

## Position of the AANS on Animal Research

Contact(s):

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1. The AANS believes that the use of animals in research is essential for improving the treatment of diseases of the nervous system.
2. Investigators conducting research utilizing animals must perform these activities in an ethical and humane manner in facilities that meet appropriate standards.

### **Rationale**

Clinical advances in neurosurgical care have been dependent upon research performed on human and animal subjects. More effective treatment for brain tumors, advances in neuro-anesthesiology, the development of neuroimaging techniques (such as Computerized Tomography, Magnetic resonance Imaging and Positron Emission Tomography scanning), surgical and drug treatment for stroke, improved treatment of birth defects, and the development of microsurgical techniques have all been dependent on carefully designed, sequential studies in animals and humans.

Neurosurgeons are currently challenged by a number of diseases which cause immense human pain and suffering. Malignant brain tumors, injuries and degenerative diseases of the central nervous system, spine and nerves, stroke and congenital and acquired diseases of the nervous system of children represent but a few of these important public health problems. In order for neurosurgeons to continue to develop effective treatments for these and other diseases, animal research will be necessary.

Great progress has recently been made in a basic understanding of the nervous system. Some advances have been made using computer models and cell culture techniques, but in order for the benefits of neuroscience research to be extended to the treatment of human disease of the nervous system, basic molecular and cellular principles must be understood at the level of the whole animal. The uniquely complex function of the nervous system depends upon the interactions between its various cellular elements and its ability to integrate the functions of all other body organs. Experimentation on whole animals is therefore necessary for progress to be made in treating diseases of the nervous system.

### **The Responsible Use of Animals in Research**

The AANS supports a high standard of ethical and humane care of animals in research that is designed to improve human health. The care and use of animals should be carried out by qualified individuals in appropriate facilities. Alternative methods to live animal research should be used when possible. In research on the causes and mechanisms of pain, the guidelines of the International Association for the Study of Pain should be followed (Zimmerman M, Pain, 16:109-110, 1983, or <http://www.iasp-pain.org/>). Anesthesia should be used for surgical interventions and measures must be taken in the postoperative period to diminish animal pain. Animal research should avoid all unnecessary suffering.

This statement has been approved by the Congress of Neurological Surgeons (CNS).