App Store and the Apple App Store are trademarks of Apple Inc., registered in the U.S. and other countries. App Store is a service mark of Apple Inc.

Google Play and the Google Play logo are trademarks of the Google LLC.



They have a lot of activity, too,” Mancini said. “The thing is, though, they can make plastic that doesn’t have endocrine-disrupting issues, but getting the industry to convert is a different question.”

Mancini said that, personally, he’s removed as much plastic from his home as possible, but with microplastics invading the water and food supply, that act could be compared to a drop in the ocean.

Still, it’s a start—and every gesture counts. Van Houtan believes the MBARI study may help target next steps for reducing microplastics.

“One of the things that was pretty prominent in our results was that 40 percent of the materials that we were able to identify to a specific plastic polymer were from PET—that’s the triangle with the number ‘1’ inside that you see in recycling. It’s polyethylene terephthalate, which is very common in single-use consumer products like food containers, beverage containers or things like ketchup bottles or soda bottles. So that’s something we can change,” Van Houtan said. “With such a large, geopolitically entrenched problem like this, there’s probably not going to be a silver bullet. However, we do know that if we stop producing and using these materials, that will stop the flow.”

While the MBARI study did look at common

materials used in the local fisheries and maritime operations in Monterey Bay to try to determine if the pollution was originating locally, Van Houtan said, researchers did not find much similarity between those materials and the microplastics they pulled from the ocean. He also said that while he believed much of the plastic they found originated from land, a significant amount came from worldwide dumping of trash directly into the ocean. The group measured the water column in two different locations and found more plastic further offshore than they did near the shore.

“We have a reckoning to make with our use of plastics in the United States. We’ve become so used to these materials because they’re durable and they’re very useful ... but it’s time, and we especially need to start with these single-use products. There’s just simply no need to be using things and throwing them away like this,” Van Houtan said. “The ocean is obviously a place where everyone likes to recreate and surf and fish and have fun, but it also regulates our climate, it also produces protein for billions of people on this planet, and we can’t take it for granted and we can’t keep throwing our trash in it and expect it to keep taking care of us in the way it has. We have to do a better job.” ■



#### Specializing In:

- Subacute and Chronic Medical Conditions
- Post-Operative Care
- Orthopedic and Stroke Recovery
- Advanced Pulmonary and Cardiac Services
- Pain Management
- Palliative Care
- Comprehensive Transitional Care



## SPECIALIZED CARE ADVANCED RECOVERY TOTAL WELLNESS

**Deerbrook Skilled Nursing**  
9260 Humble Westfield Road  
Humble, TX 77338  
www.Deerbrook-Humble.com  
281.446.5160

**Friendship Haven Healthcare and Rehabilitation**  
1500 Sunset Drive  
Friendswood, TX 77546  
www.FriendshipHaven.net  
281.992.4300

**Park Manor Conroe**  
1600 Grand Lake Drive  
Conroe, TX 77304  
www.ParkManor-Conroe.com  
936.441.8266

**Park Manor Cy-Fair**  
11001 Crescent Moon Drive  
Houston, TX 77064  
www.ParkManor-CyFair.com  
281.477.8877

**Park Manor Cypress Station**  
420 Lantern Bend Drive  
Houston, TX 77090  
www.ParkManor-CypressStation.com  
832.249.6500

**Park Manor Humble**  
19424 McKay Drive  
Humble, TX 77338  
www.ParkManor-Humble.com  
281.319.4060

**Park Manor Quail Valley**  
2350 FM 1092  
Missouri City, TX 77459  
www.ParkManor-QuailValley.com  
281.499.9333

**Park Manor South Belt**  
11902 Resource Parkway  
Houston, TX 77089  
www.ParkManor-SouthBelt.com  
281.922.6802

**Park Manor Tomball**  
250 School Street  
Tomball, TX 77375  
www.ParkManor-Tomball.com  
281.516.7929

[referral@healthmarkgroup.com](mailto:referral@healthmarkgroup.com)

[www.hmghealthcare.com](http://www.hmghealthcare.com)

[Twitter @hmghealthcare](https://twitter.com/hmghealthcare)

**Park Manor The Woodlands**  
1014 Windsor Lake Blvd.  
The Woodlands, TX 77384  
www.ParkManor-TheWoodlands.com  
936.273.9424

**Park Manor Westchase**  
11910 Richmond Ave.  
Houston, TX 77082  
www.ParkManor-Westchase.com  
281.497.2838



For onsite assessment and a personal tour,  
please contact the site of your interest above.

