

"Isolation Devastates the Brain": The Neuroscience of Solitary Confinement

By Carol Schaeffer

Dolores Canales can't seem to find her way around like she used to. She has spent her whole life in Anaheim, California, yet says she gets lost even in her hometown. She feels that her 20 years in prison, and the 18 months she spent in solitary confinement, has resulted in a permanent change to her sense of space and direction.

Research indicates that extended isolation can not only significantly alter the structure of the brain, adding to research that has long indicated the extensive psychological damage caused by solitary confinement. At a panel discussion last month at the University of Pittsburgh School of Law, part of a two-day conference on solitary confinement, neuroscientists testified to the degenerative neurological effects of isolation.

"The brain is comprised of 100 billion cells, 500 trillion connections," said Dr. Huda Akil, distinguished professor of neurosciences at the University of Michigan. "It is an organ of social function. The brain needs to interact in the world."

Akil is a specialist in the effects of emotions on brain structure, particularly the effects of stress hormones. According to Akil, stress hormones can make dramatic changes to the hippocampus, the "conciierge of the brain." The hippocampus controls how our senses are translated to the rest of our brain, and is in charge of our relation to outside space.

Stress hormones have been shown to "rewrite your DNA program," and rewire the brain, said Akil. These hormonal effects on the hippocampus change space perception and directional positioning. The "internal GPS" of the brain is disturbed, depth perception is altered and

where the body lies in relation to other objects in space is uncalibrated.

For Canales, an activist and leader of California Families Against Solitary Confinement, this rings particularly true. She says her sense of space is permanently altered. "You should see my apartment. When I first moved in, I couldn't stand not being able to see the door." To this day, she says, friends tell her that her small apartment is set up like a prison cell.

Canales was confined to her cell twenty-two hours a day. "There, I had a window. The guards would take me out to the yard every day. I'd get to go out to the yard with other people," she recalled. Canales knows that she escaped the even harsher conditions suffered by people in supermax prisons such as Pelican Bay, where her son, John Martinez, was confined for more than a decade. But being in solitary confinement still took its toll. "I would wake up in the middle of the night, my heart pounding," she described. "I'm not just saying that so people think I was suffering. There's a real anxiety."

Other survivors of solitary confinement attest to similar feelings. Robert King, one of the so-called Angola 3, was held in solitary in Louisiana for 29 years, living in a box measuring just 6 by 9 feet for 23 hours a day, until he was released in 2001. He told the BBC in 2014, "It is off to the point where I get lost even when I am walking just around the corner from where I live." The disorientation he and Canales both describe is consistent with damage to the hippocampus.

Albert Woodfox, another member of the Angola 3, was held in solitary confinement for 43 years and was released February, 2016. He has a hard time knowing what is a product of solitary confinement and what is a natural part of aging, and

his transition has in many ways been too recent to accurately observe.

Yet Woodfox contends that there is a clear shift in readjusting to a world of social interaction, that has deep physical impacts. "Physically...I've found there is a different rhythm to being free than being in prison," he said in an interview. "The way you walk, the way you converse with other people, your awareness of your senses. It's so much more intense than when you're in prison. I had to learn how to pace myself because I was burning way more energy in society than I was in the prison cell."

Akil is quick to note that brain imaging studies of people in prison are lacking. The history of abusive experimentation on prisoners has led to current bans on using them in medical studies. So the data is, in some sense, limited. But she insists, "What we do know about the brain suggests that there is a definite change from solitary confinement."

According to Dr. Michael J. Zigmond, University of Pittsburgh professor of neurology, studies of solitary confinement in mice indicated that overall there was a measurable difference consisting of simpler neurons, fewer connections between those neurons, and fewer synapses in the brain compared to socialized mice.

At the conference, Zigmond described the experiment, which separated some laboratory mice into "shoebox" housing and others into an "enriched environment" where they were able to interact with other mice and were given freer range of movement and exercise equipment.

