

New Thinking

Fall 2017

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ABOUT THINKING

A Publication by Cleveland Clinic Lou Ruvo Center for Brain Health

Research, treatment and education for patients and families living with brain disorders
Alzheimer's • Huntington's • Parkinson's • Frontotemporal Dementia • Multiple Sclerosis • Multiple System Atrophy

 **Cleveland Clinic**
Lou Ruvo Center for Brain Health

KEEP MEMORY ALIVE

Supporting the Mission of Cleveland Clinic Lou Ruvo Center for Brain Health

■ — ■ — ■ — ■ — ■ — ■ —
ALZHEIMER'S | HUNTINGTON'S | PARKINSON'S
MULTIPLE SYSTEM ATROPHY | MULTIPLE SCLEROSIS



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Cooking FOR A CAUSE

WOLFGANG PUCK

To the world, Wolfgang Puck is a celebrity chef viewed by millions cooking on Good Morning America and walking the red carpet at the Academy Awards. To us, he's our friend: a philanthropist of vast generosity and a true partner in helping us fight the battle against brain-related diseases.

"Keep Memory Alive is very near to my heart, especially when I think about my mother, Maria, who had Alzheimer's and my friend, Larry Ruvo, whose father was afflicted with this dreadful disease. I've been in the restaurant business for years, and I have seen many of our wonderful customers slowly waste away. Whatever I can do to help find a cure, I will do."

— WOLFGANG PUCK

THANK YOU, WOLFGANG PUCK, for cooking for us every year since that very first memorial dinner for our namesake, Lou Ruvo. In 1996, you filled our bellies and our hearts in that private dining room as you hosted our small group of 35 at Spago. Your spirit and generosity haven't waned, and thanks to your support, neither has Keep Memory Alive's commitment to patients and families.





MICHAEL MINA

As Michael Mina has grown his restaurant empire across a dozen metro areas, so has he grown his charitable commitment.

“When Larry Ruvo introduced me to Keep Memory Alive and Cleveland Clinic Lou Ruvo Center for Brain Health, I was drawn to how much good they do with their clinical trials. The events they put on give our Las Vegas restaurants and chefs a forum to give back to an amazing cause. At the Power of Love event, I’m able to cook and to serve both my food and my community.”

— MICHAEL MINA

THANK YOU, MICHAEL MINA, for your unwavering enthusiasm for Keep Memory Alive and the Las Vegas community. You feed our community’s soul.



JOIN OUR TABLE

LOVE CELEBRITY CHEFS AND GOOD FOOD?
LIKE TO EAT WELL AND DO GOOD?

If you’re not already receiving information about Keep Memory Alive’s events that are filled with food, fun and purpose, please contact us and join our mailing list.

Learn more about the purpose behind the party. One hundred percent of the funds raised by Keep Memory Alive exclusively support the Lou Ruvo Center for Brain Health.

702.263.9797 or specialevents@keepmemoryalive.org

Dr. Mari and the Parkinson's Disease Program

With this issue of *New Thinking About Thinking*, we welcome Zoltan Mari, MD, as the new Director of Cleveland Clinic Lou Ruvo Center for Brain Health's Parkinson's Disease and Movement Disorders Program. Dr. Mari joins us from Johns Hopkins University where he directed the Movement Disorders Program, the Deep Brain Stimulation (DBS) Program, the Dystonia Program and the Movement Disorders

Training Fellowship. He has conducted many clinical trials for the treatment of Parkinson's disease and other movement disorders. He brings a depth of knowledge and experience to the Lou Ruvo Center for Brain Health that is truly unparalleled.

We are delighted that Dr. Mari joined us.



Zoltan Mari, MD

Parkinson's disease is a key component of the programs of the Lou Ruvo Center for Brain Health. Our primary focus is Alzheimer's disease and memory disorders but our programs in Parkinson's disease and multiple sclerosis enrich the scientific and clinical aspects of the center, support our mission of meeting the neurological needs of the citizens of Las Vegas and Nevada, and allow us to provide education on a broader range of neurological disorders to students, residents and fellows studying with us at the Lou Ruvo Center for Brain Health.

There are many connections among neurological diseases in terms of nerve cell changes, use of brain imaging and the challenges of conducting clinical trials in individuals who are compromised by their



Jeffrey L. Cummings, MD, ScD

brain conditions. Learning from one disorder is key to advancing progress in others. The strength of our Parkinson's Disease Program is a key element in our overall center vision.

Please help me in welcoming Dr. Mari to the city of Las Vegas and the state of Nevada. We are excited that he brings strong leadership to the Parkinson's Disease and Movement Disorders Program and complements our existing strengths in Alzheimer's disease and multiple sclerosis.

Jeffrey L. Cummings, MD, ScD

Camille and Larry Ruvo Chair for Brain Health

Director, Cleveland Clinic Lou Ruvo Center for Brain Health

Director, Center for Neurodegeneration and Translational Neuroscience

Professor, Cleveland Clinic Lerner College of Medicine

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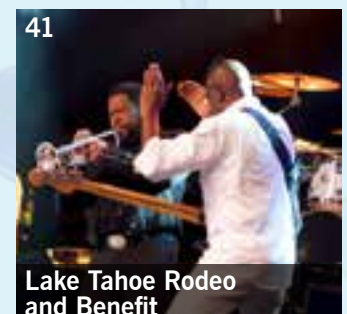
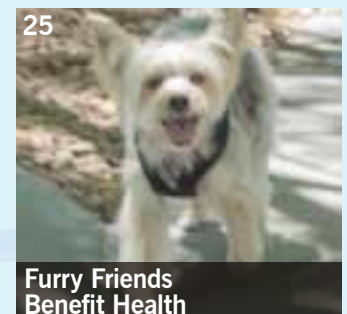
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Cleveland Clinic Lou Ruvo Center for Brain Health has lit our iconic Frank Gehry-designed Keep Memory Alive Event Center purple — the color of Alzheimer's — to commemorate World Alzheimer's Day (September 21) and National Alzheimer's Disease Awareness Month (November).

Keep Memory Alive Shines as Stars Unite to Pay Tribute at the Power of Love® Gala



Ronald O. Perelman



Siegfried Fischbacher



Andre Agassi

On April 27, some of the biggest names in the entertainment industry joined Keep Memory Alive at the 21st annual Power of Love® gala to:

- Honor philanthropist and Chairman and CEO of MacAndrews & Forbes Inc., **Ronald O. Perelman**
- Recognize **Siegfried Fischbacher** of the legendary duo, Siegfried & Roy, with an inaugural Caregiver Award
- Celebrate tennis superstar **Andre Agassi** with a Community Leadership Award

Held at the MGM Grand Garden Arena in Las Vegas, the star-studded event, enjoyed by 1,600 enthusiastic supporters, raised funds for Cleveland Clinic Lou Ruvo Center for Brain Health and its fight against degenerative brain diseases including Alzheimer's, Huntington's and Parkinson's diseases, frontotemporal dementia, multiple sclerosis and multiple system atrophy.

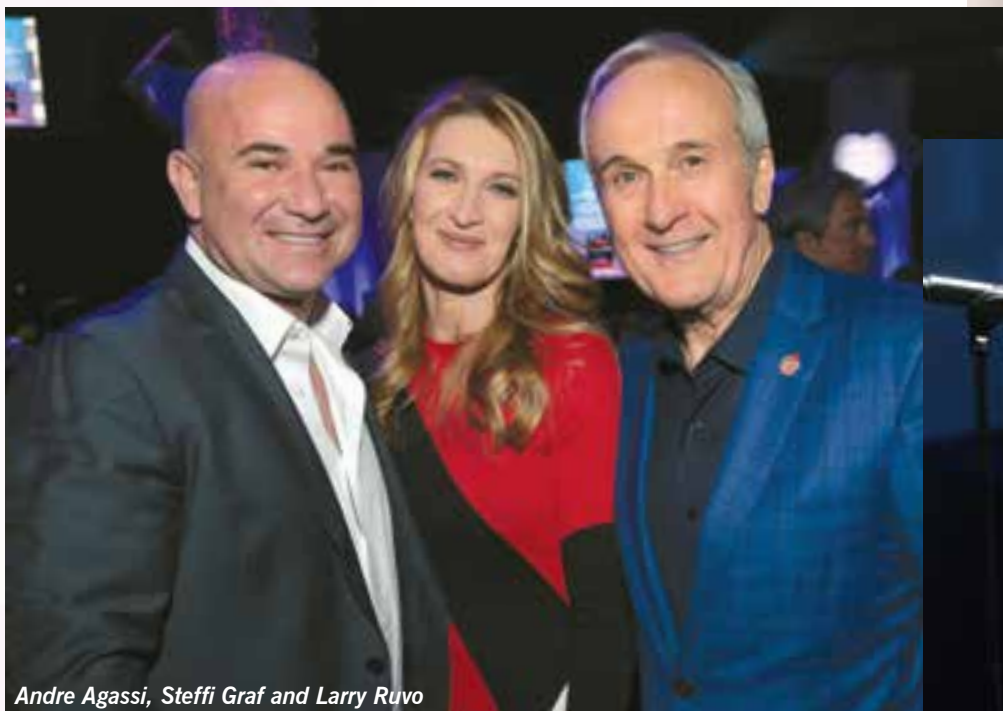
Highlights from the night included performances by two Grammy Award-winning artists:

- **Jon Bon Jovi:** "Who Says You Can't Go Home," "You Give Love A Bad Name" and "Livin' On A Prayer"
- **Jennifer Hudson:** "Hallelujah," "Remember Me" and a Whitney Houston mash-up of "I'm Every Woman" and "I Wanna Dance with Somebody"

Interested in Our Events?

You may purchase tickets online at keepmemoryalive.org for a variety of Keep Memory Alive events throughout the year. Please contact us anytime at 702.263.9797 or events@keepmemoryalive.org for more information or to join our monthly events email updates.

Follow Keep Memory Alive on Facebook, Twitter or Instagram for the most up-to-the-minute event details.



Andre Agassi, Steffi Graf and Larry Ruvo



Jon Bon Jovi

Celebrity supporters included **John Paul DeJoria**, **Kenneth “Baby Face” Edmonds**, **Larry King** and **Steve Schirripa**.

Continuing its unparalleled history, the Power of Love gala showcased a dinner prepared by superstar chefs **Michael Mina** and **Wolfgang Puck**, who has participated in every gala since its inception. In addition to enjoying the finest cuisine, wine and spirits, guests bid on one-of-a-kind experiences during the event’s signature live and silent auction.

Items auctioned include a week-long vacation sailing off the coast of Australia aboard the ultra-luxurious MY Texas super yacht, a private meet and greet with Grammy Award-winning songstress Lady Gaga and a once-in-a-lifetime Italian vacation complete with an exclusive event at the world famous Roman Colosseum headlined by Andrea Bocelli.



Jennifer Hudson



L-R — Siegfried Fischbacher, Roy Horn and Las Vegas Mayors Carolyn and Oscar Goodman



L-R — Larry Ruvo, Brett Ratner, Irving Azoff and Ronald Perelman

A New Era for DBS Patients in Nevada

Groundbreaking work with deep brain stimulation (DBS) surgery in Cleveland, combined with the recent arrival of a renowned movement disorders expert in Las Vegas, is bringing world-class care to DBS patients at Cleveland Clinic Lou Ruvo Center for Brain Health.

In Cleveland, Andre Machado, MD, PhD, Chairman of Cleveland Clinic's Neurological Institute, is building on his experience with DBS for Parkinson's disease and other movement disorders to investigate whether DBS can improve rehabilitative outcomes in patients recovering from stroke. In December 2016, Dr. Machado performed the first DBS surgery for stroke recovery as part of a clinical trial co-funded by the National Institutes of Health, designed to advance research into innovative neurotechnologies.

Dr. Machado's breakthrough surgery will test whether DBS for stroke can enhance the effects of subsequent physical therapy, a critical component to recovery from stroke and most major surgeries; notably, DBS for movement disorders such as Parkinson's disease.

While this cutting-edge research focuses on stroke, the scientific discoveries made in the areas of neuronal plasticity, rehabilitation and DBS technology can greatly benefit individuals with movement disorders as well. Las Vegas-based

Zoltan Mari, MD, the new Director of the Parkinson's and Movement Disorders Program, and movement disorders specialist Brent Bluett, DO, plan to leverage the expertise of Dr. Machado and others at Cleveland Clinic's main campus to develop a unified, integrated clinical protocol for enhancing DBS care for Parkinson's disease, essential tremor and dystonia in Nevada.

While open to building collaborations within and outside Nevada to benefit patients, Dr. Mari envisions in-state



Andre Machado, MD, PhD



Zoltan Mari, MD



patients undergoing DBS surgery for Parkinson's disease, essential tremor and dystonia in Cleveland and receiving their pre- and postoperative care at the Lou Ruvo Center for Brain Health. The trip to Cleveland would be brief and well-coordinated with the Las Vegas team.

What Happens in Surgery in Cleveland

During DBS surgery, surgeons place electrodes in small areas of the brain, which are targeted because of their specific involvement in movement disorders. The electrodes are then connected by wires to a pacemaker device known as an impulse generator (IPG) that is implanted under the skin of the chest, below the collarbone. This device looks almost identical to those used as cardiac pacemakers. Once activated, the IPG sends continuous electrical pulses to the targeted areas of the brain to modify the activity of brain circuits, thereby improving motor symptoms.