# How Loneliness Compounds Age-Related Diseases

*Isolation can create stress and depression in seniors*

BY SHANLEY PIERCE

By nature, humans are a social species. Evolution has hardwired us to depend on our connections and interactions with others to survive and thrive.

As people live longer, though, they tend to have smaller social networks, due to retirement, declining health, mobility limitations and other challenges. What happens to seniors, physically and mentally, when their social relationships start to diminish?

A confluence of factors—physical, social, psychological and neurological—could create a depressive phenomenon known by the umbrella term “late-life depression,” according to Vineeth John, M.D., director of the Geriatric Psychiatry Section at The University of Texas Health Science Center at Houston (UTHealth).

“It is different than the early life depression in the sense that people don’t even come out and say they’re depressed,” John explained. “In fact, they’ll say, ‘I don’t know. Life is kind of blah. I’m very much tired of all these pains, all these aches and so,’ but this can get missed in a primary care setting or geriatric physician office visit because they don’t really think they’re depressed. But actually, these are all manifestations of late-life depression.”

About 10,000 baby boomers turn 65 in the United States every day; by 2030, 20 percent of the American population will be 65 or older. Loneliness is a stealth epidemic growing among this group.

Approximately one in four seniors reported feeling isolated or disconnected and one in three reported feeling lonely in the



National Poll on Healthy Aging.

“Our cells change by virtue of being in an environment [of] social isolation,” said Robert Roush, Ed.D., M.P.H., professor of geriatrics at Baylor College of Medicine and director of the Texas Consortium Geriatrics Education Center at the Huffington Center on Aging. “Loneliness could be part of the precursor of an epigenetic change.”

## Health risks

The immune system is the first of the body’s systems to be affected by normal aging, but when compounded with chronic loneliness, the psychological stress can initiate physiological changes in the body.

Researchers have linked social isolation and loneliness to an increased risk of health issues including high blood pressure, cardiovascular disease, cancer, obesity, weak immune system, anxiety, depression, cognitive decline, Alzheimer’s disease, even death. Understanding the physiological effects of loneliness is integral to developing solutions and interventions that can help seniors lead healthier lives.

“Aging itself is not a disease, but there are diseases that are age-related, like cancer, dementia and other things,” Roush said. “There is a higher prevalence rate among older people who think of

themselves as being lonely or feel socially isolated.”

With significant depression, the immune system becomes compromised and the body is more prone to infections, John said.

“When we go through stress, when we go through sadness, the inflammation load is very high,” he added.

Individuals who spend a lot of time alone become hypervigilant of their surroundings. The resulting stress can activate the hypothalamic-pituitary-adrenal (HPA) axis and the sympathetic nervous system, which modulates the body’s fight-or-flight response. The brain sends signals that trigger the body to divert blood



# Congrats, *TMC Pulse* and TMC News

flow from other parts of the body to specific muscles, increasing the blood pressure and heart rate and boosting muscle tension in preparation for fighting or fleeing.

Chronic exposure to this stress, not to mention maintaining a high alert state, can lead to more serious conditions over time.

"There's been a disconnect for a long time between the mind and body, so to speak, and people have seen it as two very separate categories," John said. "But I think we are one being, who is a physical being, a mental being, a social being, and a psychological and spiritual being. Any impact on our sense of well-being and connectedness has huge ramifications on our neural system and biological system."

According to a meta-analysis by Brigham Young University psychology and neuroscience professor Julianne Holt-Lunstad, PhD., loneliness has been linked to an increased likelihood of death by 26 percent, the equivalent to smoking 15 cigarettes a day.

"We pounce on anyone smoking ... more than one cigarette a day, but we let [people] be lonely for years and years, and then it increases the risk of depression, ... increases dementia and also increases the visits to the ER," John said. "It's one of those silent maladies, silent epidemics."

## 'Do you feel lonely?'

Social isolation and loneliness are similar, but the not the same.

"Social isolation is the objective physical separation from other people—like living alone," John said. "Loneliness is subjective, with

distressed feelings of being alone and separated. It's possible to feel lonely while among other people. You can also be alone and not feel lonely."

This distinction is based on research by the late John Cacioppo, Ph.D., former director of the Center for Cognitive and Social Neuroscience at the University of Chicago, who pioneered the field of social neuroscience.

Loneliness is a "significant public health concern" that leads to an increase in physician visits, Cacioppo wrote in a study published in 2015 in the *American Journal of Public Health*.

Unfortunately, the topic of loneliness tends not to come up during those office visits.

By asking the right questions of patients young and old, doctors are better equipped to advise and direct them toward reducing feelings of loneliness and improving their overall quality of life.

