# Neuroscience and Loneliness

## 6 annotated reference entries

A companion to the existing research archive. This collection contains original annotations and source links, not copies of published papers.

## How to read this collection

Evidence types, populations and limits accompany every entry. Associations do not establish causation. Reports, policy documents and testimony serve different purposes from clinical studies. Research from other environments cannot be assumed to measure prison-specific effects.

## Review scope

Sources were traced from topic-scoped research notes and checked on October 28, 2026. The review is not systematic or exhaustive. Some entries rely on abstracts or official summaries; each states its review depth.

The full package has 57 new source works and one existing-table citation enrichment (MP31). Reports and reviews may reuse evidence; this is not a count of independent experiments.

Use the companion source register for citations and the coverage log for duplicate decisions and unresolved leads. Original source IDs are shared across the website, register, PDFs and RIS file.

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# Posttraumatic stress disorder symptom severity is associated with left hippocampal volume reduction: A meta-analytic study

Michael D. Nelson; Alecia M. Tumpap (2017). CNS Spectrums.

Setting: PTSD research synthesis; not a prison cohort

Across 37 studies, PTSD was associated with smaller hippocampal volumes; symptom severity related to left hippocampal volume.

## Evidence limits

The studies do not resolve whether differences precede trauma or result from it. This is not a prison cohort or proof that incarceration causes hippocampal atrophy.

## Review and provenance

Reviewed: PubMed abstract.

Source note: Hippocampus volume loss.

DOI: 10.1017/S1092852916000833

Link access check (28 October 2026): Page or document content returned.

Open source publication

MP12 / Contextual neuroscience | Peer-reviewed observational study

# Lonely Individuals Process the World in Idiosyncratic Ways

Elisa C. Baek et al. (2023). Psychological Science.

Setting: United States; university students

In 66 first-year university students, loneliness was associated with less similar neural responses to audiovisual stimuli compared with peers.

## Evidence limits

A small student sample does not establish causality or generalize directly to incarcerated people. Neural response differences are not evidence of tissue loss.

## Review and provenance

Reviewed: Abstract and study description.

Source note: Loneliness in prison.

DOI: 10.1177/09567976221145316

Link access check (28 October 2026): Page or document content returned.

Open source publication

MP13 / Contextual neuroscience | Peer-reviewed observational study

# The default network of the human brain is associated with perceived social isolation

R. Nathan Spreng et al. (2020). Nature Communications.

Setting: United Kingdom; UK Biobank community participants

UK Biobank data associate perceived isolation with differences in default-network connectivity, gray matter, and fornix microstructure.

## Evidence limits

These are population-level associations, not a uniform pattern of brain shrinkage. Perceived loneliness and imposed isolation are distinct exposures.

## Review and provenance

Reviewed: Full-text article.

Source note: Loneliness in prison.

DOI: 10.1038/s41467-020-20039-w

Link access check (28 October 2026): Retrieval unavailable in research tool.

Open source publication

MP28 / Peer-reviewed comparative empirical study

# Loneliness in prison

Anna Schliehe; Julie Laursen; Ben Crewe (2022). European Journal of Criminology.

Setting: England and Wales; Norway

Research in England and Wales and Norway describes physical separation, abandonment, and existential loneliness. Crowded social settings can coexist with profound disconnection.

## Evidence limits

Experiences vary: imprisonment sometimes provides respite from loneliness outside. The study does not measure neurological damage or establish population prevalence.

## Review and provenance

Reviewed: Publisher abstract.

Source note: Loneliness in prison additional links.

DOI: 10.1177/1477370820988836

Link access check (28 October 2026): Page or document content returned.

Open source publication

# Mind-Wandering in People with Hippocampal Damage

Cornelia McCormick; Clive R. Rosenthal; Thomas D. Miller; Eleanor A. Maguire (2018). Journal of Neuroscience.

Setting: United Kingdom; patients with hippocampal damage and controls

Six men with bilateral hippocampal damage and twelve matched controls mind-wandered with similar frequency, but the patients' thoughts were more present-focused, verbal and semantic, with less vivid scene-based imagery.

## Evidence limits

Damage followed limbic encephalitis, not confinement. This small neurological study helps explain hippocampal function; it does not demonstrate prison-induced damage or estimate incarcerated people's symptoms.

## Review and provenance

Reviewed: Author-university full text: abstract and participant methods.

Source note: Hippocampus role and atriphi due to incarceration -> PMC5851780.

DOI: 10.1523/JNEUROSCI.1812-17.2018

Link access check (28 October 2026): Page or document content returned.

Open source publication

# Brief of Center for Law, Brain & Behavior and Neuroscientists in Perry v. Spencer, No. 16-2444

Center for Law, Brain & Behavior and neuroscientist amici (2022). US Court of Appeals for the First Circuit; filed March 15, 2022.

Setting: United States

Uses research on social isolation, stress and sleep to argue that harms associated with solitary confinement should be understood as physical as well as psychological.

## Evidence limits

An advocacy submission to a court, not a new clinical study or a court finding. It draws on different human populations and animal models; its causal language should not be treated as direct measurement of brain injury in this plaintiff or all prisoners.

## Review and provenance

Reviewed: Public court-filed PDF: identity, summary of argument and isolation section; cited research not individually reappraised.

Source note: Prison mental health.

Link access check (28 October 2026): Page or document content returned.

Open source publication