"This model of an 'enriched environment' is of course nothing like what would be actually enriching [to an animal]," he said.

“But it is a marked difference in the small, cramped and isolated shoebox containers. “The way the housing is set up is very much like many solitary housing arrangements,” he said, with stacks of small containers each containing a mouse. They may be able to sense each other’s presence, but cannot see or interact in any way. Meanwhile, the larger box where the mice are free to interact suggests a model for representing general population in prison settings.

But in order to conduct these experiments, Zigmond has to get special permission from animal care boards, as extended isolation is carefully regulated in animal experiments as cruel conditions. “It is clear to animal care boards that solitary housing is unacceptable under express circumstances.”

Studies on humans and primates are rare, largely because they are considered inhumane by most major research groups and universities. There are examples of research from the middle of the 20th century, which prompted many reforms in experimentation ethics.

As an example, in 1951 researchers at McGill University paid a group of male graduate students to stay in small chambers equipped with only a bed for an experiment on sensory deprivation. Students were to be observed for six weeks, but not one lasted more than seven days. Students dropped out of the experiment after being unable “to think clearly about anything for any length of time,” while others reported hallucinations.

In another notorious experiment from the 1950s, University of Wisconsin psychologist Harry Harlow placed rhesus monkeys inside a solitary chamber. Harlow found that monkeys kept in isolation wound up “profoundly disturbed, given to staring blankly and rocking in place for long periods, circling their cages repetitively, and mutilating themselves.” Most readjusted eventually, but not those that had been caged the longest. “Twelve months of isolation almost obliterated the animals socially,” he wrote.

Akil notes that the power of social contact helps remodel the brain and relieves stress. But the stress hormones never really go away, never leveling out entirely. “The longer [people] are

kept isolated, the worse it gets,” she says.

“Isolation devastates the brain. There is no question about that,” said Zigmond. “Without air, we will live minutes. Without water, we will live days. Without nutrition, we live weeks. Without physical activity, our lives are decreased by years. Social interaction is part of these basic elements of life.”

Canales and other advocates at the conference expressed hope that the growing body of the evidence on the neurological damage caused by isolation will provide new ammunition in the battle to end solitary confinement. She has no doubt as to the lasting effects of solitary, based on her son’s experiences and her own. “There is an intensity that I can still describe to this day. I get overwhelmed if it rains. Everything is intensified.” she says. “I could be walking and think about what it’s like to be in that space where you can’t even see color. I get overwhelmed thinking about all the people that can’t feel the rain, or the sun. That are stuck in there.”

About Solitary Watch

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Founded in 2009, Solitary Watch (www.solitarywatch.com) is a national watchdog group that investigates, reports on, and disseminates information on the use of solitary confinement in U.S. prisons and jails. In the past six years, the work of Solitary Watch has significantly expanded public awareness and understanding of a once-invisible domestic human rights issue, in which some 80,000 to 100,000 people live in complete isolation and sensory deprivation for months, years, and even decades. It has also stimulated mainstream media coverage, spurred and supported national and local advocacy campaigns, and informed government policymaking.

The print edition of Solitary Watch is produced quarterly and is available free of charge to currently and formerly incarcerated people and their families and advocates. To receive future copies, please send a request to the address or email above.

We also welcome accounts of life in solitary confinement, as well as stories, poems, essays, and artwork by people who have served time in isolation. Please send contributions to “**Voices from Solitary**” at the address above, and tell us whether you would like us to use your name or would prefer to remain anonymous.

Note: We regret that we cannot offer legal assistance or advice and cannot respond to requests for this type of help. Legal materials sent to us cannot be returned to the sender. We also cannot forward mail to others. Thank you for your cooperation.

Final Member of the “Angola 3” Released from Prison After 43 Years in Solitary Confinement

By Jean Casella & James Ridgeway

On February 19, 2016, Albert Woodfox walked out of the local jail in West Feliciana Parish, Louisiana, a free man. He had spent nearly five decades in prison and 43 years and 10 months in solitary confinement—believed to be the longest time on record for a living human being.