Postoperative care in Las Vegas

Back in Las Vegas, the Movement Disorder physicians at the Lou Ruvo Center for Brain Health would then turn on the IPG and perform the initial programming. Ongoing adjustments, which are noninvasive, would ensure that DBS therapy is optimized.

Medication changes and ancillary care (including physical, occupational and speech therapy) would complete the post-DBS multidisciplinary care model.

Like any surgery, DBS surgery carries risks. However, for patients whose disease is not adequately controlled with medication, DBS can markedly improve quality of life by reducing tremors and improving other motor functions.

Rehabilitation: The Next Step

The Lou Ruvo Center for Brain Health's neurorehabilitation team is dedicated to offering therapy services designed expressly for movement disorder and DBS patients.

Clinical Rehabilitation Manager Shaina Meyer, OTR/L, MSCS, heads a staff of board-certified physical and occupational therapists with expertise

in movement and the musculoskeletal system. This team provides comprehensive care to promote gains in mobility and activities of daily living after DBS. The overarching goal is to prolong patients' independence and maximize the functional effects of DBS.

"Recent literature suggests that undergoing DBS does not necessarily lead to an increase in a patient's level of physical activity," says Ms. Meyer. "Because inactivity is so detrimental to cognitive, mental and physical health, there is a need for integrated care to address fitness and activities of daily living after DBS."

Want to learn more?

For an appointment with Dr. Mari, Dr. Bluett or another member of the movement disorder team, please call 702.483.6000. Information on Parkinson's disease is available at clevelandclinic.org/parkinsons.

Zoltan Mari: Welcome to Nevada

Dr. Mari, who established the Deep Brain Stimulation Center at Johns Hopkins University during a distinguished, 11-year tenure, hopes to bring this multidisciplinary program to the Lou Ruvo Center for Brain Health as Director of the Parkinson's and Movement Disorders Program.



"Here in Las Vegas, I have discovered a wonderful new home at Cleveland Clinic Lou Ruvo Center for Brain Health," says Dr. Mari. "The outpouring of support, enthusiasm and team spirit at the center inspires me to take the DBS program to the next level. I am excited and proud to be part of this initiative and the Lou Ruvo Center for Brain Health's team."



Susan Farris, MEd, and Dylan Wint, MD

Passing the Gift of Knowledge to the Next Generation

Every student who undergoes training at Cleveland Clinic Lou Ruvo Center for Brain Health gets an education beyond anything learned in the classroom. Since 2010, our Student and Trainee Education Program has helped more than 375 participants affirm their calling in medicine and pursue their science studies.

From high school seniors to residents and fellows, the popular program has hosted aspiring neurologists, neuropsychologists, nurses, physician assistants, physical and occupational therapists, social workers and more under the leadership of Dylan Wint, MD, holder of the NV Energy Chair for Brain Health Education.

“We know not everyone we train will be a neurologist,” says Dr. Wint. “But we hope our trainees will see the wide array of medical careers open to them, and appreciate that the brain impacts every part of the body’s ability to function.

When it works well, it’s the most amazing machine.”

It Takes a Team

Educating the next generation is a shared responsibility at the Lou Ruvo Center for Brain Health — and the work starts well before students are old enough for on-site training. Often in pairs, and sometimes in small interdisciplinary groups, staff members addressed more than 2,200 K-12 students in schools or during field trips to the Lou Ruvo Center for Brain Health from 2012 through 2016.

“We want them to understand what a care team looks like,” says Dr. Wint. “Presentations to students include an overview of diseases the center treats, the science behind them and ways to reduce one’s risk of neurological impairment.”

Unique Collaborations

The Student and Trainee Education Program also offers career-focused presentations to College of Southern Nevada biomedical and dental hygiene students and to Touro University nursing and physician assistant students.

“When we educate others, such as dental hygiene students, we want them to understand that you never know who is in your dental chair,” says Susan Farris, MEd, Manager of Student and Trainee Education. “For example, how do you assist a patient with Parkinson’s disease who freezes and can’t move in or out of the chair for a cleaning?”

In 2012, another innovative partnership took shape when the University of Nevada, Las Vegas School of Architecture approached the Lou Ruvo Center for Brain Health, requesting scientific expertise to help students create environments for people living with neurodegenerative disease. UNLV now offers a master’s degree in healthcare interior design.



Intern Elizabeth Groesbeck with Dylan Wint, MD

Lessons That “a Textbook Could Not Teach Me”

Former students in the Lou Ruvo Center for Brain Health’s Student and Trainee Education Program often write with gratitude and reflect on how the opportunity changed them.

“... I learned and saw first-hand the tools and devices used to diagnose and treat medical conditions. I became passionate about this particular part of healthcare, and am now in my second year of a master’s program in biomedical engineering at Cleveland State University. ... Next year, I will be applying to pursue a PhD. Thank you for the opportunity to intern at the Lou Ruvo Center for Brain Health ...”

– *Tanetta Curenton, summer intern (college undergraduate), 2012*

“I am grateful to have had this opportunity ... and appreciate that the patients allowed students to observe them. ... I got a very real picture, even if a brief one, of the effect of (degenerative) diseases on both the patients and the family. I learned a lot from this experience that a textbook could not teach me.”

– *Stella Hanadi, second-year physician assistant student, Touro University, 2014*

“Although I am thankful for being allowed to better understand these neurological disorders, I am even more grateful for being allowed to see the doctor-patient relationship and how improving the day-to-day quality of life is not any less important than curing the disease.”

– *Megan Purdy, summer intern (college undergraduate), 2014*

Training and Retaining in Nevada

The Lou Ruvo Center for Brain Health employs former trainees, including behavioral neurologist Aaron Ritter, MD; physical therapist Trevor Mahoney, PT, DPT, MSCS; and nurse practitioners Samantha McLea, CNP, and Maileen Ulep-Reed, CNP.

Elizabeth Groesbeck, a Carleton College undergraduate who interned at the center in 2012, and Arturo Montez, from UNLV, who interned at the center from 2011 to 2013, were accepted into the inaugural UNLV School of Medicine class of 2021.

All of them learned to be competent professionals, but they took away another, equally important lesson, says Ms. Farris: “It’s essential to show care and compassion to your patients and their caregivers, especially with the diseases we treat. We may not be able to provide a cure today, but we can show dignity and compassion. Trainees see this first hand as they observe our faculty.”

Examining Head Trauma Across Multiple Touch Points

Repeated head trauma can be harmful to the brain and can lead to the development of serious conditions, including chronic traumatic encephalopathy (CTE) and dementia. A leader in studying how brain trauma affects athletes in contact sports, Cleveland Clinic Lou Ruvo Center for Brain Health has been making strides in its research and education efforts on CTE. Here is an update:

DIAGNOSE CTE

This landmark, seven-year study is the first to investigate ways to detect CTE in living football players, who are undergoing extensive testing at four sites — including the Lou Ruvo Center for Brain Health. Jeffrey Cummings, MD, ScD, Director of the center, is a co-principal investigator for the national study and Charles Bernick, MD, MPH,

Associate Medical Director, is principal investigator at the Lou Ruvo Center for Brain Health.

Professional Fighters Brain Health Study

Begun in 2011, the Lou Ruvo Center for Brain Health's pioneering study now has 750 participants: boxers and mixed martial arts fighters. The data collected from participants' annual neurological evaluations are providing evidence of how

fighting affects brain health. Researchers continue to publish data (see *page 18*) from the study. “We have built a strong foundation for conducting research to understand the long-term effects of repetitive head trauma,” says Dr. Bernick, the study's principal investigator (clevelandclinic.org/fighterstudy).

International Olympic Committee (IOC) Prevention of Sports Injury Conference

At the IOC gathering in March, Dr. Bernick presented a workshop with Tad Seifert, MD, from the University of Louisville on monitoring long-term brain health. “The IOC is taking this issue more seriously, but is mostly focused on when athletes with concussions can return to their sport. We advocate for attention to athletes' long-term brain health,” says Dr. Bernick.

Dementia 2017: The Brain Under Assault

This annual conference, for healthcare professionals who treat patients with neurological disorders, is convened by Cleveland Clinic and took place in June at the Lou Ruvo Center for Brain Health. It addressed disorders that can cause damage to the brain and result in dementia, with a focus on traumatic brain injury.

American Academy of Neurology Sports Concussion Conference

At the annual conference in July, Dr. Bernick's presentation, “Chronic Neurocognitive Impairment and Combat Sports,” featured insights from the Professional Fighters Brain Health Study.



Charles Bernick, MD, MPH

Healthy Brains Day 2017:

A DAY TO REMEMBER

HealthyBrains.org and Caesars Entertainment, along with the helping hands of Caesars' SMART HEROs, commemorated its second anniversary across nine Caesars Entertainment hotels.

Some highlights include:

- Educating Caesars employees and patrons about the "Six Pillars of Brain Health"
- Showing how easy it is to use the online brain health checkup tool
- Serving brain-healthy food inspired by the Mediterranean Diet

On Healthy Brains Day 2017, more than 1,800 people logged on to HealthyBrains.org and took a closer look at their lifestyle by taking the brain health checkup. Caesars employees enjoyed kale salads, fish and lentil dishes for lunch. Many guests dining at Giada's, Gordon Ramsay Pub & Grill, Nook Cafe and Burger Brasserie opted for the "Healthy Brains Day" menu special — meals that not only have the potential to improve their "Nutrition Pillar" but also contributed to the important brain research being



L-R — Brook Hurd, Matt Krystofiak, Kat Hartley, Jeffrey L. Cummings, MD, ScD, Jan Jones Blackhurst, Sean McBurney, and Carolyn Wheeler

conducted at Cleveland Clinic Lou Ruvo Center for Brain Health.

Caesars Foundation, funded by Caesars Entertainment, originally collaborated with Keep Memory Alive and the Lou Ruvo Center for Brain Health by providing a grant to develop the Healthy Brains Initiative. The website was launched on May 12, 2015 and the day was proclaimed "Healthy Brains Day" by Las Vegas Mayor Carolyn Goodman.

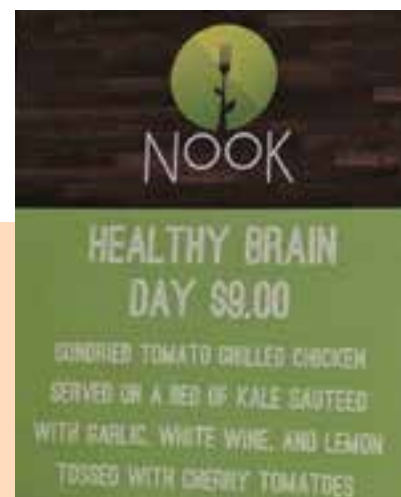
In January of 2016, employee volunteers — known as Caesars' "SMART HEROs" — pitched in to help the Lou Ruvo Center for Brain Health educate the community about brain health and how to take the self-administered brain health checkup. Throughout 2017, these

volunteers alongside the Healthy Brains team have worked together to amplify the message that a healthier lifestyle can lead to a healthier brain. These dynamic efforts will continue to aid the Lou Ruvo Center for Brain Health find vital volunteers needed in the discovery of new treatments for brain diseases.

Every day can be Healthy Brains Day. Celebrate your awareness of brain health by re-taking the brain health checkup to see if your scores improve. Join us in our mission to discover new treatments for brain disorders by volunteering for a clinical trial at HealthyBrains.org.



Employees from the Flamingo show their zest for brain health



Prevention Studies to End Alzheimer's Disease

By Aaron Ritter, MD

Finding more effective treatments for Alzheimer's disease, a disease that affects more than 44 million people globally, remains one of the great challenges of the 21st century. Without treatments that slow or stop the disease, the number of people affected by Alzheimer's is expected to grow to more than 135 million by the year 2050. The high cost of caring for so many millions affected by this disease (already exceeding \$600 billion per year) will place an enormous strain on healthcare systems around the world.

Discovering therapies that slow the natural progression of Alzheimer's disease has proven difficult. Currently available Alzheimer's medications (like donepezil and memantine) help the brain function better and improve symptoms, but do not affect the processes that cause the disease in the first place. As a result, no currently available Alzheimer's medications slow down the disease.

What causes Alzheimer's?

After years of research, scientists are finally beginning to unlock the secrets of what causes Alzheimer's. It is now widely believed that the buildup of a protein called amyloid — a protein that our brain cells produce naturally throughout our lives — begins to accumulate in the brains of people who are affected. For some unknown reason, people with Alzheimer's lose the ability to clear amyloid from the brain. When enough amyloid accumulates, it clumps together, forming plaques. Amyloid plaques are toxic to brain cells and slowly cause neurons to die. When enough neurons are affected, the symptoms of dementia appear.

Can plaque be reduced or removed by therapeutic intervention?

Over the past 10 years a number of experimental medicines, known as anti-amyloid therapies, have been

developed. Several anti-amyloid therapies have been tested in people with Alzheimer's disease through clinical trials. Unfortunately, none of these medications improved the symptoms of dementia.

Many scientists believe these failures occurred because treatment was given too late. Based on amyloid PET scans, which show amyloid levels in the brain, we now know that amyloid begins to accumulate many years (up to 25 years) before the first symptoms are noticed. Therefore, the ideal time to start an anti-amyloid therapy may be when the symptoms are very mild or even at a time point before the first symptoms appear. When clinical trials test medications in people before the onset of symptoms, these are called prevention studies.

