

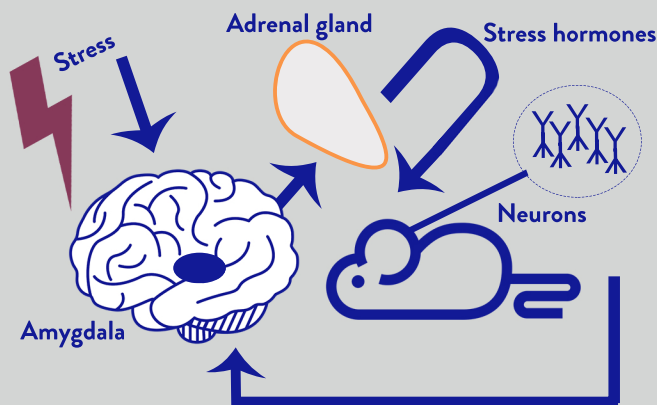
# WHAT CAN ANIMAL RESEARCH TEACH US ABOUT STRESS AND THE TREATMENT OF MENTAL DISORDERS?

- Approximately 20% of individuals suffer from a mental disorder, such as anxiety, depression or addiction. 74% of adults experience at least one stress symptom per month.
- Life stress caused by abuse, neglect or the loss of a loved one is a strong risk factor for mental illness.
- Animal research is vital to revealing how our bodies respond to stress and for developing treatments that combat the effects of stress.



## ALLEVIATING ANXIETY FOLLOWING STRESS

Animal studies have revealed that chronic stress activates a biological pathway involving the brain and the adrenal gland and releases stress hormones. In turn, these stress hormones cause abnormal hyperactivity in brain cells located in the **amygdala**, a brain structure that triggers anxiety.



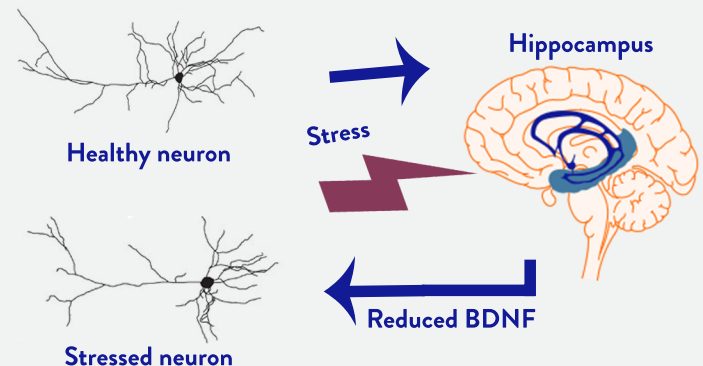
*Stress-responsive neurons in the amygdala become hyperresponsive.*

Researchers are working to develop better treatments for anxiety that work to reverse amygdala hyperactivity.

## REVERSING STRESS EFFECTS ON MEMORY

Chronic stress can have negative impacts on memory and thinking because it causes neurons, the cells of the brain located in the hippocampus, to deteriorate.

**BDNF** is a molecule that is vital for healthy neurons. Stress reduces BDNF and may explain hippocampus dysfunction.



*Connections between neurons in the hippocampus are lost, leading to memory impairments.*

Researchers are now examining methods to prevent stress-related neuronal damage and improve memory.

## BIOMEDICAL RESEARCH IS HIGHLY REGULATED

✓ All research involving animals must first be approved by an ethics committee called an Institutional Animal Care and Use Committee.

✓ Animals involved in research are cared for by veterinarians and other well-trained specialists.

✓ Laws, regulations and institutional policies are in place to safeguard the welfare of research animals.