"It's worth a clinician's time to make inquiries: 'Do you feel lonely? Do you feel socially isolated? How can we help you in this regard?'" Roush said.

When it comes to finding the best social connections, experts said, quality trumps quantity every time. Establishing strong, meaningful relationships and a sense of community will take time and effort, but it will nourish the mind, body and soul.

"Creating communities should be a No. 1 priority," John said. "We need a community of peers to sustain our well-being." ■



## PHOTOJOURNALIST CODY DUTY

won a [Barbara Jordan Media Award](#) for the images and video accompanying the story "Racing to Recovery," which ran in the May 2018 issue of *TMC Pulse*. Barbara Jordan Media Awards go to media professionals who have accurately and positively reported on individuals with disabilities.



## WRITER AND COLUMNIST SHANLEY PIERCE

won a first place [Anson Jones, MD, Award](#) from the Texas Medical Association in the Online Single Article category for her story, "Musician Plays Flute During Deep Brain Stimulation," which ran online at [tmcnews.org](#) on March 28, 2018 and appeared in the May 2018 issue of *TMC Pulse*.



**1 | The TEXAS MEDICAL CENTER POLICE** held a Bike Rodeo that featured bike safety and hand signal instructions, games, medals for completing the instruction course, T-shirts and prizes.

**2 | BIYKEM BOZKURT, M.D., PH.D.,** professor of medicine-cardiology and the W.A. “Tex” and Deborah Moncrief, Jr. Chair in medicine at Baylor College of Medicine, has been elected president of the Heart Failure Society of America.

**3 | RICARDO NUILA, M.D.,** assistant professor of medicine and director of the Narrative Medicine Program in the Center for Medical Ethics and Health Policy at Baylor College of Medicine, was accepted to the fall 2019 class of Logan Nonfiction Fellows at the Carey Institute for Global Good.

**4 | WILLIAM F. McKEON,** president and CEO of the Texas Medical Center, left, shakes hands with **MAGNUS HEUNICKE,** Denmark’s Minister for Health and Senior Citizens, after the TMC entered into a BioBridge agreement with Denmark.

**5 |** Gerald Thomas, Philip and Blessing Quartey, Kelly Jett, Eva Quartey and Heidi Thompson attended the RBC Wealth Management Bad Pants Open, which raised more than \$440,000 for Texas Children’s Newborn Center. Jett, a NICU nurse at **TEXAS CHILDREN’S HOSPITAL,** was presented with the NICU Nurse of the Year award at the event.



Credit: Nos. 2, 3, 5, 7, 8, 9, 10, 11 courtesy photos; No. 4, © Bjørg de Meza Espersen; No. 12, Chinh Phan





6



7



8



11



9



10



12



6 | During a Biotech Security Summit at the **TEXAS MEDICAL CENTER INNOVATION INSTITUTE**, officials from the Federal Bureau of Investigation, the National Institutes of Health and the Department of Justice outlined threats facing U.S. hospitals, research laboratories and biotechnology companies.

7 | **MARY ESTES, PH.D.**, distinguished service professor of virology and microbiology at Baylor College of Medicine, has received the 2020 Lifetime Achievement Award from the American Academy of Microbiology.

8 | **MATTHEW ELLIS, MB, BCHIR, PH.D.**, professor and director of the Lester and Sue Smith Breast Center at Baylor College of Medicine, has been awarded the Susan G. Komen Brinker Award for Scientific Distinction in Clinical Research.

9 | **LOUISE D. McCULLOUGH, M.D., PH.D.**, the Roy M. and Phyllis Gough Huffington Distinguished Chair and professor of neurology at McGovern Medical School at The University of Texas Health Science Center at Houston (UTHealth), has received the American Neurological Association's 2019 Soriano Lectureship Award.

10 | **JOHN A. VALENZA, D.D.S.**, dean, alumnus and distinguished teaching professor at UTHealth School of Dentistry, was named the Texas Academy of General Dentistry's 2019 Texas Dentist of the Year.

11 | Two members of the Houston Texans, offensive tackle **RODERICK JOHNSON** and wide receiver **DEANDRE CARTER**, visited with breast cancer patients at **HOUSTON METHODIST OUTPATIENT CENTER** in October.

12 | A fundraiser presented by Chevron raised more than \$400,000 and celebrated 20 years of service by the **BAYLOR INTERNATIONAL PEDIATRIC AIDS INITIATIVE (BIPAI) AT TEXAS CHILDREN'S HOSPITAL** to some of the world's most vulnerable children and women. Hundreds gathered for a one-night photo exhibit, "Through the Lens," showcasing the work of the program by featuring the photography of Pulitzer Prize-winning photojournalist Smiley Pool.