What would prevention look like?

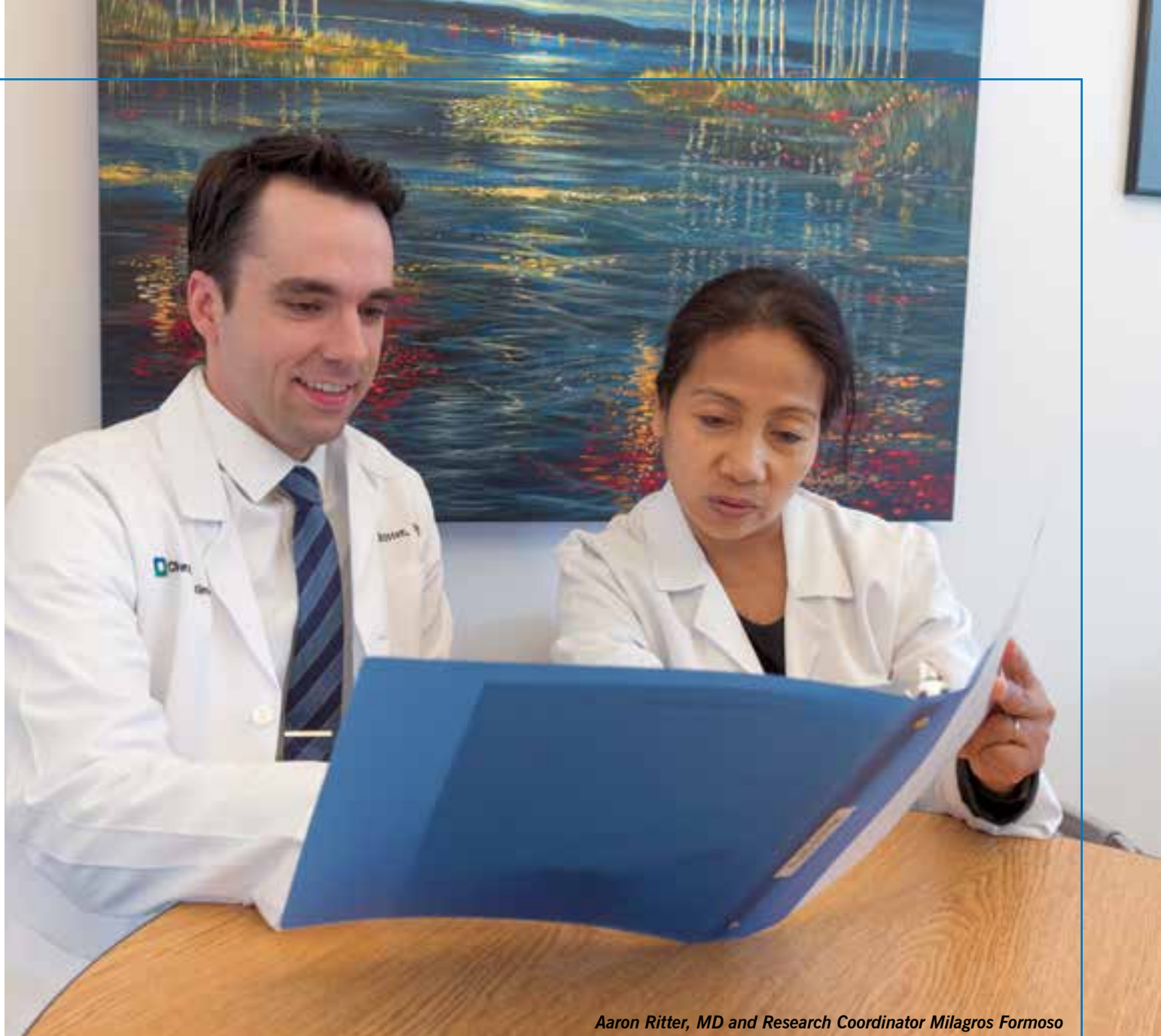
In order for prevention studies to be considered successful, the study must show that the therapy prevents Alzheimer's. This is demonstrated by showing that participants receiving the experimental therapy developed the disease at a lower rate than those receiving a placebo. Prevention studies need to be long (usually more than five years in length) and include only people who are at very high risk of developing the disease. Family history, genetics, age and brain amyloid levels (demonstrated by amyloid PET scans) are often used to identify candidates for Alzheimer's prevention trials.

Only about 1 in 10 people who are interested in participating in prevention trials have the right features to be included in a trial.



ABOUT THE AUTHOR

Aaron Ritter, MD, received his Bachelor of Arts at the University of Wisconsin-Madison and obtained his medical degree from the University of Colorado. He completed an internship in pediatrics and residency training in psychiatry at the University of Arizona in Tucson, followed by a fellowship in behavioral neurology and neuropsychiatry at Cleveland Clinic Lou Ruvo Center for Brain Health, where he is now Director, Clinical Trials Program.



Aaron Ritter, MD and Research Coordinator Milagros Formoso

Prevention efforts at Cleveland Clinic Lou Ruvo Center for Brain Health

We are committed to the challenge of preventing Alzheimer's disease and are currently conducting four Alzheimer's prevention studies. Two key studies are:

A4: We are testing whether an antibody directed against amyloid can lower the risk of developing cognitive problems in people with high levels of brain amyloid.

GENERATION: We are testing whether a medication that lowers the production of amyloid can reduce the risk of developing Alzheimer's in people who are high risk because of their genetics.

In a world that adds a new case of dementia every four seconds, it is imperative that new and better treatments for Alzheimer's are discovered as soon as possible. Therapies that could prevent Alzheimer's would fundamentally alter the lives millions of people all over the world.

The Lou Ruvo Center for Brain Health is excited to be taking on this important endeavor. You can join us:

Call 855.LOU.RUVO to speak with a researcher or email healthybrains@ccf.org and see if any current trials are a match for you or someone you know.

A full list of active trials is at clevelandclinic.org/BrainHealthTrials



Jeffrey Cummings, MD, ScD

Second Annual Drug Pipeline Report Demands Action

In June, Cleveland Clinic Lou Ruvo Center for Brain Health released its annual analysis of Alzheimer's disease (AD) drug development. The study, based on the federal website ClinicalTrials.Gov, reveals an urgent need to increase the number of agents entering the AD pipeline to accelerate the drug testing and approval process.

According to the authors, without changes, the likelihood of reaching the national goal to develop a meaningful therapy by 2025 as established by the Obama Administration is in jeopardy. The paper, "Alzheimer's Disease Drug Development: Pipeline 2017," is the Lou Ruvo Center for Brain Health's second annual review of AD drug development and appears in the journal *Alzheimer's & Dementia: Translational Research & Clinical Trials Interventions (TRCI)*.

The comprehensive analysis reveals the immediate challenges of AD drug development:

- High drug failure rates
- Slow clinical trial recruitment and drug testing
- A lack of sufficient funding

The total cost of AD in the U.S. is expected to reach an unsupportable \$1 trillion by 2050 with an estimated 100 million people worldwide affected by the disease.

"The AD pipeline is small with only 105 agents in the pipeline, and compared to the 2016 pipeline, there are only eight new agents in Phase I, illustrating a desperately slow period in AD drug development," says Jeffrey Cummings, MD, ScD, Director, Cleveland Clinic Lou Ruvo Center for Brain Health and the paper's lead author.

While there are promising agents in the pipeline that could be approved, it is evident that given the 99.6 percent drug failure rate, the aim to have a supply of drugs that can adequately respond to the AD epidemic by 2025 is uncertain.

Dr. Cummings and his fellow authors suggest that repurposing drugs already approved by the FDA to treat other diseases can speed up the drug development timeline, and utilizing biomarkers or hallmarks of AD to identify qualified clinical trial participants will expedite the recruitment process.

The largest impediment to developing new drugs for AD is slow recruitment of participants to clinical trials. You can help.

We're currently seeking both cognitively normal and impaired participants. Email healthybrains@ccf.org or call 855.LOU.RUVO to speak with a research coordinator and see if any of Lou Ruvo Center for Brain Health's trials are a match for you. A full list of trials is at clevelandclinic.org/BrainHealthTrials.

Study Asks: What Type of Exercise Best Protects Your Brain?

Cleveland Clinic Lou Ruvo Center for Brain Health is recruiting participants for an 18-month clinical trial to test whether two types of exercise can slow the advance of mild cognitive impairment (MCI) in older adults.

You may qualify for this national study, known as the Exercise in Adults With Mild Memory Problems (EXERT) trial, if you:

- Are between ages 65 and 89
- Are experiencing mild memory loss or have been diagnosed with MCI
- Are otherwise healthy
- Do not exercise regularly

“As a baseline, we want to screen for people who have not been physically active,” says Charles Bernick, MD, MPH, Principal Investigator for the EXERT study in Las Vegas and Associate Medical Director of the Lou Ruvo Center for Brain Health. “If your sole activity is walking the dog occasionally, you may meet this criterion for the study.”

A Balanced Approach

Sponsored by the Alzheimer’s Disease Cooperative Study, the EXERT trial randomizes participants into two types of exercise. Four times a week, half the study group will practice motion-related exercises involving stretching, flexibility and balance while the other half will pursue moderate- to high-intensity aerobic training at 70 percent to 80 percent of maximum heart rate. This protocol should help determine which type of exercise is better for the brain.

Throughout the study period, certified trainers will assess participants’ performance on tests of cognition and on questionnaires related to activities of



*Charles Bernick, MD, MPH
and Josie Gattbonton*

daily living. Participants must have a study partner to accompany them to these clinical visits.

What’s In It for Me?

The medical centers participating in the EXERT study are partnering with their local YMCAs, whose trainers will design a free, personalized exercise program for each enrollee. In the Las Vegas area, the two participating YMCAs are near Sun City in Summerlin and near the Meadows Mall.

A free 18-month YMCA membership is not the only benefit of participation, says Dr. Bernick: “Medications are symptomatic; they don’t slow the progression of Alzheimer’s disease. This is the first large study attempting to prove that exercise can reduce risk. Enrollees will gain a measure of control unavailable with other interventions.”

To enroll or learn more about the EXERT trial, contact 855.LOU.RUVO or healthybrains@ccf.org.

Give Your Brain a Helping Hand

You don’t have to enroll in an exercise trial to ramp up your brain-boosting activity level. But where do you start? Cleveland Clinic Lou Ruvo Center for Brain Health is rich in resources:

HealthyBrains.org

Get a brain checkup by taking an online self-assessment consisting of a series of questions about you and your lifestyle at [HealthyBrains.org](https://www.healthybrains.org). Your Brain Health Index score will tell you how you’re doing. You’ll also get customized recommendations, including exercise tips.

Group Exercise Classes

If you have a movement disorder, decreased memory or balance issues, participate in twice-weekly seated or standing group exercise classes conducted by our neurorehabilitation team at the Lou Ruvo Center for Brain Health. Cost is \$10 for each hour-long class. For more information on both classes, contact us at 702.483.6032 or visit clevelandclinic.org/NevadaPTOT

COBRE Spurs New Research on Parkinson's Disease, Alzheimer's Disease

Cleveland Clinic Lou Ruvo Center for Brain Health and the University of Nevada, Las Vegas (UNLV) are making significant progress in their collaborative research to learn more about Alzheimer's disease and Parkinson's disease. Their work is supported by an \$11.1 million, five-year federal grant that established Southern Nevada's first Center of Biomedical Research Excellence (COBRE) and the Center for Neurodegeneration and Translational Neuroscience (CNTN).

The Mystery of FOG

The researchers are investigating these two serious diseases in innovative ways. One study is looking at a common, disabling Parkinson's disease symptom, freezing of gait (FOG) — unexpected episodes during which patients experience an inability to start walking or to continue moving forward. FOG is one of the most common causes of falls in individuals with Parkinson's disease, and can result in serious injuries that undermine health and function. Currently, understanding of why FOG occurs is limited, and there are few effective treatments.

Led by Lou Ruvo Center for Brain Health movement disorders specialist Brent Bluett, DO, this study is using three approaches to learn about FOG. Over a three-year period, Parkinson's patients with and without FOG will undergo a clinical evaluation, neuropsychological testing and MRI scanning.



Brent Bluett, DO, Sarah Banks, PhD, and Jefferson Kinney, PhD

"We will compare participants' cognitive profiles and link them with structural and functional areas of the brain, with the goal of finding predictors of FOG so it can be treated before it advances," says Dr. Bluett.

Immune Regulation and the Brain

Neuroinflammation (prolonged immune system activity in the brain) is the focus of a study led by Jefferson W. Kinney, PhD, of UNLV. In the past decade, research has found that neuroinflammation is present in the brain in Alzheimer's and other neurodegenerative diseases. Neuroinflammation aggravates the amyloid plaques and tau tangles that accumulate in brain cells in Alzheimer's disease and impair function.

Dr. Kinney and colleagues are probing the molecular and cellular mechanisms that regulate or contribute to inflammation in Alzheimer's disease. They have demonstrated that GABA, a neurotransmitter involved in immune regulation, isn't functioning properly in Alzheimer's disease, and they are publishing results of this research.

