

Harmful effects of stress on the brain and promising approaches for relief

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Credit: George Hodan/public domain

Stress can have numerous harmful effects on the mind and body, both immediately and over long periods of time. New research reveals mechanisms by which stress exacts its toll throughout the body, from the brain to the male reproductive system, and points to potential paths for reducing the negative effects of stress. The studies were presented at Neuroscience 2017, the annual meeting of the Society for Neuroscience



and the world's largest source of emerging news about brain science and health.

Stress is a state of physical, mental, or emotional strain resulting from adverse or demanding circumstances. Although some level of <u>stress</u> is inevitable—and even beneficial—chronic or excessive stress can wreak havoc on physical and mental health.

Today's new findings show that:

- Stress experienced by fathers may alter <u>gene expression</u> in their sperm, potentially leading to less resilient offspring (Jennifer Chan, abstract 505.02, see attached summary).
- Childhood trauma can result in altered patterns of gene expression and elevated <u>stress hormones</u>, biomarkers that may help identify and treat young trauma victims (Brianna S. Mulligan, abstract 600.04, see attached summary).
- Controlling signaling in brain cells called astrocytes may be an effective way to prevent heightened fear and anxiety responses associated with <u>post-traumatic stress disorder</u> (Meghan E. Jones, abstract 695.15, see attached summary).
- Newborn neurons in the hippocampus, a brain region that processes memory, can decrease effects of stress and symptoms of mental illness in mice (Christoph Anacker, abstract 115.23, see attached summary).
- Microbes found in soil can help guard against stress, vulnerability, and illness in mice after inadequate sleep (Samuel Bowers, abstract 241.19, see attached summary).

"Taken as a whole, these studies illuminate our understanding of the many <u>negative effects</u> of stress on the brain, whether early in life or as adults, and spur optimism about our ability to address these impacts," said press conference moderator Bruce McEwen, PhD, of Rockefeller



University, an expert in the body's response to stress.

More information: www.brainfacts.org/

Provided by Society for Neuroscience

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