Woodfox was placed in isolation at the Louisiana State Penitentiary in 1972, along with Herman Wallace and Robert King, following the death of correctional officer Brent Miller. After his conviction for Miller’s murder was overturned by the second time on the

basis of discrimination in the jury pool, Woodfox chose to plead “no contest” to a lesser charge in exchange for time served, rather than face a third trial. But he maintains his innocence, saying that he was targeted for the murder charge—and held in isolation—because he, like King and Wallace, was

known to be a Black Panther who was organizing against conditions at Angola. (King was released after his conviction was overturned in 2001, and Wallace died of cancer just days after his release in 2013.)

Woodfox spent the bulk of his 43 years in solitary at Louisiana’s notorious plantation prison, in “closed cell restriction”, or CCR, in a cell measuring 6 x 9 feet, with one hour a day to exercise—in shackles—in a small, concrete-walled yard. Unlike many solitary cells, however, Woodfox’s cell had bars on the front rather than a solid steel door, which allowed him some limited interaction with the other incarcerated men on his tier.

In his first interview following release, with Ed Pilkington of *The Guardian*, Woodfox said that when he was placed in isolation in 1972, he resolved that he would survive. He and Wallace and King “made a conscious decision that we would never become institutionalized,” he said. “As the years went by, we made efforts to improve and motivate ourselves.”

“We made sure we always remained concerned about what was going on in society – that way we knew that we would never give up. I promised myself that I would not let them break me, not let them drive me insane.”



Woodfox acknowledges that he had resources not available to all individuals—including his faith in his political beliefs, the ability to read and write, a loving family, and supporters on the outside who grew to number in the thousands as the case of the “Angola 3” became widely publicized in the last decade. Others around him, he told *The Guardian*, were not so lucky.

“Some of the guys found the pressure so great that they just laid down in a fetal position and stopped communicating with anybody. I’ve seen other guys who just want to talk and make noise, guys who want to scream. Breaking up manifests itself in any

number of ways in individuals.”

Still, Woodfox says he often suffered from claustrophobia and panic attacks. “The panic attacks started with sweating. You sweat and you can’t stop. You become soaking wet – you are asleep in your bunk and everything is soaking wet. Then when the claustrophobia starts it feels like the atmosphere is pressing down on you. That was hard. I used to talk to myself to convince myself I was strong enough to survive, just to hold on to my sanity until the feeling went away.”

Woodfox told *The Guardian* that his lowest moments came with the death of Herman Wallace and of his mother. He was not permitted to attend her funeral. That, he says, “was the closest I came to cracking,” he said. “All my strength I inherited from my mom.” His first act, upon his release, was to visit his mother’s gravesite.

Woodfox, who turned 69 on the day of his release, has a host of health problems, many of them exacerbated by his time in isolation. But he told *The Guardian* that now that he is free, he is determined to be a “voice for those who have no voice, be a shield for those who can’t protect themselves”.

Like Robert King, Woodfox is already using his freedom to speak out against solitary confinement. “It’s an evil,” he said. “Solitary confinement is the most torturous experience a human being can be put through in prison. It’s punishment without ending. We have got to stop this, and having been a victim of it for so long myself, that’s what I’m going to do.”

News Briefs

FLORIDA — In March, human rights advocates sent a letter to the U.S. Department of Justice Civil Rights Division calling for an investigation into the nature of solitary confinement in Florida. The letter claimed that solitary was overused, discriminatorily implemented, and abusive. The authors believe that Florida's usage of solitary confinement violates the Civil Rights of Institutionalized Persons Act, noting that one of every eight incarcerated individuals is held in isolation, over three times the national average. Additionally, black men, black women and people with mental illness are overrepresented in solitary by 10, 20 and 22.5 percent respectively. The letter is partially in response to the 2012 death of Darren Rainey, after correctional officers locked him in a 180-degree scalding shower. The Department of Justice has yet to respond.