"Targeting GABA with therapeutic agents has the potential to reduce inflammation and slow disease progression," says Dr. Kinney.

Also focusing on neuroinflammation is Lou Ruvo Center for Brain Health Head of Neuropsychology and COBRE Investigator Sarah Banks, PhD, ABPP/CN, who is using PET scans to investigate neuroinflammation in the brain cells of individuals with Alzheimer's disease and Parkinson's disease.

Partner With Us

Around the country, COBRE grants from the National Institutes of Health support collaborations among researchers with complementary backgrounds and expertise, with the aim of strengthening institutional biomedical research capacity.

But research can't be conducted without volunteers. If you're interested in participating in these or other research studies at the Lou Ruvo Center for Brain Health, contact us at 855.LOU.RUVO or healthybrains@ccf.org or learn more online at clevelandclinic.org/brainhealthtrials.

Abnormal Laughing and Crying: An Important Symptom of Neurological Disease

By Justin Miller, PhD, ABPP/CN

Expressing emotion is an important part of human behavior. Being able to express our emotions impacts our relationships, our sense of well-being, and our quality of life. Some individuals, however, lose the ability to control their emotional expressions and develop a condition called Pseudobulbar Affect (PBA).

Someone with PBA may experience sudden, uncontrollable fits of laughter and/or crying spells that look like normal emotional expression, but do not match the person's mood or the social setting. PBA can arise in several neurologic conditions, including multiple sclerosis and Parkinson's disease, as well as in some athletes in contact sports, such as boxers and football players. PBA can interfere with one's quality of life and is associated with significant emotional difficulty, and if not properly diagnosed, can lead to inappropriate treatment recommendations.

To better understand how often PBA occurs in athletes and the impact it has on their lives, researchers at Cleveland Clinic Lou Ruvo Center for Brain Health have teamed up with Avanir Pharmaceuticals to expand the ongoing Professional Fighters Brain Health Study (PFBHS), one of the largest longitudinal studies of professional fighters (boxers and mixed martial artists) in the world.

Fighters who participate in the study have an annual exam that includes an MRI of the brain, neuropsychological



Justin Miller, PhD

screening, and blood draws. We also ask questions about symptoms of depression, anxiety, and quality of life to help understand the impact on their well-being. The fighters are now being asked more detailed questions about whether or not they experience symptoms of PBA to help establish accurate diagnoses and learn how common PBA truly is. We are also looking at how symptoms of PBA are associated with changes in the brain using the MRI scans that are collected.

Expanding the study of emotional health in professional fighters ensures that we are doing everything we can to understand brain health in this group of elite athletes.

ABOUT THE AUTHOR

Justin B. Miller, PhD, is a staff neuropsychologist at the Lou Ruvo Center for Brain Health. Dr. Miller's clinical practice involves the assessment of patients' cognitive functioning and integration of their cognitive profile with relevant medical, psychological and psychosocial factors to help diagnose and formulate appropriate treatment strategies.

You Can Help

In addition to studying neurological, emotional and cognitive health among athletes, it is also important to understand how brain health in athletes compares to healthy adults who have not played contact sports. If you are a healthy adult who has not played contact sports at the high school level or above, you might be eligible to serve as a "normal control subject" in this study.

If you would like to learn more about becoming part of the PFBHS, contact us at healthybrains@ccf.org or 855.LOU.RUVO.

In the Company of Friends

Yolande Mucharbach

Friends and serendipity have played a key role in Research Coordinator Yolande Mucharbach's personal and professional life, such as the evening when she and a few girlfriends dined at a Los Angeles-area restaurant they rarely visited featuring fare from her native Lebanon. That evening, she met a Jordanian man visiting the US for a family wedding. Yolande and Amer were engaged within a month and married within six; 14 years later, they enjoy cheering their 11-year-old son Faris at the National Archery Championships and frequent basketball games.

When Ms. Mucharbach saw Cleveland Clinic Lou Ruvo Center for Brain Health's iconic stainless steel building under construction, she thought "it would be an honor to work there." Later, in 2012, her friends and co-workers from the former Nevada

Cancer Institute encouraged her to apply and work alongside them in researching new drug treatments.

Because of the cognitive decline that affects so many of her patients, interaction at the Lou Ruvo Center for Brain Health is much more high-touch than in her previous roles. She explains: "You don't just say 'Here's the restroom. Give me a urine sample.' Instead, I walk patients there, tell them what to do, wait outside the door, escort them back to the patient suite and show them where to sit. I always explain everything before I do it."

During her five years at the Lou Ruvo Center for Brain Health, Ms. Mucharbach has participated in an assortment of trials whose disparate protocols have expanded her knowledge base:

- **Noble**, a pill to slow progression of Alzheimer's disease
- **An Avid study** involving the effectiveness of a PET scan in changing the way physicians' manage patients' cognitive impairment
- **Enroll HD**, which in collaboration with Cure Huntington's Disease Initiative (CHDI), built a registry of individuals for participation in future trials
- **IDEAS study**, in which PET scans were administered to detect amyloid in the brain in hopes that a better understanding of the protein would aid physicians in making more nuanced diagnoses of cognitive loss
- **CBH biobank study**, in which blood samples from patients with young-onset Alzheimer's or mild-cognitive impairment are stored at Cleveland Clinic's main campus for future multi-site research collaboration
- **Rasagiline**, a drug FDA-approved for Parkinson's disease that had

demonstrated cognitive as well as motor improvement, is now being tested on participants with mild to moderate Alzheimer's

- **Neuronix**, a chair in which patients received transcranial magnetic stimulation while performing cognitive training

Ms. Mucharbach says she most enjoyed the Neuronix trial because the one-hour treatments five days a week for six weeks gave her ample opportunity to get to know her patients while she and study participants hoped to see improvement on neuropsychological assessments following brain stimulation.

“Yolande Mucharbach represents what makes me proud to work at the Cleveland Clinic: her positive attitude, compassion, and kindness shine through in every patient encounter. Although many trials may only last a couple of months, she ends up forming relationships that extend well past the completion of the study,” says Aaron Ritter, MD, Director, Clinical Trials Program. “She is a great asset as we continue our fight against neurodegenerative disease.”

In 2016, on behalf of the research team, Ms. Mucharbach organized an appreciation luncheon for study participants. Many patients say no thank you is necessary, as the trials have given them an opportunity to “do something about their condition” and give back, while having an enjoyable experience. “They love the one-on-one attention in a trial, comment on how nice the facility is, how friendly people are, and how great it is to have something like this in Las Vegas,” she says. “That makes me feel good, because it means we’re doing our job and treating everyone as if they were friends and family.”

Want to impact brain science? Join us

We conduct clinical trials to advance new treatments and diagnostic approaches for patients with Alzheimer's, Huntington's and Parkinson's disease, as well as frontotemporal dementia and multiple sclerosis.

What Are Clinical Trials?

- Clinical trials are research studies conducted on people to determine whether treatments are safe and effective.
- There are many types of clinical trials: treatment, diagnostic, prevention, screening and quality of life.
- Clinical trials are a required step towards FDA approval of new drugs, and thus are the only way to find new treatments or a cure for brain disease.

Why Should I Get Involved?

- To contribute to the effort of finding more effective treatments for neurological disease
- To gain access to potential treatments before they are widely available.
- To receive expert medical care at a leading healthcare facility free of cost.
- *Because cognitively normal individuals or “normal controls” are the most difficult group for us to find. Identify yourself. Raise your hand. Lend a hand.*

Research and clinical trials are an extraordinary partnership between patients, caregivers, clinicians and donors who support the work that we do.

Together, we are making great strides to Keep Memory Alive for many generations to come.

You Can Help

The success of finding a new treatment depends on having enough individuals like you participate. Here's how you can help:

- **Find out which trial is a match for you: 855.LOU.RUVO or healthybrains@ccf.org**
- **Support us in advancing new treatments and discoveries: Contact our philanthropy team at 702.263.9797 or DonateNevada@ccf.org.**

Nurse Practitioners: Leaders in Disease Management



At the Lou Ruvo Center of Brain Health, we address brain disease through two important steps: accurate diagnosis and expert disease management. Each component requires unique neurological specialization.

As our experts in ongoing disease management, the team's advanced practice providers (nurse practitioners) are trained to detect subtle changes in condition and adjust treatment plans accordingly.

Nurse practitioners (NPs) have advanced degrees and are board-certified. With a foundation in primary care and a specialization in neurology, they are astute overseers and strong communicators of the relationship between overall health and neurological conditions.

To make an appointment with our nurse practitioners or any member of the neurology team, call 702.483.6000.

From our nurse practitioners:
Some thoughts on professional and family caregiving roles

**Kelli Borgwardt,
DNP, ANP-C**

Multiple Sclerosis Team



"I practiced as a nurse while earning my master's and doctoral degrees, all of which have enabled me to implement evidence-based practice and be innovative as an advanced practice nurse."

"The volume of research and new drug treatments being developed for multiple sclerosis make it an especially exciting time to be involved in the treatment and management of patients. I look forward to becoming a rater for multiple sclerosis research and possibly even conducting investigator-led research here at the Lou Ruvo Center for Brain Health."

"I have full compassion for patients and caregivers, as multiple sclerosis can be an overwhelming condition."

**Samantha McLea,
MSN, NP-C**

Cognitive Disorders Team



"I love working with a population for whom we desperately need a cure, and being involved in a center that's actively trying to find that cure."

"One of my passions is educating patients and community providers on the role of nurse practitioners, and my sister is a neurology resident, so advancing our knowledge to improve our impact on healthcare definitely runs in the family."

"I love that I've been able to really get to know my patients and their family members and I feel as if I'm helping them through this whole journey, from medication management to navigating resources in the community and at our center, to lifestyle modifications to promote better overall health, to tips on making day-to-day life with a cognitive disorder as good as it can be."



**Kelly Papesh, MSN,
APRN, NP-C**

*Movement
Disorders Team*



“My dad’s neurosurgery followed by seven weeks in the hospital propelled me to look into brain health. I’ve worked as a RN in the neuro ICU and have continued to be interested in neurology, which is why I wanted to specialize further here at the Lou Ruvo Center for Brain Health.”

“The best part of being here is the personal touch; our patient care model allows us to see patients without rushing. I feel very blessed to be able to give comfort or hope to the people who need it the most; they’re dealing with a progressive disease and a lifetime of illness, and I’m here on the journey with them.”

“‘If you don’t take the breaks, you’re going to break down,’ is the advice I most frequently give family caregivers. Plan ahead knowing this is going to be tough. It’s a job. And as with any job, you need to take time off.”

**Simrit Saraon, MSN,
APRN, FNP-BC**

*Cognitive
Disorders Team*



“I love nursing. I’m so honored when my patients listen to my recommendations and say ‘whatever you recommend, we’ll do.’ Earning this trust brings with it a lot of responsibility, but also a big sense of achievement when I receive positive feedback from patients and family members. Hearing I’ve made a difference in their quality of life really makes my day.”

“I have three bachelor’s degrees and a masters degree, and yet I learn so much from every patient, every family member I’ve met. In return, I try to encourage them to keep learning, too, particularly by going to caregiver classes. It’s much easier to deal with disease and be a better advocate for your loved one if you know what to expect.”

**Maileen Ulep-Reed,
MSN, APRN, FNP-BC**

*Cognitive
Disorders Team*



“I remember visiting my grandmother in the Philippines when I was in middle school and being devastated because she couldn’t remember me. I knew I wanted to care for individuals affected by Alzheimer’s disease and related conditions.”

“I’m constantly reminding caregivers, ‘Take care of yourself. Take advantage of support groups and a social work consult.’”

“My patients tell me we’re ‘world-class’ and different from every other healthcare facility they’ve ever experienced. That makes me proud.”

“Being a nurse practitioner allows you to make a difference through patient care, research, health policy and academia. I’m currently working on a PhD so I can contribute even more in all these areas.”

Brain Imaging Services: The Picture of Patient-Centered Care

Advances in neuroimaging have been a game changer in diagnosing and treating neurodegenerative diseases. At Cleveland Clinic Lou Ruvo Center for Brain Health, imaging is an integral part of patient care. We do everything possible to enable our patients to take advantage of this valuable, rapidly developing technology.

Recently, our imaging services team expanded evening hours to accommodate more patients.

“We are serious about putting patients first. We are constantly looking for new ways to make imaging more convenient and comfortable for our patients,” says Elaine Pienschke, Clinical Manager of Imaging.

What Scanning Reveals

The Lou Ruvo Center for Brain Health is equipped with the latest, most advanced scanners. Our magnetic resonance imaging (MRI) scanner features a powerful 3-Tesla magnet for the clearest, sharpest images. In addition to MRIs, we offer positron emission tomography (PET) and computed tomography (CT) scans. While MRI shows anatomy and structure, PET shows body function and processes.

CT allows users to see inside soft tissues such as internal organs.

