The National Aeronautics and Space Administration has selected a research team to lead a unique twin study investigating genomic disruption that may occur as a result of long-term space flight. Brinda Rana, PhD, adjunct professor at the UC San Diego Center for Healthy Aging and the Stein Institute for Research in Aging, will lead two of the ten projects at UC San Diego.

Studying identical twins allows control for 100 percent of genetic and shared environmental factors—a human version of a laboratory animal experiment. These twins studies are an unprecedented opportunity for scientists to investigate the physiological and molecular effects of space flight.

Only one set of twins, astronauts Scott and Mark Kelly, has ever been to space. In March 2015, Scott will begin his one-year tour at the International Space Station while Mark Kelly will remain on Earth and serve as “ground control.” Mark is the husband of former Rep. Gabby Giffords (D-AZ), who suffered a traumatic brain injury when she was shot in the head outside a grocery store in 2011.

The ten projects will study a wide range of genomic and molecular biomarkers related to cognitive and physiological processes before, during, and after a one-year space mission. The research team will work together to integrate the data using a systems biology approach. This is one of the first longitudinal studies of its kind. The data will inform a better understand how extended exposure to space impacts the human brain and body.

Space flight has a significant effect on the human body, manifesting in accelerated aging disorders such as cardiovascular and cognitive impairment. Zero gravity, extreme radiation, small confined spaces, and altered diets are stressors that space travelers experience. Radiation on the International Space Station is twenty times more than on Earth, and the radiation on Mars is one hundred times more than on Earth. To prepare for future exploratory missions in space that could last up to three years, NASA needs to understand the long-term impact in order to identify strategies to monitor health outcomes and reduce risk for astronauts and space travelers.

Dr. Rana is working with Vivian Hook, PhD; Alan Hargens, PhD; and Brandon Macias, PhD, and in collaboration with the Wyle Science, Technology, and Engineering Group Cardiovascular Laboratories to investigate genomic and protein pathways involved in space flight adaptation of fluid regulation. Due to zero gravity, fluid shifts toward the head, creating a risk for permanent ocular structural and functional changes.

As with other NASA spin-offs—like memory foam—originally developed to meet space mission needs, discoveries from the twin projects have potential to impact life on Earth. These studies will help us to understand human physiology on Earth so that we can identify and diagnose complex diseases earlier and advance health care.
Directions Garren Auditorium from I-5 North or South
• Exit La Jolla Village Drive and drive west on La Jolla Village Drive.
• Turn right onto Villa La Jolla Drive.
• Go straight into Gilman Parking Structure.
• From Gilman Parking Structure, cross the street toward the Stein Clinical Research Building.
• Cross the lawn to the Medical Teaching Facility Building (MTF).
• Walk under the MTF building bridge, continue along the sidewalk to enter the Biomedical Sciences Building through large sliding glass doors.

• Turn left at the first hallway. Garren Auditorium is in Room 1105.

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JANUARY'S LECTURE
Just as a pediatrician tends to the needs of a child, a geriatrician cares for older adults. Learn more about the recent advancements in geriatrics from Roopali Gupta, MD, a geriatrician and assistant professor of medicine at UC San Diego School of Medicine. She provides primary care for older adults, with an emphasis on health maintenance, disease prevention, and treatment of acute and chronic illnesses.

Dr. Gupta values the importance of creating a strong relationship with patients—as well as family members and caregivers—and strives for individualized decision making in the context of high quality medical care.

A recipient of regional and national academic teaching awards, Dr. Gupta is a passionate clinician-educator. She has presented her research nationally and is involved in training medical students, residents, and fellows at UC San Diego School of Medicine.

Dr. Gupta completed her residency and fellowship training at University of Texas Southwestern Medical Center. She earned her medical degree at University of Michigan Medical School and is board-certified in geriatric medicine and internal medicine.

LECTURES ON TV
What Can We Learn about Cognitive and Emotional Aging from a Blood Sample?
January 8, 8:00 p.m.
January 9, 10:00 p.m.

What do blood tests show? And what can we learn from them about our aging brains? Join Lisa Eyler, PhD, as she explains it all. Dr. Eyler is an associate professor in the UC San Diego Department of Psychiatry and associate director of the Neuroimaging Unit of the San Diego VA Mental Illness, Research, and Education and Clinical Center. Her research focuses on the biological basis of neurocognitive and emotional functioning in aging, development, and mental illness.

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JANUARY
Recent Advancements in Geriatrics
Roopali Gupta, MD
Assistant Professor of Medicine, Primary Care Physician, Primary Care and Geriatric Medicine
UC San Diego Health System

January 21, 2015, 5:30 p.m.
Garren Auditorium, Biomedical Sciences Building, UC San Diego

FEBRUARY
Current Issues in Rheumatology
Gregory D. Middleton, MD
Associate Clinical Professor, UC San Diego Health System

February 18, 2015, 5:30 p.m.
Garren Auditorium, Biomedical Sciences Building, UC San Diego
Irwin Zahn

BY DANA SONG

For some, a well-deserved retirement is the end goal after a lifetime of work. But Irwin Zahn, age eighty-eight, has no plans on slowing down. A veteran, an inventor, and an entrepreneur, Irwin continues to lead a vigorous life dedicated to helping others foster their entrepreneurial goals.