CALIFORNIA — Ongoing lawsuits are challenging conditions in San Quentin State Prison's "Adjustment Center," where condemned men await execution in solitary confinement. Although California routinely sentences people to death, no one is has been executed in nearly a decade. On average, the condemned spend over 16 years on death row. The conditions in the Adjustment Center are especially harsh: individuals spend 21-24 hours a day in a cell smaller than a standard parking space for years on end. In 2011 and 2013, individuals in solitary participated in peaceful hunger strikes, but the California Department of Corrections and Rehabilitation ignored their demands and disciplined them for participation.

ALABAMA — On May 1st, members of the Free Alabama Movement—a network of incarcerated men—began a labor strike across the state. Despite being held in solitary confinement, the movement's leaders continued to organize the 30-day work stoppage, which aims to reform prison conditions and the prison labor system. Prison administrations retaliated in different ways, from reducing meal portions to

placing entire prison populations in solitary confinement. The labor strike was a peaceful protest against the prison labor system that is often unpaid, profiting the state and private, for-profit companies. Incarcerated individuals compare the system to slavery. The strikers were also protesting unhygienic conditions in solitary confinement, negligence, and unsafe drinking water. The Free Alabama Movement hopes for legal change in Montgomery.

OHIO — In June, the American Civil Liberties Union of Ohio and Disability Rights Ohio released a collaborative review of solitary confinement and mental illness in Ohio prisons, concluding that the state prison system is desperately in need of reform. The report found that Ohio's prisons house 10 times more individuals with mental illness than state psychiatric hospitals. Those with mental illness are disproportionately represented in solitary confinement, a practice that both exacerbates and creates mental illness. The report recommends the state reduce its reliance on solitary, reduce the duration of time individuals spend in isolation, and implement transitional units following time in solitary. The report especially urges the state to eliminate solitary confinement for those with mental illness.

NEW YORK — In June, the Correctional Association of New York released a report on the brutality following the escape of two men from Clinton Correctional Facility a year earlier. According to the report, some incarcerated individuals were severely beaten, and abuse included choking or suffocation. Other incarcerated men were placed in solitary confinement for minor offenses or on false disciplinary charges. Reports of the abuse were ignored. The report emphasized a racial divide that likely contributed to the violence: 75 percent of those incarcerated at Clinton are Black or Latino

compared to .05 percent of the correctional officers. Those suffering from language barriers and special needs are likely to endure further punishment. The report calls for immediate reform.

WISCONSIN — On June 10th, individuals incarcerated at Waupun and Columbia Correctional institutions began a hunger strike to protest torturous prison conditions, especially indefinite solitary confinement in administrative segregation units. Among their grievances, strikers requested increased access to mental health care and independent oversight over the use of solitary. Prior to 1990, Wisconsin prisons required evidence of "recent violence" to place an individual in solitary. Currently, any "history of violence" is sufficient. After two and a half weeks of protest, the state began force-feeding the hunger strikers, a practice that has been condemned by the ACLU, the American Medical Association, and the United Nations.

SOUTH CAROLINA — On May 31, 2016, a settlement was released in the longstanding class-action lawsuit between the group Protection and Advocacy for People with Disabilities Inc. (P&A) and the South Carolina Department of Corrections. The settlement promises to benefit the approximately 3,500 individuals with mental illness incarcerated in South Carolina. P&A and SCDC jointly released a remedial plan that would bring an end to a lawsuit that began in 2005 when P&A filed suit against SCDC for its negligence in mental health treatment behind bars, which has led to documented suffering and even death. Individuals with mental illness spend an average of 647 days in solitary in South Carolina's prisons, in conditions that have been ruled unconstitutional. The details of the settlement include suicide prevention measures and a ban on solitary for individuals suffering from mental health crises.

News Briefs by Sarah Blatt-Herold