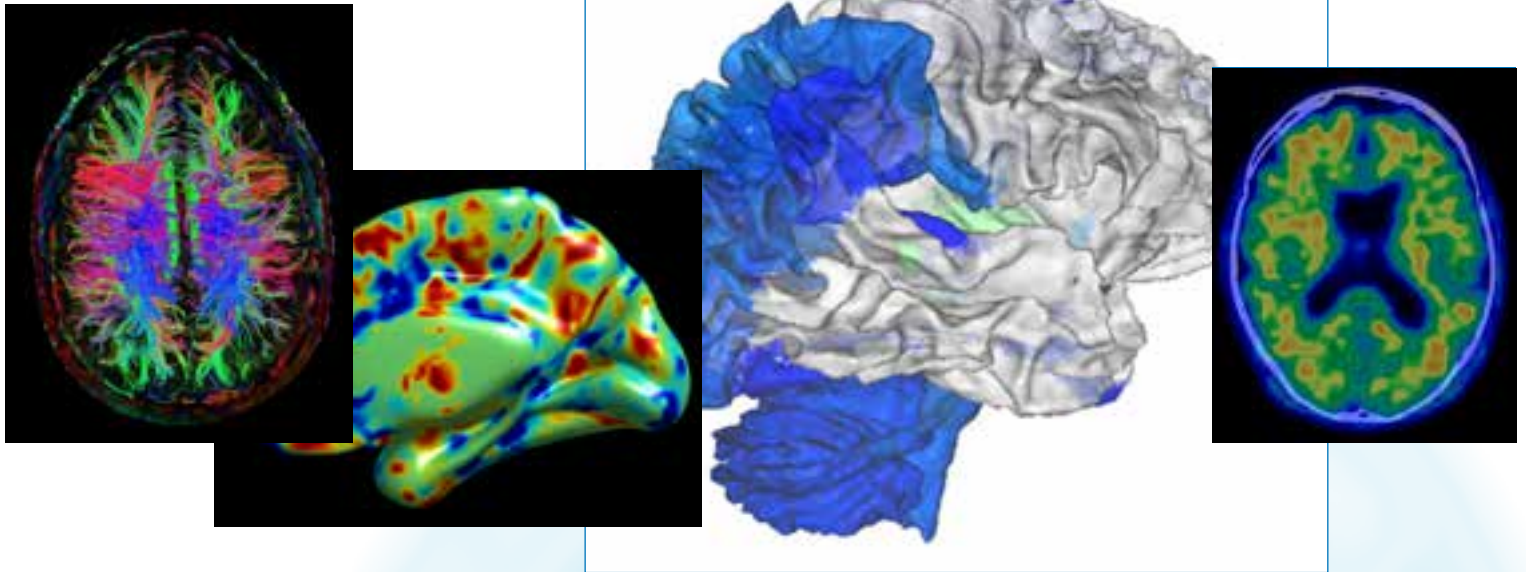
Scanning is a powerful tool for revealing brain abnormalities that cause disease and for monitoring disease progression and response to medication. Imaging also plays a major role in our research and clinical trials. Images are available within 24 hours, and are interpreted by expert, subspecialty-trained radiologists at Cleveland Clinic’s main campus.

We image more than brains: “We welcome people from the Las Vegas community who need imaging for other body parts, such as bone or muscle injuries,” says Ms. Pienschke.



To make an appointment for imaging for brains and beyond, call 702.701.7948.

L-R – Elaine Pienschke, Laura Rogers and Nelson Rubina



Meet Our Imaging Services Team

Elaine Pienschke

Clinical Manager of Imaging

With a nurse grandmother, Ms. Pienschke knew that she wanted a career in healthcare. But she was also fascinated by chemistry and physics.

“Nuclear medicine allows me to balance everything I love in one career. Every day I care for patients as well as calibrate our scanners and equipment to achieve the best results for our patients and research,” says Ms. Pienschke, whose specialty is PET and CT scans.

What surprises patients most about their experience?

“They are amazed at how much effort we put into creating a soothing environment: We offer warm blankets, soft slippers, relaxing music and snacks, and we discuss their concerns. Some people fear the enclosed space of the scanners, so we stay in the room with them if needed.”

Laura Rogers

Imaging Specialist

Ms. Rogers was also influenced in her career choice by family members. Her mother was a nurse who cared for people with multiple sclerosis and her father was a hydroelectric engineer.

“Imaging was a natural blend of patient care and technology. I am not only personally involved with patients and families but also part of research, with the potential to change patients’ lives,” says Ms. Rogers, an MRI specialist.

Ms. Rogers brings a unique understanding of her patients. When she was in high school, her mother developed a spinal tumor that left her a paraplegic: “My mother is a constant reminder that patients are people, not conditions.”

Nelson Rubina

Imaging Specialist

After graduating college, Mr. Rubina worked various jobs, from construction to currency exchange operations clerk, but he was looking for a new career. He had a relative who was an imaging professional and he was attracted by the opportunity to engage with patients and learn a new technology. He chose to work at the Lou Ruvo for Brain Health to be involved in research.

“It’s exciting to be part of studies that have the potential to find new treatments and medications to help patients,” says Mr. Rubina, an MRI specialist.

What sets the Lou Ruvo Center for Brain Health apart from other medical facilities?

“We always follow our principles and provide the best imaging technology and patient experience. We see some of our patients regularly, and get to know them and see their progress. We are grateful that they choose to have their medical care at our facility.”

Celebrating 100 Years of Occupational Therapy

Occupational therapy (OT) was conceived in 1917 as an approach to help soldiers recover and return to the activities of daily living both on the battlefield and back on the home front.

A century later, OT is an evidence-based practice rooted in science with a holistic perspective in which the patient is an integral part of the therapy team. While the tools and adaptive devices have progressed, true to the profession's roots, today's occupational therapists continue to focus on helping individuals live life to the fullest while managing illness, injury or disability.

Meet our Occupational Therapists



Shaina Meyer

Occupational therapists observe individuals interacting with their environment and set an approach for success. One example is preventing falls:

- Environmental hazards: Removing throw rugs, creating non-slip surfaces, increasing lighting in challenging areas such as stairs, reducing clutter
- Education on fall prevention strategies: Obtaining safe footwear and adaptive equipment, and looking ahead and observing surroundings, such as curbs, ramps and tree stumps

“What I love most about being an OT at Cleveland Clinic Lou Ruvo Center for Brain Health is that we get to know the patient and the family and so are able to make treatment a fun, engaging and meaningful process,” says Shaina Meyer, OTR/L, MSCS, Clinical Rehabilitation Manager.

“It feels really great when someone tells me they can now do something they love again, like golf or crochet.”



Katy Conroy

“Here at the Lou Ruvo Center for Brain Health, I've seen the most immediate success in individuals with movement disorders. Between medications, exercise and tremor stabilization techniques, they learn how to move in an effective way to complete normal everyday functions,” says Katy Conroy, OTR/L.

For individuals with cognitive decline, she explains, OTs may teach compensatory strategies “that can make a world of difference for patients and caregivers, helping them maximize independence and quality of life.”

Those individuals with MS, who tend to be a younger population, focus on learning to adapt and modify to be as satisfied as possible with their activities.

Ms. Conroy smiles when patients call her a “drill sergeant” or say, “When I go home, I hear your voice in my head and it inspires me.”

Katy Conroy, left, and Shaina Meyer



Consult with an OT

To schedule an appointment, obtain a referral from your Lou Ruvo Center for Brain Health neurology provider and call 702.483.6032.

Healthy Living: A Key Strategy for Fighting MS

Carrie Hersh, DO, MS, knew she was on to something in 2016, when she began offering wellness consultations to individuals with multiple sclerosis (MS) at Cleveland Clinic Lou Ruvo Center for Brain Health. These “talking” visits focus on patients’ well-being, addressing lifestyle issues such as nutrition, exercise, vitamin D supplementation, weight control, sleep hygiene and stress management.

Patients were hungry for information on how to make MS wellness a priority. This became apparent in March 2017 when, in collaboration with the Multiple Sclerosis Association of America (MSAA), the Lou Ruvo Center for Brain Health presented a free patient education series on “Health and Wellness in MS.” Each of the four evening sessions drew 200 attendees.

Knowledge Is Power

An estimated 2.5 million people worldwide, including 400,000 in the U.S., live with MS. As Dr. Hersh notes, there’s a persuasive case for keeping individuals with MS healthy: It reduces related complications; it keeps individuals in the workplace, which enhances intellectual and occupational health; it helps them maintain social engagement; and it decreases the burden of high medical costs.

“By sharing evidence-based information and encouraging adoption of healthy lifestyle practices, we expect to see improvement in patients’ symptoms, disability levels and quality of life,” says Dr. Hersh, Assistant Director, MS Wellness.

An interdisciplinary team of MS specialists and allied personnel followed, offering programs on exercise and yoga practices in MS; stress management techniques, with demonstrations of guided imagery, mindfulness and meditation; and nutrition.



Carrie Hersh, DO, MS

A Long-Term Commitment

If you missed out on this year’s patient education series, take heart because “We plan to keep the momentum going with future programs, in collaboration with the MSAA,” Dr. Hersh says. “We’ll be working to secure education funding for another event next year.”

In the meantime, she encourages people with MS to focus on wellness during one-on-one office visits like those she launched in 2016. Call 702.483.6000 to make an appointment.

To learn about appropriate exercises for people with MS, download a demonstration video at clevelandclinic.org/MSfitness.

New MS Drug Tested Here Wins FDA Approval

An intravenous infusion therapy researched at Cleveland Clinic Lou Ruvo Center for Brain Health has received U.S. Food and Drug Administration (FDA) approval for treatment of adult patients with relapsing forms of multiple sclerosis and primary progressive multiple sclerosis (PPMS).

Approved in March, Ocrevus (ocrelizumab) is the first therapy the FDA has endorsed for treating PPMS. It is available at the Lou Ruvo Center for Brain Health.

For information on participation in clinical trials, contact 855.LOU.RUVO or healthybrains@ccf.org.

Our Furry Friends Are Good for Our Health

Therapy animals have long been the trusted companions of people with disabilities. Now, animals of all kinds are proving their value to individuals with dementia as well as to those hoping to reduce their risk of brain disease.



DeeAnn Dutt and canine exercise pal, Mandy

Physiology helps explain why animals are such effective therapists for all of us, says Jeffrey Cummings, MD, ScD, Director of Cleveland Clinic Lou Ruvo Center for Brain Health: “Simply petting an animal can decrease the level of the stress hormone cortisol and boost release of the neurotransmitter serotonin, resulting in lowered blood pressure and heart rate and, possibly, in elevated mood.”

Social Animals

Depression is common in individuals with dementia, a byproduct of the isolation and loneliness they often experience. Likewise, caregivers can feel alone and overwhelmed by their responsibilities. In both cases, bonding with an animal can help fill this void with social support and, from dogs in particular, with unconditional love.

In addition, dogs foster human connections for their owners. Social interaction is one of

the six pillars of brain health outlined on HealthyBrains.org, the innovative website and mobile app the Lou Ruvo Center for Brain Health created to educate users on lifestyle choices that help protect against age-related cognitive impairment.

Take Rover for a ramble, and strangers who would never dream of approaching you in other situations will strike up a conversation centered on the animal. Even a mere smile from a passerby is a connection that can brighten your day.

Get Your Six Legs Out There!

Walking the dog yields a second, equally important benefit: physical exercise, another essential pillar of a brain-healthy lifestyle.

According to the Centers for Disease Control and Prevention, adults need at least 2½ hours a week of moderate-intensity aerobic activity for good health and double that amount for greater health benefits. Brisk walking that covers three or more miles per hour qualifies as moderate-intensity activity. The payoff extends beyond enhanced brain health to weight control, improved cardiorespiratory fitness and muscular strength, and reduced risk of chronic diseases and killers such as heart disease, stroke, cancer and diabetes.

So give the cat a cuddle, then grab the leash and whistle for the dog. Get moving with your faithful companion by your side. You’ve got nothing to lose — yet the potential to add years of healthy life lies ahead.

Learn more about the impact of pets on brain health and social interaction at HealthyBrains.org.

Cleveland Clinic Urology: New Advances Improve Outcomes for Prostate Cancer

Recent advances in detecting and treating prostate cancer are improving outcomes: For the one in seven men diagnosed with the disease, the five-year survival rate is nearly 100 percent.

“It’s been an exciting time. These new options have had a major impact on how we treat people with prostate cancer,” says Scott Slavis, MD, Medical Director, Cleveland Clinic Urology, Las Vegas.

A Better Approach to Biopsy

Cleveland Clinic Urology was the first practice in Las Vegas to use fusion-guided biopsy, a more precise method than standard biopsy, which involves random selection of tissue samples guided by ultrasound. With fusion-guided biopsy, patients first have magnetic resonance imaging (MRI) of the prostate at Cleveland Clinic Lou Ruvo Center for Brain Health, which has one of the newest and most advanced MRI scanners in Las Vegas. MRI is far more sensitive than ultrasound for detecting suspicious lesions.

Fusion-guided biopsy electronically fuses MRI images with ultrasound scans to create a detailed, three-dimensional view of the prostate, which physicians use to guide the biopsy procedure.

“Fusion-guided biopsy makes a huge difference. We are picking up cancers we wouldn’t have detected before,” says Dr. Slavis.

Biopsy samples are examined using genomic analysis, which can identify cancers that can’t be detected through conventional analysis, and determines the grade (severity) of the cancer, an important factor in selecting the appropriate treatment.

“We have clearer evidence to decide which patients to treat and for whom watchful waiting is the best approach,” says Dr. Slavis.



