

NEWS • Opinion Columnist

Human brains, in and out of skulls, promise to unravel Alzheimer's mysteries

Column: UC Irvine's Institute for Memory Impairments and Neurological Disorders – or MIND – is OC's go-to spot for info



Human brain UC Irvine's Institute for Memory Impairments and Neurological

Some days are weirder than others in this line of work.

“Would you like to hold a human brain?” asked Megan Witbracht, associate education director at UC Irvine’s Institute for Memory Impairments and Neurological Disorders (UCI MIND).

There it sat, on the lab counter. It once belonged to a woman in her 70s. This is where it all happened — love, hate, compassion, jealousy, the punch lines to jokes, the sting of regret. It was way larger than “put your two fists together and that’s the size of your brain” estimates we got in biology class. My mouth hung open as she scooped the big brain into her blue-gloved hands, then gently placed it into my blue-gloved hands.

Let me tell you, the human brain is heavy. Like, four cans of black beans heavy. She had just rinsed it, so it was a bit drippy. Felt sort of rubbery, like dolphin skin.

This, Witbracht, explained, is a *healthy* brain. If you cut *this* brain into slices, it would look like this, she explained — directing my gaze to a Ziploc-type baggie holding a cross-section of healthy tissue. No holes.



Megan Witbracht, left, associate education director at UC Irvine’s Institute for Memory Impairments and Neurological Disorders (UCI MIND), gauges the reaction of SCNG’s Teri Sforza to holding a human brain. (Photo courtesy UCI MIND)



Why do some brains remain robust as time marches on, while others wither? What can be done to halt deterioration in its tracks, or even better — reverse it?

That's the mystery that decades of work at UCI and other federal research centers are dedicated to unraveling. Some of the biggest brains in science are devoted to understanding aging, dementia and Alzheimer's disease.

"We try not to just be a place where important things are happening, but where people come to get answers and understand what is real and what isn't," said [Joshua Grill](#), director of UCI MIND. "There's a lot of garbage out there."

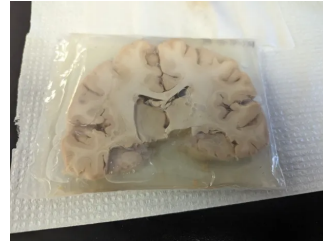
Millions upon millions of dollars are pouring into Alzheimer's research, new drugs are coming online, "and we're making amazing progress," Grill said. "But we still don't have a cure. We still don't have a way to prevent it. Anyone who says otherwise is lying."

Desperation

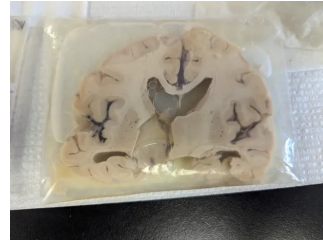
Researchers believe that Alzheimer's is caused by a buildup of two proteins in the brain: beta-amyloid and tau. Plaques of beta-amyloid accumulate between nerve cells. Tangles of tau build up inside nerve cells. Cells can no longer communicate and are ultimately destroyed.

Death usually occurs within 10 years.

In Orange County, [some 164,000 people have some form of dementia or mild cognitive impairment](#), according to the latest numbers from [Alzheimer's Orange County](#). As the population ages, things are going to get much worse — so much worse folks are bracing for a tidal wave of illness.



Healthy human brain, UC Irvine's Institute for Memory Impairments and Neurological Disorders (UCI MIND). (Photo by Teri Sforza, Orange County Register/SCNG)



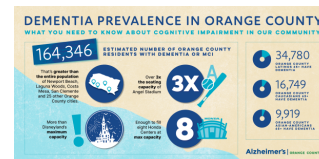
Diseased human brain at UC Irvine's Institute for Memory Impairments and Neurological Disorders (UCI MIND). (Photo by Teri Sforza, Orange County Register/SCNG)



Desperation can be a money-making opportunity — or, as some medical ethicists say, quackery and flimflam. Older folks are hit with ads touting treatments that cost thousands of dollars a pop — and require many pops. They're asked to join studies where they must *pay* to participate, rather than the other way around. UCI MIND's Grill wants people to know they should not pay to participate in research — folks who join clinical trials are contributing to science. *They* usually get paid – not much – but some token amount.

Stay healthy

Grill wants UCI MIND to go big on communication, which is how I wound up there holding a brain. He sort of destroyed my daily fish oil capsule/Alzheimer's prevention routine — the science isn't really there, he said as I sighed heavily — but there are things folks can do to help prevent disease.



- Exercise and cognitive stimulation promote brain health, improve brain function and can reverse memory deficits in Alzheimer's mice.
- Diets rich in antioxidants, such as those found in fruits and vegetables, or enriched for DHA from cold water fish, may improve brain health.
- Studies of the oldest old — such as in [The 90+ Study](#) of folks in Leisure World/Laguna Woods Village — show that a healthy diet, including modest alcohol and coffee consumption, and physical activity, improve lifespan and brain health.

Scientists are investigating associations between cognitive decline and heart disease, high blood pressure, cholesterol, diabetes, inflammation and obesity, as well as lifestyle. Promising advances are on the horizon — but they require people willing to participate in scientific research. That's always the toughest part.



As Orange County's only state and federally funded Alzheimer's Disease Research Center, UCI MIND has a variety of research participation opportunities for older adults with and *without* memory concerns. More info at 949-824-0008, research@mind.uci.edu and <https://mind.uci.edu/research-studies/participate/> for more information. If you're at least 90 and interested in joining The 90+ Study — and donating your brain to research after death — call 949-768-3635 or email study90@uci.edu. For other research opportunities, see <https://c2c.uci.edu/>.



Joshua Grill takes questions while moderating a UCI MIND Institute for Memory Impairments and Neurological Disorders research panel in 2017. (Photo by Jeff Antenore, Contributing Photographer)

Grill seems like a pretty nice guy. He works on increasing underrepresented folks in scientific research. He has written about music's unique ability to activate the brain, launching a campaign to collect pre-owned iPods and MP3 players for Alzheimer's and dementia patients (back when that was the tech of the time). He keeps a blog and wants communication lines to be open.

The next decade promises to be one of great progress in fighting Alzheimer's. There most likely will not be one magical cure, but multiple therapies to address brain toxins and their outfall in multiple ways. Me, I'm glad the big brains at UCI and elsewhere are at work on this, and I envision the day the healthy lump of gray matter in my skull sits in the blue-gloved hands of some future gob-smacked, wonder-struck person — who will surely conclude that, indeed, some days are weirder than others.

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