

# WHY DO WE STUDY NEUROSCIENCE?

Neuroscience is the study of the nervous system, including the brain and spinal cord. The nervous system coordinates body actions, such as breathing and walking. It also transmits signals between different parts of the body for thinking, talking, and other functions.

*Studying neuroscience can help us find new ways to improve health and function.*

NICHD neuroscience research focuses on typical and atypical development and function, as well as nervous system diseases and disorders. A focus on child development sets NICHD apart from other NIH Institutes and Centers that study neuroscience.

There are many types of neuroscience. NICHD has research areas\* within each type.

## TRANSLATIONAL

**Treating or preventing nervous system problems**

- Pain medicine and chronic pain treatment
- Rehabilitation/therapies to reduce symptoms and improve function
- Neuroimaging and technologies that improve diagnosis and treatment
- Injury prevention

## DEVELOPMENTAL

**How the brain and nervous system grow and change**

- Normal and abnormal brain development
- Neural tube defects (e.g., spina bifida)
- Developmental disabilities and birth defects
- Infertility and fertility
- Metabolism, nutrition, and development
- Puberty and pubertal problems
- Sudden Infant Death Syndrome (SIDS)
- Sleep disorders

## MOLECULAR & CELLULAR

**Genes, proteins, and molecules involved in nerve cell function**

- Genetics/gene–environment interaction
- Brain injury and repair
- Musculoskeletal problems and repair
- Effects of drugs and medication
- Growth factors and problems with growth
- Cell signaling and sensory function

## COGNITIVE

**How the brain creates and controls thought, language, problem solving, and memory**

- Reading, math, and language
- Learning and intellectual disabilities
- Brain injury and stroke rehabilitation
- Executive function (planning, reasoning, decisionmaking, and impulse control)
- Effects of Down syndrome, pregnancy, nutrition, parenthood, etc. on the brain

## SOCIAL

**How biological systems carry out or affect social processes and behavior**

- Parenting and community relationships
- Attachment and connection
- Social problems, like those common in autism spectrum disorder (ASD)
- Emotional development
- Effects of childhood trauma, abuse, or violence

## BEHAVIORAL

**How the brain affects and controls behavior**

- Behavioral problems and interventions
- Child and adolescent behavior
- Family and sibling relationships
- Health risks and prevention
- Responses to stress
- Obesity

\*NICHD research areas include but are not limited to those listed.

Learn more about why and how NICHD is studying neuroscience to improve health:  
<http://www.nichd.nih.gov/health/topics/neuro/researchinfo>.



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