Robotic Prostate Surgery Now Standard

One of the most common surgical treatments for prostate cancer is prostatectomy, the removal of the entire prostate, which lessens the chance of recurrence. It is typically used for higher-grade cancers and younger patients. In 2003, Dr. Slavis was the first urologist in Nevada to perform a prostatectomy using a robot-assisted surgical system, now used by

Cleveland Clinic Urology for all prostate surgeries. With this system, the surgeon operates thin robotic arms with small surgical tools attached, which allows for the smallest possible incisions.

“Robotic surgery has major advantages over traditional open surgery. Patients recover more quickly and have fewer side effects,” says Dr. Slavis.

Contact the Top-Ranked Provider

Cleveland Clinic’s Glickman Urological & Kidney Institute is recognized worldwide for excellence in patient care and research. *U.S. News & World Report* ranks Cleveland Clinic’s urology program No. 1 in the nation. As new technologies and techniques for treating prostate cancer are developed, Cleveland Clinic Urology will offer them to patients in Las Vegas for the most advanced care. To make an appointment, call 702.796.8669 or visit clevelandclinic.org/Nevada.



Giving Thanks Through the Expression of the Arts:

A SENSORY SPECTACULAR

JOIN US WEDNESDAY, NOVEMBER 8!

Plan to attend our annual Giving Thanks event and celebrate the season with patients, their families, Cleveland Clinic employees and friends in the community. All of your senses will be stimulated as you:

- Enjoy exciting performances by artists in the community
- Savor delicious seasonal food

SAVE THE DATE FOR OUR PATIENT & FAMILY HOLIDAY PARTY ON WEDNESDAY, NOVEMBER 8!



Our Community Outreach Team is Available to Address Your Group

Are you a member of a community, social or professional group in the greater Las Vegas area? Are you looking for an interesting speaker? Want to learn more about the social services offered at the Cleveland Clinic Lou Ruvo Center for Brain Health?

Our Community Outreach Initiative brings this useful information directly to you at no cost.

The presentation offers an overview of the range of services offered at the Lou Ruvo Center for Brain Health, in addition to more in-depth information about our free educational and support programs. Everyone is encouraged to serve as an ambassador, carrying the message to others affected by the neurocognitive diseases we treat.



To Schedule an Outreach Speaker:

- Presentations run 30-60 minutes and are available any day, time or location in the greater Las Vegas area.
- No group is too small.
- There is no charge.
- Contact Caregiver and Community Education at LouRuvoSocialServ@ccf.org or 702.483.6055

Spring into Health "Fare": A Sampling of Everything Health

On March 22, Cleveland Clinic Lou Ruvo Center for Brain Health hosted its first wellness fair. Dubbed Spring Into Health "Fare," the event's objective was to engage community members who had never before come through our doors and collaborate with businesses with which we had no previous relationship.

This buffet-style health and wellness experience included a diverse group of community organizations representing many aspects of the healthcare system. The 455 attendees were encouraged to maximize their well-being and "sample the fare" from 55 exhibitors, with free services spanning:

- Blood drive
- Glaucoma, dry eye and vision tests
- Dental screenings
- Hearing tests
- Eyeglass adjustments and collection of outdated eyeglasses for donation
- Chair massages
- CPR demonstrations
- Yoga session
- Caregiver and elder care resources
- Healthy diet/eating session with food samples

According to Jasmine Sligh, MPH, Program Manager, Caregiver and Community Education, feedback from the event was very positive: "So many attendees said this was the best health fair they had ever attended."

The "Fare" included wonderful stories of connections made, such as the Veterans Administration, which had four consultations with veterans with whom it had no previous relationship.

Perhaps the most heartwarming endorsement came from eyeglass vendor Optica: "A woman came up to our table and said she needed new glasses but couldn't afford them. She commented that she would like to have a 'pretty pair' but they were out of her reach financially. We're going to sponsor her to get a pair of new, 'pretty' glasses."



Jasmine Sligh, MPH, selects the lucky winner of a door prize



Verla Niebuhr discusses services at the Lou Ruvo Center for Brain Health



Save the Date!

Join us in 2018 for the second annual Spring Into Health 'Fare' on Wednesday, March 21.

Don't miss out on information on our educational programming. Email LouRuvoSocialServ@ccf.org to be added to our mailing list.

A Song in the Heart: Music Therapy Enlivens Participants

Have you ever heard a song and been instantly reminded of something from your past? There is scientific evidence that listening to music really can “take you back” because it activates many areas in the brain, including those linked to emotion and memory.

Music therapy is useful in helping individuals with Alzheimer’s disease and other forms of dementia, multiple sclerosis and Parkinson’s disease. Research has shown that it can reduce depression in older adults; assist in social, recall and language skills; and decrease dementia-related agitation.

The Magic of Music

Cleveland Clinic Lou Ruvo Center for Brain Health began offering music therapy in February. It is open to anyone in the community, and both patients and caregivers are benefiting.

“It’s wonderful seeing how music can change people,” says Becky Wellman, PhD, a board-certified music therapist who runs the therapy sessions. “It brings them back to who they are and what they love.”

She gives an example of a man in her group who was once a professional singer,

but advancing dementia left him unable to use his voice, except for the occasional word or two. After attending music therapy almost consistently for a few months, he started to sing again.

“Seeing progress like that is amazing,” Dr. Wellman says.

Conjuring Memories

During the 90 minutes her group convenes each week, she tries to engage patients in memory recall through music and conversation. Each session begins and ends with the same songs to provide a comfortable familiarity. What happens the rest of the time is up to the attendees.

They choose the songs she plays on her guitar, and often engage by using rhythm sticks or waving scarves. They are encouraged to sing along if they can, and sometimes they take turns leading a drum circle. Dr. Wellman asks them questions to try to trigger conversation and, ultimately, memories.

Caregivers are welcome but are also encouraged to drop off their loved ones and either attend the caregiver support group held at the same time or take some time for themselves, says Jasmine Sligh, MPH, Program Manager, Caregiver and Community Education.



Becky Wellman, PhD, leads a sing along

Get Involved

The music therapy program is supported by NV Energy and commitment from the Rolando Brunelli Caregiver Program, which is designed to support caregivers and enhance the relationship between them and their loved ones.

Information on upcoming sessions is at keepmemoryalive.org/educationcalendar.

MEET OUR KEEP MEMORY ALIVE SCHOLAR: Virendra Mishra



If you were a biomedical and electrical engineer with access to thousands of MRI scans and the opportunity to collaborate with some of the world's top brain health clinicians, what would you "geek out" about? For Virendra Mishra, PhD, Project Staff at Cleveland Clinic Lou Ruvo Center for Brain Health, it's the opportunity to represent the center's thought leadership around the globe with peer-reviewed publications, abstracts, posters and talks at conferences from Hawaii to Singapore to Switzerland.

"I've always been very interested in understanding the function of the human body, especially of the human brain, as it is such an enigma," says Dr. Mishra. "Leveraging engineering, I'm hoping to find a mathematical tool that will provide concrete insight into understanding neurodegenerative disorders."

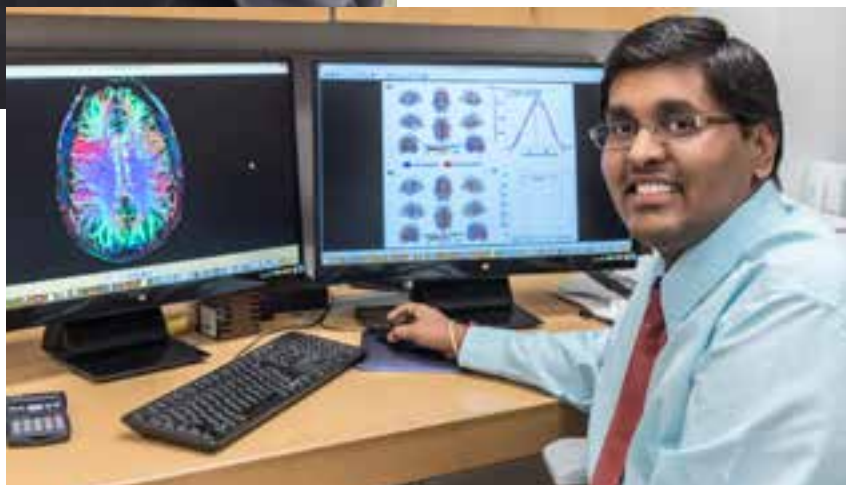
In spring 2017, his work illustrating that MRI studies of the brain's gray and white matter can help identify and track cognitive impairment in active professional fighters was published online in the journal *Radiology*.

"This technique requires only about 10 minutes in the MRI scanner. Such an MRI approach using different modalities may have several applications," Dr. Mishra explains. "It could be used to help predict later cognitive change in fighters. Another key potential application is to track the change in clinical trials of novel therapeutics aimed at reducing the risk of cognitive impairment."

The Lou Ruvo Center for Brain Health's Professional Fighters Brain Health Study, which provided the data examined in Dr. Mishra's publication, is one of the biggest longitudinal studies of brain health in contact sports, and is but one of many examples of the synergies at a center where multiple related brain disorders are studied simultaneously, creating the potential to apply information learned from one to others.

Dr. Mishra is also involved in applying the sophisticated data analysis for the Lou Ruvo Center for Brain Health's COBRE study (see page 15), in which his focus is researching biomarkers in the brain (cortical volume and thickness, blood flow, structural and functional connectivity) to understand why Parkinson's disease subjects with and without freezing of gait are different among themselves and from normal controls.

In 2016, Dr. Mishra was named a Keep Memory Alive Scholar, with financial support for three years of research. "The award gives me peace of mind knowing that I have money to support my research. The Lou Ruvo Center for Brain Health is an ideal setting because of the fusion between academic and clinical environments," he says.



Virendra Mishra, PhD

What is a Chair?

As the story goes, when Keep Memory Alive Chairman and Founder Larry Ruvo was seeking a medical operator for his Frank Gehry-designed brain center, he immediately found a kindred spirit in Cleveland Clinic CEO Toby Cosgrove. Both men were seeking answers to the mysteries of the brain — Larry Ruvo after losing his father, Lou, to Alzheimer's, while Dr. Cosgrove was aspiring to guide Cleveland Clinic to become for the brain what it has become for the heart: number one in the country for more than 20 years according to *U.S. News & World Report's* annual rankings. The rankings represent innovative research and patient care approaches.

"The brain is the final frontier of the body," proclaimed Dr. Cosgrove in February 2009 when he announced that Cleveland Clinic would purchase and operate the Lou Ruvo Center for Brain Health.

To navigate that frontier and find answers, Cleveland Clinic Lou Ruvo Center for Brain

Health researchers depend on philanthropic support. The center's first endowed chair supporting research, the Camille and Larry Ruvo Chair for Brain Health, was established in 2010 and was a critical component to recruiting Jeffrey Cummings, MD, ScD, to head the center following a distinguished 20-year career at UCLA.

Endowed chairs enable holders to fund new projects, including investigation into new treatment approaches from which patients will benefit most.

And yes, an actual commemorative chair is traditionally presented to each endowed chair holder.

If you're interested in funding a chair at the Lou Ruvo Center for Brain Health, please contact the philanthropy team at 702.263.9797 or DonateNevada@ccf.org.



Dylan Wint, MD, NV Energy Chair for Brain Health Education

Lou Ruvo Center for Brain Health Chair Holders



Jeffrey Cummings MD, ScD

Camille and Larry Ruvo Chair for Brain Health

Named the most prolific researcher of Alzheimer's worldwide over a 20-year period by the Journal of Alzheimer's Disease Research, Dr. Cummings uses his chair funds to support emerging research opportunities.



Zoltan Mari, MD

Ruvo Family Chair

The Ruvo Family Chair will be used to support Parkinson's disease and movement disorders research and will enable Dr. Mari to fund the study of novel remote monitoring technologies, biomarkers and disease modification.



Le Hanh Hua, MD

Eric and Sheila Samson Chair for Multiple Sclerosis Research

Among Dr. Hua's research interests are advanced magnetic resonance imaging (MRI) techniques, the impact of aging and MS, health and wellness in MS care, and comparative outcomes of newer medications.



Dylan Wint, MD

NV Energy Chair for Brain Health Education

Funds from the Chair for Brain Health Education have supported numerous programs in southern Nevada. 2,000 students, over 500 healthcare providers, and more than 1,000 patients and caregivers have directly benefited from NV Energy's generous gift.

Connections and Conversations with our Philanthropy Team



Renae DeLucia

Development Associate

"I love when people give with joy and from the heart."

Best advice: A gift of any amount counts. Don't be intimidated. Just start a conversation with one of us.

Most common reaction upon touring Cleveland Clinic Lou Ruvo Center for Brain Health: "I had no idea these resources were here in Las Vegas."

Memorable moment: I met a gentleman whose parent had Alzheimer's disease at the same time a family member was starting a medical fellowship. He fused these two sources of inspiration and funded a fellowship at our center.



Briana Mackey

Director of Development

"My approach to philanthropy is matching donors with the difference each individual wants to make."

What's your connection? We all have a personal connection through friends or family members who have been affected by the diseases treated here at the Lou Ruvo Center for Brain Health. My grandfather was literally a rocket scientist and I watched him deteriorate and pass away due to Alzheimer's disease.

What do you most enjoy about your role here? It's an emotional experience to witness donors honoring a loved one by giving to create a better future for those coming behind them.

