

# Solitary Watch

## Criminal Justice Issues and Prisoners' Rights

<https://solitarywatch.org/2012/09/18/scientists-discover-how-social-isolation-damages-young-brains/>

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by [Jean Casella and James Ridgeway](#) | September 18, 2012

In his groundbreaking 2009 [New Yorker article](#) on solitary confinement as torture, Atul Gawande described a researcher in the 1950s who raised a group of baby Rhesus monkeys in complete isolation from one another. While they grew up physically healthy, the monkeys were also profoundly disturbed, given to staring blankly and rocking in place for long periods, circling their cages repetitively, and mutilating themselves.

Nearly identical behaviors have, of course, been observed in humans subjected to solitary confinement, both anecdotally and by researchers like [Stuart Grassian](#), [Craig Haney](#), and [Terry Kupers](#), among [others](#). Grassian described a specific psychiatric syndrome that affects prisoners in prolonged solitary, that includes symptoms such as hypersensitivity to external stimuli; perceptual distortions, illusions, and hallucinations; panic attacks; difficulties with thinking, concentration, and memory; intrusive obsessional thoughts; overt paranoia; and problems with impulse control. The [effects of solitary on young people](#), with their still-developing brains, are presumed to be even worse.

Now, according to an [article on LiveScience](#), scientists have uncovered new information on precisely how isolation affects the brain. Reporting on findings published in the latest issue of the journal [Science](#), LiveScience's Stephanie Pappas writes:

Social isolation in youth may wreak havoc on the brain by disrupting a protein crucial to the development of the nervous system's support cells, new research finds.

A new study in mice finds that when the animals are isolated during a crucial early period, brain cells called oligodendrocytes fail to mature properly. Oligodendrocytes build the fatty, insulating sheaths that cushion neurons, and their dysfunction seems to cause long-lasting behavioral changes.

Research in rhesus monkeys and humans has shown that [social isolation during childhood](#) has an array of nasty and lifelong effects, from cognitive and social problems in neglected children to working memory troubles in isolated monkeys. These children and monkeys also show abnormalities in the white matter of the brain, which includes support cells such as oligodendrocytes as well as the fat-covered neural projections that act as the brain's communication system.

But while previous studies had noted a correlation between white matter problems and [cognitive struggles after isolation](#), they could not prove one caused the other. Gabriel Corfas, a professor of neurology and otolaryngology at Boston Children's Hospital and Harvard Medical School, and his colleagues wanted to understand how the relationship works. They took baby mice from their mothers at 21 days of age, right after weaning. Some of the young mice were put in typical laboratory conditions, living in a cage with three other mice. Another group was given an enriched environment, with lots of mousey company and an ever-changing array of toys. The final group of mice was put in individual isolation for two weeks, never seeing another rodent.

At 50 days of age, the mice were tested for sociability and working memory. In line with previous findings, the isolated mice struggled with both, while the enriched and normal-environment mice did fine. Soon after, the researchers examined the brains of all three groups for abnormalities.

They found no problems in the normal-environment and enriched-environment mice. But the animals that had been left all alone had strange, stumpy oligodendrocytes. These cells usually have long, complex projections (called axons) that reach out almost like tree roots. In the isolated mice, however, the oligodendrocyte projections were short and simple, without their usual complexity.

What's more, the isolated mice had thinner protective sheaths around these neural axons, the projections that brain cells use to communicate. These sheaths, which are made of a fatty substance called myelin, help insulate axons and speed up neuron-to-neuron chatter.

The piece goes on to describe exactly how this damage to the white matter of the brain might be caused through changes in brain chemistry. Corfas and his colleague found, among other things, that some of the changes produced from isolation are also seen in patients with bipolar disorder and schizophrenia.

James Ridgeway (1936-2021) was the founder and co-director of Solitary Watch. An investigative journalist for over 60 years, he served as Washington Correspondent for the Village Voice and Mother Jones, reporting domestically on subjects ranging from electoral politics to corporate malfeasance to the rise of the racist far-right, and abroad from Central America, Northern Ireland, Eastern Europe, Haiti, and the former Yugoslavia. Earlier, he wrote for The New Republic and Ramparts, and his work appeared in dozens of other publications. He was the co-director of two films and author of 20 books, including a forthcoming posthumous edition of his groundbreaking 1991 work on the far right, Blood in the Face. Jean Casella is the director of Solitary Watch. She has also published work in The Guardian, The Nation, and Mother Jones, and is co-editor of the book Hell Is a Very Small Place: Voices from Solitary Confinement. She has received a Soros Justice Media Fellowship and an Alicia Patterson Fellowship. She tweets @solitarywatch.

Accurate information and authentic storytelling can serve as powerful antidotes to ignorance and injustice. We have helped generate public awareness, mainstream media attention, and informed policymaking on what was once an invisible domestic human rights crisis.

Only with your support can we continue this groundbreaking work, shining light into the darkest corners of the U.S. criminal punishment system.

by [Juan Moreno Haines](#)

October 25, 2022

by [Solitary Watch Guest Author](#)

October 13, 2022

by [Vaidya Gullapalli](#)

September 29, 2022

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Isolation is a practice that deserves close scrutiny, but the mice were isolated at the equivalent of age four or five (not seventeen) and for over half their lives before the evaluation. Rather than trying to equate mice to people, it would be good to just evaluate the people and then, I would hope, pass state laws outlawing solitary for minors except for a short, clearly delineated period after a violent incident.

Very interesting article on the topic of isolation. I also found the following article Isolation and Loneliness very eye-opening from a psychological perspective. <http://www.psychalive.org/2009/06/isolation-and-loneliness/>

Loves 2nd chance project let your incarcerated loved ones know that they are not alone!  
<http://convicted-love.blogspot.com/2012/09/loves-2nd-chance-project.html?m=1>

You don't have to be a rocket scientist, to know what isolation can do to humans or animals. I feel the correctional staff should, as part of the training, be isolated for a period of 3 months, no family contact, in a very small space, and then if they pass that test, pay them to become an officer. Please give them also public relation. It is about time we stop dehumanizing our young men and women. Politician, teachers, any authority, any customer relation job should take training on public relation, at least once a year.

Why doesn't the scientific community ask to examine the brains of all these alleged suicide victims held in these units. Just like the NFL players. I would have preferred they had studied my little brother's brain rather than cremating him and tossing his remains into the Pacific. I don't buy the suicide claim of Salinas Valley either regarding my little brother. My gravely ill older brother would gladly donate his brain upon his death. He spent months and months at a time as a youth in solitary. In fact almost all his time while incarcerated was in solitary.

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