Do you have TMC photos you would like to share with *Pulse*?  
Submit high-resolution images to: [news@tmc.edu](mailto:news@tmc.edu)

# November 2019

11/7

**TMCx Demo Day**

*TMCx medical device companies pitch their products*

Thursday, 12:30 – 8 p.m.

TMC Innovation Institute

2450 Holcombe Blvd., Suite X

Register: [eventbrite.com](https://eventbrite.com)

[tmcx@tmc.edu](mailto:tmcx@tmc.edu)

713-791-8855

11/9

**MD Anderson Boot Walk to End Cancer**

Saturday, 1 p.m.

MD Anderson South Campus

7007 Bertner Ave.

Register: [mdanderson.org](https://mdanderson.org)

[bootwalk@mdanderson.org](mailto:bootwalk@mdanderson.org)

844-363-2262

**Texas Medical Center Orchestra Performance**

*Works by Peter Boyer, Erich Korngold and Igor Stravinsky*

Saturday, 7 – 9 p.m.

Miller Outdoor Theatre

6000 Hermann Park Dr.

Free tickets for covered seating available day of show;

open seating on the hill

[camachojose@gmail.com](mailto:camachojose@gmail.com)

832-487-7102

11/12

**The Nation's Pulse: TMC's 2019 Consumer & Physician Surveys**

*A discussion with the TMC Health Policy Institute about voters' views on key health policy issues as the 2020 election approaches*

Tuesday, 5:30 – 7:45 p.m.

Third Coast Restaurant

6550 Bertner Ave., 6th Floor

Register: [tmchealthpolicy.org](https://tmchealthpolicy.org)

11/16

**The Health Museum's 50th Birthday Celebration**

*Birthday cake, activities and more*

Saturday, noon

The Health Museum

1515 Hermann Park Dr.

[bseabrook@thehealthmuseum.org](mailto:bseabrook@thehealthmuseum.org)

713-521-1515

For more events, visit [TMC.edu/news/tmc-events](https://TMC.edu/news/tmc-events)

What you say  
matters.  
What you do  
matters.



From darkness, light.

Thank you to our community partners.



[hnh.org](https://hnh.org)





WE'RE HERE  
FOR YOU.  
FOR  
LIFE.

As your public health system, we're responsible for the health of the people of Harris County, especially those who need us most. We don't take that responsibility lightly.

You won't find better care or more caring professionals than ours, all right in your area.

**One visit is all it takes for your family to begin a lifetime of health and wellness.**

**We are your medical home for life.**

Primary care | Specialty care | Outpatient care



The highest levels of trauma and emergency care at  
Ben Taub and Lyndon B. Johnson hospitals

ONEFORALL

HARRISHEALTH SYSTEM

[harrishealth.org](https://harrishealth.org)





### Inverness

River Oaks, \$6.2+ mil.  
Mary Hale McLean, 713.553.4255



### Wickline

Hunters Creek, \$4.8+ mil.  
Sue Atlas, 713.446.5551



### Cherokee

Rice/Museum District, \$4.7+ mil.  
Cathy Blum, 713.320.9050



### Berthea

Rice/Museum District, \$3.9+ mil.  
Colleen Sherlock, 713.858.6699



### Rice Blvd.

Southampton Place, \$2.7+ mil.  
Cathy Blum, 713.320.9050



### Westchester

West University, \$2.7+ mil.  
Heidi Dugan, 713.725.9239



# GREENWOOD KING

3201 KIRBY DRIVE / 1616 S. VOSS RD., SUITE 900 / 1801 HEIGHTS BLVD. HOUSTON, TEXAS

*a place to find your home*



Well Connected.™

*Leading*

REAL ESTATE  
COMPANIES  
OF THE WORLD®

WE'RE LOCAL.  
WE'RE GLOBAL.



### Crestwood Dr.

Crestwood, \$2.1 mil.  
Tim Surratt, 713.942.6830



### Uptown Park

Villa D'Este, \$1.7+ mil.  
Sharon Ballas, 713.822.3895



### Underwood

Braeswood, \$1.6+ mil.  
Cathy Blum, 713.320.9050



### Aurora

Sunset Heights, \$1.2+ mil.  
Amanda Anhorn, 713.256.5123



### Woodhead

River Oaks Shopping Area, \$600s  
George Sutherland, 713.942.6891



### Sue Barnett

Garden Oaks, \$520s  
Jason Knebel, 713.232.9712