What is the greatest opportunity? Many people don't know we're a nonprofit. We need everyone's help to spread the word.



Introducing Jody Ghanem, Director of Development

Jody Ghanem has literally danced around every facet of philanthropy for decades.

"I remember being on stage as a Rockette and one day realizing that if it weren't for philanthropic support of the arts, I wouldn't be living my dream and dancing at New York's famous Radio City Music Hall."

As her career progressed, she followed the Rockettes to Las Vegas, enjoying a residency at the Las Vegas Hilton with Liberace, who introduced her to his physician, Elias Ghanem, the man she married in 1983. "Liberace played at our engagement party and was the last one to leave the wedding," she laughs. "What a classic old Las Vegas story!"

As the wife of a physician to many entertainers and notable members of Las Vegas society, Mrs. Ghanem came to understand philanthropy from a different angle. The couple attended charity events, including the annual American Lung and Heart Association balls, and supported scholarships for University of Nevada, Reno, medical students doing rotations in Las Vegas, funding the next generations of doctors.

Before her husband passed from cancer in 2001, they began supporting Keep Memory Alive, beginning with the first memorial dinner for Lou Ruvo in 1996 at Spago that evolved into the Power of Love® gala (see page 3). The cause hit close to home for Mrs. Ghanem, who had lost her grandmother to dementia.

In May 2017, Jody Ghanem became a full-time fundraiser for Keep Memory Alive, where she intends to remain until there's a cure for Alzheimer's.



Join the Conversation

To start a conversation with members of our philanthropy team, contact 702.263.9797 or DonateNevada@ccf.org.

Deep Friendship Inspires a Couple's Generosity

Marydean Martin and Charlie Silvestri have been supporters of Cleveland Clinic Lou Ruvo Center for Brain Health since its inception. The Ruvo and Silvestri families were neighbors for years. Their close friendship created a natural connection to the center.



Charlie Silvestri and Marydean Martin

After Lou Ruvo was diagnosed with Alzheimer's disease, Ms. Martin and Mr. Silvestri watched him transform from a charming, active, successful business owner into a confused individual with no memory of his former self. They also saw Mr. Ruvo's outgoing wife, Angie, become a full-time captive of Alzheimer's disease as a caregiver until his death in 1994.

Ms. Martin and Mr. Silvestri's first contribution to the Lou Ruvo Center for Brain Health comprised books to be given to family caregivers, supplementing the 1,500 books and DVDs available for checkout from the center's Lynne Ruffin-Smith Library. The books that the pair donated explained what to expect and how to handle the changes in patients' behavior as brain disease progresses.

When the couple decided to honor Ms. Martin's parents, they asked the Keep

Memory Alive philanthropy team for suggestions. The staff made a list of items that the Sherry and Bruce Layne Patient Suite Infusion Room needed to enhance the patient experience.

The result was a fund that would provide:

- **iPads** for patients to use during infusion treatments
- **Mobile library cart** with materials for the enjoyment of patients in the infusion room and throughout the facility
- **Meal vouchers** for patients with more than four consecutive hours of appointments
- **Comfort items**, such as blankets and snacks, for patients in infusion and imaging
- **Transportation assistance** for patients with demonstrated need. Transportation stood out, given its correlation with effective disease management.

According to the Lou Ruvo Center for Brain Health staff, patients who miss a treatment due to lack of transportation can experience a decline in health.

Today, the Vassie & Charles R. Martin Patient Experience Fund is very well received by patients.

"I've been coming here for infusion treatment over five years, and now I feel like a child looking forward to snack time," says Demenica Jackson. "I adore my infusion nurse, Jeri, and I'm very appreciative for the juices, coffee and snacks that are offered during treatment."

Mr. Silvestri says, "We hope a cure for Alzheimer's disease will be found in the near future. In the interim, we will continue to support Keep Memory Alive and the work of the Lou Ruvo Center for Brain Health. We hope the community will join us."

A Fond Farewell to a Faithful Friend

Our volunteer canine greeter, Jordan, passed away peacefully at home in March at the age of 12, just two and a half weeks after a diagnosis of liver cancer with metastasis.

Jordan was loved by all of us at Cleveland Clinic Lou Ruvo Center for Brain Health. She was a calming presence to even our most anxious visitors, bringing joy to employees, family caregivers and patients alike, who referred to her as the “Ruvo dog.” She received a presidential pat on the head from George W. Bush during his 2010 visit, with lively discussion about springer spaniels and the “White House dog,” Millie.

Since the center opened in 2009, Jordan and her human, Donna Achrem, volunteered on Wednesdays, greeting Lunch & Learn attendees, bringing caregivers to the second floor for the memory loss support group and escorting patients to appointments.

Jordan enhanced visitors’ experience, patiently welcoming all human contact, from pats on the head to belly rubs, and she could be counted on to show off a new trick or two. As a proper Vegas dog, card tricks were among her favorites. During her breaks, she could often be found with her paws on the counter at the Keep Memory Alive Café, inquiring about treats.

Jordan will be sorely missed because she touched so many of us. We remember her fondly and will always be grateful for the time she and Donna Achrem gave us.



Demenica Jackson with Jeri Mapanao, RN

You Can Help Our Patients

As the Vassie & Charles R. Martin Patient Experience Fund grows, so will the benefits to patients. With additional financial support, the offering may expand to include legal services for patients and caregivers, valet and parking assistance, and more.

If you are interested in supporting this important program, please contact our Philanthropy Department at 702.263.9797 or DonateNevada@ccf.org.



Donna Achrem with Jordan



Meet Nevada's Senior Citizen of the Year, Beverly Saperstein

Beverly Saperstein's commitment to the Las Vegas community has been far-reaching since her 1991 arrival. She can tell stories of Red Rock Canyon National Conservation Area, Springs Preserve, Spring Mountain Ranch, the Neon Museum, The Smith Center and Shade Tree and Safe House, and the now-shuttered Liberace Museum and Guggenheim Hermitage Museum at The Venetian, among a total of more than a dozen nonprofits close to this enthusiastic volunteer's heart.

With a degree in recreation and experience working for Los Angeles' Parks and Recreation Department as well as creating recreational programs for

service people stationed in Munich, Germany, Ms. Saperstein's diverse background flexes to accommodate her surroundings.

She believes: "I volunteer it because people have appreciated my contributions and the act of volunteering makes me happy."

For the hours she has given to the community and her enthusiastic approach, Ms. Saperstein was named Nevada Senior Citizen of the Year for 2017 by Herbert E. Randall, EdD, Founder and Chair, Aging Services Directors Organization and Nevada Delegation of the National Silver Haired Congress.

A volunteer at Cleveland Clinic Lou Ruvo Center for Brain Health since its 2009 opening, she loves conducting tours and says that even if she's feeling a little low on energy when she leaves her house, "when I get to the Lou Ruvo Center for Brain Health and start talking, it just energizes me!"

Visitors are excited by center's architecture, which they refer to as "beautiful," "crazy" and sometimes, "melting." She makes sure that by the conclusion of the tour, "welcoming" been added to their list of descriptors, because Frank Gehry's intent was an approachable building that encouraged visitors to come inside and learn more about brain health, as requested by his client, Keep Memory Alive Chairman and Founder Larry Ruvo.

Having led literally hundreds of people in countless tour groups, one stands out. "One time I did a tour for just one lady whose husband was big in the entertainment world until he came down with Alzheimer's," remembers Ms. Saperstein. "Seeing the building and learning the impact it had on so many people in her situation just really seemed to hit her close to the heart."

Thank you, Beverly Saperstein, for all you do for our center, our visitors and our city.



Beverly Saperstein

If you would like to volunteer at the Lou Ruvo Center for Brain Health, contact 702.331.7046 or volunteerlv@ccf.org

Visitor Photo Gallery



On behalf of Keep Memory Alive, Southern Glazer's Wine & Spirits Cicerone Sam Merritt accepts a donation from Big Dog's Brewing Company



Deneb Ranciato of Chipotle



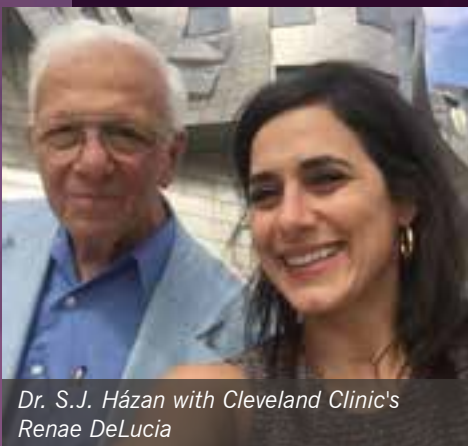
Las Vegas Review-Journal's Keith Moyer, left, and Craig Moon flank Larry Ruvo



L-R – Jeffrey Cummings, MD, ScD, Larry & Camille Ruvo celebrate with Brandis and Jon Deitelbaum



Larry Ruvo welcomes Brian Cornell



Dr. S.J. Házan with Cleveland Clinic's Renae DeLucia



Southern Glazer's Wine & Spirits



Brian and Anne Menzel

Visitor Photo Gallery *continued*



L-R — Jennifer Morelli, Dr. James Pellegrini and Father Jim Bevan



Karli Rath of JK2 Apparel



Issac Santa Ana, Candace Bare, John Tippins, Puoy Premrirut, Jody Ghanem, Connie Yeh, Missy Braman, Gretchen Philips Barlow and MJ Disbennett



Southern Glazer's Wine & Spirits top sales producers of Wolfgang Puck wines visit Keep Memory Alive, the beneficiary of a portion of the revenue from the special-edition wines



Lisa Curran with Cleveland Clinic's Jody Ghanem



Joe Haro and Samantha Rodriguez of Hakkasan



Al and Kathy Faccinto enjoy a celebratory toast



Mike Smith, left, with John Shea



Robert Irvine



Tobias Kleitman and guest



Tony King unveils his plaque on the honor wall



Lisa Hendrixson and Erin Crawford of Hard Rock Café



Nicole and Jon Taffer



Marie Claire and Rino Armeni unveil their plaque on the center's honor wall

Friend-Raising and Fundraising: Let's Collaborate

Over the past 20 years, Keep Memory Alive has raised more than \$250 million. But we haven't done it alone: Many individuals and organizations have approached us with ideas for creating and hosting events to benefit Keep Memory Alive.

Often, these generous event organizers are personally connected with our mission, having been touched by brain disease through friends or family. For others, it's an opportunity to showcase their companies' offerings while raising funds in a meaningful way.

Whether you're a fundraising novice or a seasoned expert intending to host a golf outing or a cocktail party, planning and logistics are vital to the success of your event. Keep Memory Alive supports event hosts in the community. We've put together a Community Fundraising Toolkit to guide you through every step of creating and hosting a memorable event to benefit Keep Memory Alive. Of course, our team is here to support you along the way.

All of these third-party events, large and small, play a significant role in raising awareness and much-needed support for Cleveland Clinic Lou Ruvo Center for Brain Health's innovative medical research and world-class healthcare.

Here are recent examples of events in the community that raised funds for Keep Memory Alive. We extend our gratitude to all the organizers and participants:

How You Can Help

If you would like to host an event to benefit Keep Memory Alive, we would like to hear from you at 702.263.9797 or events@keepmemoryalive.org.

If you are interested in attending an event, please visit the "Events" section of keepmemoryalive.org.

A Penny for Your Thoughts High School Challenge

We held events at two Clark County School District high schools, where teachers, students and parents participated in our #Penny4Thoughts challenge on February 1. Together, Liberty High School and Foothill High School raised and collected more than \$2,600 in

change for brain health and Alzheimer's disease awareness. Foothill High School ultimately won this year's #Penny4Thoughts challenge.

Eastside Cannery Hotel & Casino not only helped us count the change, but also matched the donation.



Proud students present a check



Hakkasan Golf Tournament

Hakkasan Group hosted its first Charity Golf Tournament at the Spanish Trails Golf Course on May 22. As an extension of the renowned hospitality group's Hakkasan Gives Back initiatives, the company partnered with Keep Memory Alive to support the mission of the Lou Ruvo Center for Brain Health and raised \$50,000 for our cause.

More than 200 guests enjoyed a day filled with golf and fun. Nick McCabe, Chief Executive Officer of Hakkasan Group, presented Keep Memory Alive Chairman and Founder Larry Ruvo with a commemorative check for the organization.



Larry Ruvo, left, with Nick McCabe

Phins to the West

Phins to the West held its annual Keep Memory Alive night on June 8. The event brought together parrot heads and trop rock music lovers from around the globe to enjoy a weekend of entertainment, fun and fundraising in Mesquite, Nevada.

The weekend kicked off with Keep Memory Alive night, when guests were asked to wear purple to signify Alzheimer's disease and to recognize Jimmy Buffett's loss of his father to the debilitating disease.

Weekend festivities included numerous Jimmy Buffett cover bands as well as a silent auction. This year's Phins to the West "party with a purpose" increased the group's total gift to Lou Ruvo Center for Brain Health to \$22,000.