Born in New York, Irwin spent his childhood and young adult life living in a community located in Brooklyn. Irwin described his early years as a quiet, up until his ultimate decision to enlist for the Second World War at the young age of seventeen. “It was a tremendous moment,” he described. “My life went from a homey, slowly defined life that wasn’t very far reaching . . . to moving out of the city and getting into service and ultimately going overseas to France.”

“The war service gave my life an international tilt,” he added, “seeing the rest of the world from an international standpoint.”

After his service in the army air force, Irwin returned to his hometown where he finished his education as a mechanical engineer at City College in Manhattan. From there, he worked in the industry, where he learned a valuable lesson that would resonate with him for his entire life: “taking a chance, or taking a risk.”

“In many instances in life, you’ll come across multiple decisions whether you should do something or not do something,” Irwin explained. “But my background is to take the risk and try to do something in a better job or in a better way. And I’m happy to say that I’m an entrepreneur.”

Irwin’s enthusiasm as an entrepreneur shines through his work and his career. In 1954, he started his own company, the General Staple Company, which eventually expanded into the electronics company Autosplice Inc. Fifty-seven years later, in 2011, Irwin decided to sell the company. He was eighty-five years old, and it was certainly the right thing to do at the time. With the money he received, he decided to fund the Moxie Foundation. Moxie, a soft drink in the early twentieth century, was significant to Irwin in the way it was advertised and promoted.

“If you were to drink this drink,” he explained, “it’d give you more moxie, meaning more strength, more courage, more get-up-and-go, more of a get-it-done attitude. So, I decided to name the foundation the Moxie Foundation.”

With this foundation, Irwin set out to implement “entrepreneurial incubators” within a variety of educational institutions, including UC San Diego, San Diego State University, and the City College of New York, his alma mater. Initially dedicated to product entrepreneurship, the Moxie Foundation has since expanded its agenda into social entrepreneurship in order to reach a broader range of students. Irwin seeks to foster a student body that is invested in becoming active entrepreneurs and change-makers.

For successful aging, Irwin believes that being “gainfully occupied” is key: “I can’t picture lying on the beach and then turning over and toasting on the other side. I picture being active in worthwhile activities. I am in the office and in the field daily and together with a fair amount of travel arrangements, I live life and enjoy every minute of it!”

Happiness in Schizophrenia

Research suggests mental illness doesn’t preclude enjoying life

BY SCOTT LAFEE AND CHRISTINA JOHNSON

Schizophrenia is among the most severe forms of mental illness, yet some people with the disease are as happy as those in good physical and mental health, according to a study led by researchers at the UC San Diego Center for Healthy Aging and the Stein Institute for Research on Aging.

The study, published in the journal Schizophrenia Research, has been widely reported by the national and international media.

“People tend to think that happiness in schizophrenia is an oxymoron,” said senior author Dilip V. Jeste, MD, senior associate dean for healthy aging and senior care, Distinguished Professor of psychiatry and neurosciences, and director of the UC San Diego Center for Healthy Aging. “Without discounting the suffering this disease inflicts on people, our study shows that happiness is an attainable goal for at least some schizophrenia patients,” said Dr. Jeste. “This means we can help make these individuals’ lives happier.”

In a survey of people with the disease, researchers found that 37 percent of patients reported being happy all or most of the time. Of clinical significance, the patients’ happiness was unrelated to the severity or duration of their illness, to cognitive or physical function, or to socioeconomic factors such as age and education, which among healthy adults have been linked to a greater sense of well-being.

Instead, the study shows that happiness among those with chronic forms of schizophrenia is associated with positive psychological and social attributes such as resilience, optimism, and lower perceived stress, which can be taught through behavioral modification and mindfulness training techniques.

The study is based on a survey of seventy-two English-speaking outpatients...
with schizophrenia in the San Diego area. The comparison group included sixty-four healthy men and women who were part of an ongoing study on successful aging. Participants ranged in age from twenty-three to seventy years old; the mean age for both groups was fifty years.

The survey probed respondents’ happiness during the previous week, asking them to rate statements such as “I was happy” and “I enjoyed life” on a scale from “never or rarely” to “all or most of the time.” Responses suggest that about 37 percent of schizophrenia patients were happy most or all of the time, compared with about 83 percent of the comparison group.

Approximately 15 percent of schizophrenia patients reported being never or rarely happy. By contrast, none in the comparison group reported such a low level of happiness.

“People with schizophrenia are clearly less happy than those in the general population at large, but this is not surprising,” said lead author Barton W. Palmer, PhD, professor in the UC San Diego Department of Psychiatry. “What is impressive is that almost 40 percent of these patients are reporting happiness and that their happiness is associated with positive psychosocial attributes that can be potentially enhanced.”

Coauthors include A’veria S. Martin and Danielle K. Glorioso, UC San Diego; and Colin Depp, UC San Diego and Veterans Affairs San Diego Healthcare System.

The study was funded in part by the National Institute of Mental Health (grants 5R01MH094151 and 5T32MH019934) and the Sam and Rose Stein Institute for Research on Aging at UC San Diego.