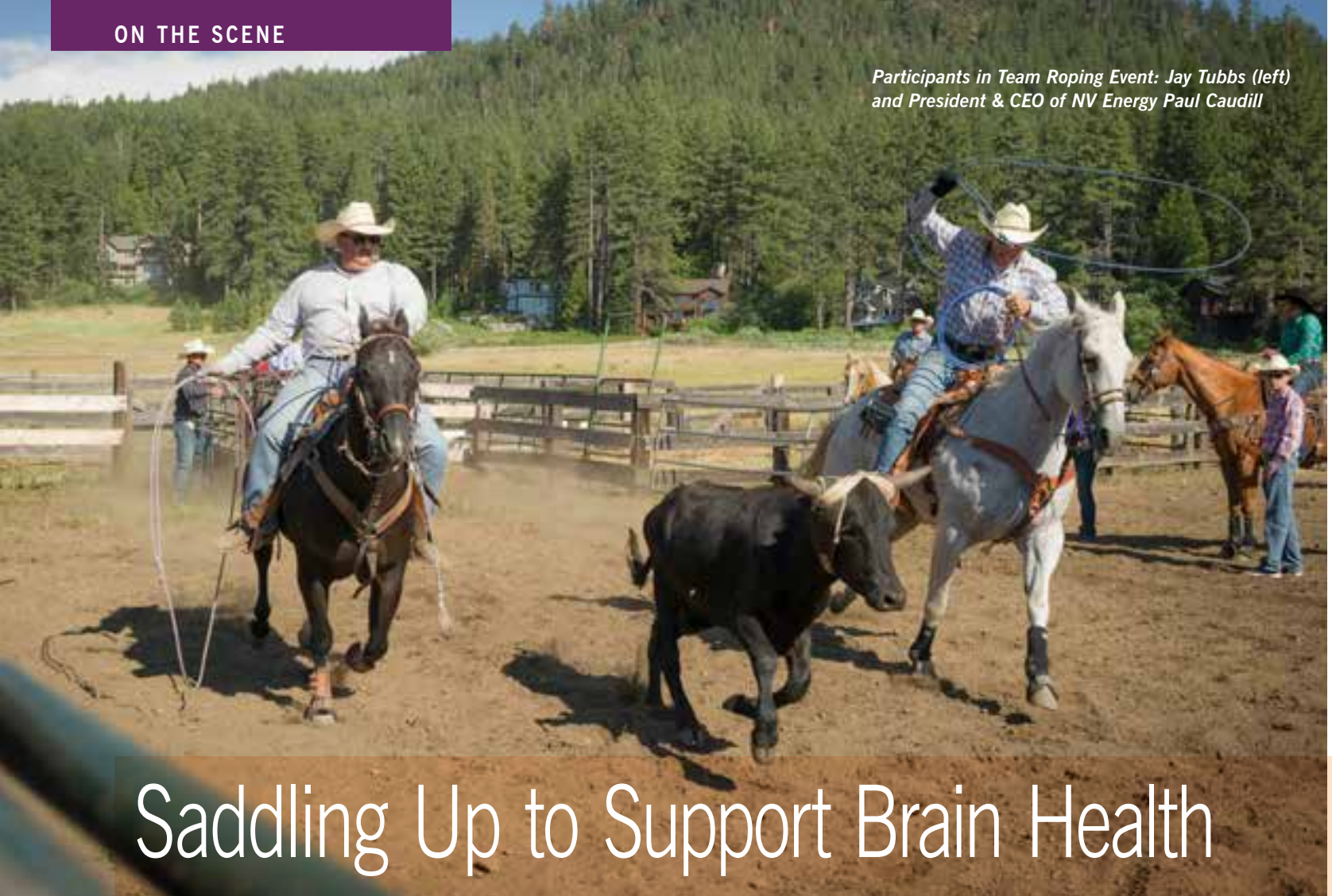
Celebrating with Phins to the West

Springs Preserve Brews & Blues Festival

Red-hot blues and ice-cold brews were on tap May 27 at the annual Springs Preserve Brews & Blues Festival. The festival celebrates blues music, one of America's oldest art forms. It featured dozens of nationally touring, regional and local blues acts and virtuosos, as well as the finest microbreweries in the area serving up signature ales and their latest sudsy concoctions.

This event not only benefited Keep Memory Alive, but offered great exposure for the cause of brain health. Our Healthy Brains team was on hand to pass out information and provide free, online brain health self-assessments. Do you know your Brain Health Index score? Visit HealthyBrains.org to find out.

Participants in Team Roping Event: Jay Tubbs (left) and President & CEO of NV Energy Paul Caudill



Saddling Up to Support Brain Health

The Commodores



Competitor in Bull Riding



A professional rodeo, the classic Motown group The Commodores, and celebrity chef Emeril Lagasse headlined Keep Memory Alive's Summer Social and Rodeo at Shakespeare Ranch, a Western-style weekend of fun and fundraising that has become an annual tradition.

The festivities kicked off Friday, July 28 with the rodeo, which featured bull riding, barrel racing, carnival games, a watermelon-eating contest for kids and a Western barbeque. The rodeo is the successor to the Glenbrook rodeo, which was discontinued in 1965 but resurrected in 2000

by Camille and Larry Ruvo, along with the McGill family.

Saturday began with a private lunch and tour of Lori and Michael Milken's home. The Milken Foundation is a long-time supporter of Keep Memory Alive and collaborator with Cleveland Clinic Lou Ruvo Center for Brain Health.

Then, world-renowned chef Emeril Lagasse's culinary cowboys took the reins in the kitchen to prepare an extraordinary dinner at Shakespeare Ranch. Guests enjoyed the best of his signature cuisine, with a selection of fine wine and spirits. The evening culminated with an intimate performance by The Commodores.

Long-time Nevadans Rhonda and Don Carano and the Carano family were

Thank You to Event Sponsors:

Gina & Ken Ambrose
 The Arcella Family
 Beau Joie Champagne
 The Beelar Family
 Christina & Chip Bowlby
 The Carano Family
 Cleveland Clinic
 The Creighton Family
 Brandis & Jon Deitelbaum
 Tammy & Michael Dermody
 Eldorado Hotel & Casino
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 The Kaitz Family
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 The Milken Family Foundation
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Pendleton Whisky
 The Pillsbury Family
 Miriam & Wayne Prim
 The Rastello Family
 Bridget & Brian Riddle
 Camille & Larry Ruvo
 Kern Schumacher
 R.T. Smith
 The Solomon Family
 Southern Glazer's Wine
 & Spirits of Nevada
 The Steiner Family
 Denise & Jim Taylor
 Toast Spirits
 The Walsh Family
 Karen & Rick Wolford
 Yacht Club Vodka



EJ, Emeril Lagasse and Luciano Pellegrini

honored with the Keep Memory Alive Community Leadership Award. The award pays tribute to individuals who have displayed outstanding effort in community improvement as well as philanthropic achievements for the state of Nevada.

The Caranos are loyal supporters of Keep Memory Alive. What the couple most enjoys about Keep Memory Alive's events, says Rhonda Carano, is "the camaraderie of hope. There are the entertainers and auctions, food and fun, but of course, the goal is to find a cure. Today, Alzheimer's is like cancer: Most every family has a member who has been a victim, but research can change that. Don and I will do anything we can do to support the research, technology and education of others to reduce the pain families endure due to brain disease."



**Community Leadership Award Recipients:
 The Carano Family**



Camille Ruvo, left, and Larry Ruvo, right, flank the Lagasse family, recognizing their contributions to Keep Memory Alive



Andrea Abel (far left) and Berkshire Hathaway Energy CEO Greg Abel (far right) flank their guests

Dementia Friendly Southern Nevada

The Dementia Friendly Southern Nevada (DFSN) advocacy group is making strides in reaching out and educating the community about available resources for individuals dealing with the challenges of dementia. Cleveland Clinic Lou Ruvo Center for Brain Health is leading the charge.

Over the past several months, our dedicated group of DFSN volunteers have held more than a dozen caregiver focus groups throughout the valley — spanning Las Vegas, North Las Vegas, Henderson, Boulder City, Pahrump and Mesquite — with a focus on Spanish-speaking only communities, to understand the obstacles that patients and caregivers confront when trying to deal with a dementia diagnosis, or even getting a diagnosis at all.

The goal of DFSN is to learn directly from patients and their caregivers what the challenges and needs are so we can inform the community on available resources they could actually use.

Statements we have heard in these focus groups have been both eye-opening and heart-wrenching:

“My father was very secretive about medical issues. I personally believe these issues need to be on the table and discussed. We need a judgment-free zone.”

“Some people are in denial, and won’t pursue help. Alzheimer’s is still a stigma ... people need to be educated. We have a group at our church, but we are on hold because it’s hard to reach people.”



Isaac Santa Ana and LeeAnn Mandarino

“Are services easy to locate? Are these services affordable?”

“I’m still grieving. I started out thinking that my mom is gone, but as the disease progressed... I progressed. There’s the

mom who raised me and then the mom who has Alzheimer’s disease. She stopped reading, swimming, riding ... it’s not easy... but if you focus solely on love ... it’s an amazing journey.”

Join this community effort

Dementia Friendly Southern Nevada, which is spearheaded by the Lou Ruvo Center for Brain Health, has been chosen by the Nevada Aging and Disability Services Division as one of four community partners in the state to take a leadership

role in making Southern Nevada a more navigable and accommodating place to live for individuals with dementia and their care partners. This goal represents a fundamental shift from simply focusing on meeting the core physical and health needs of the person with dementia.

Everyone is welcome. To get involved in DFSN, contact Isaac Santa Ana at 702.685.7072 or santai@ccf.org.



Recognized for Excellence

In recent months, Cleveland Clinic Lou Ruvo Center for Brain Health colleagues have been honored by their community, peers and professional associations for clinical excellence and leadership in their fields.

We celebrate their accomplishments.

Best Doctors in America® List, Neurology
(*Desert Companion*, August 2017)
Jeffrey Cummings, MD, ScD

Selected as a participant by the
American Academy of Neurology
(*Ecuador Neurology Project*,
July 2017)



Brent Bluett, DO, center, spent a week
in Ecuador training local neurologists

Appointed to the Advisory Board
(*Nevada State Board of Nursing
Advanced Practice Registered Nurses*,
May 2017)

**Maileen Ulep-Reed, MSN,
APRN, FNP-BC**

Lifetime Achievement Award
(*Society of Behavioral and
Cognitive Neurology*, April 2017)
Jeffrey Cummings, MD, ScD

Employee of the Year
(*Cleveland Clinic Lou Ruvo Center
for Brain Health*, April 2017)
Jasmine Sligh, MPH

Abstract Award
(*The International Society for
Magnetic Resonance in Medicine*,
April 2017)

Summa cum laude

Xiaowei Zhuang

Magna cum laude

Virendra Mishra, PhD

Healthcare Hero
(*Nevada Business Magazine*,
March 2017)

Le Hua, MD

Promoted to Staff
(*Cleveland Clinic*, March 2017)

Virendra Mishra, PhD, was
named to the Staff of Cleveland
Clinic in March

Top Docs 2017
(*Vegas Seven*, February, 2017)

**Charles Bernick, MD, MPH
Jeffrey Cummings, MD, ScD
Gabriel Léger, MD
Dylan Wint, MD**

2017 Health Care Headliners
(*Vegas/INC*, May 2017)
Sarah Banks



Jasmine Sligh, MPH



Sarah Banks



**Dylan Wint, MD and
Gabriel Léger, MD**



Le Hua, MD

Honorary Doctorate of Humane Letters
(*Touro University*, May 2017)



Larry Ruvo, DHL



2017 State of Nevada Innovation Award

(*Las Vegas Business Press*, May 2017)

Cleveland Clinic Lou Ruvo Center for Brain Health

Lou Ruvo Center for Brain Health Director Dr. Cummings was quoted in the magazine: "Innovation is a core value at Cleveland Clinic Lou Ruvo Center for Brain Health and is applied every day as we continue our mission to provide unparalleled patient care to those living with neurological diseases, including multiple sclerosis, Parkinson's, Alzheimer's and Huntington's disease, and for the family members of those who suffer from them. Our physicians and caregivers are committed to developing new procedures, building new tools and making decisions that will result not only in better patient outcomes and experiences but will accelerate us on the path of discovery as we continue to search for a cure."

KEEP MEMORY ALIVE

Supporting the Mission of Cleveland Clinic Lou Ruvo Center for Brain Health



ALZHEIMER'S | HUNTINGTON'S | PARKINSON'S
MULTIPLE SYSTEM ATROPHY | MULTIPLE SCLEROSIS



888 W. Bonneville Ave.
Las Vegas, NV 89106
Office 702.263.9797
Toll free 888.268.9797

keepmemoryalive.org
clevelandclinic.org/brainhealth

Reacquaint With Ruvo

A Resource Refresher for Patients, Families, Friends and Caregivers

WHAT:

Hear directly from Cleveland Clinic Lou Ruvo Center for Brain Health's care team how you can maximize access to resources available through the center. You will:

- Learn how to communicate with your medical team between appointments
- Understand how to tap into resources at our center and in the community
- Learn how we're here for your family as symptoms and resource needs change
- Receive "how-to" information to take home (and advice on when and how to ask for more)
- Learn about opportunities to gain access to new treatments by participating in research studies
- Take a deep breath (truly; our yoga instructor will engage the group)



WHEN:

Tuesday, October 3
6:00–7:45 p.m.

WHERE:

**Cleveland Clinic Lou Ruvo
Center for Brain Health**

**RSVP TO THIS
COMPLIMENTARY EVENT:**

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