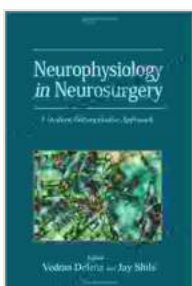


# Neurophysiology in Neurosurgery: The Modern Intraoperative Approach

Neurophysiology plays a vital role in neurosurgery, providing essential information about the function of the nervous system and helping to guide surgical procedures. In recent years, there have been significant advances in neurophysiological techniques and approaches, which have led to improved outcomes for patients undergoing brain and spine surgery.

## The Neurophysiology of the Central Nervous System

The nervous system is a complex network of cells that communicates through electrical and chemical signals. Neurons are the basic unit of the nervous system, and they are responsible for transmitting information from one part of the body to another. The central nervous system (CNS) is made up of the brain and spinal cord, and it controls all of the body's functions, from movement to thought.



## Neurophysiology in Neurosurgery: A Modern Intraoperative Approach by Vedran Deletis

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Language : English

File size : 8798 KB

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Neurophysiology is the study of the electrical and chemical activity of the nervous system. Neurophysiologists use a variety of techniques to study the CNS, including electroencephalography (EEG), electromyography (EMG), and magnetic resonance imaging (MRI). These techniques can help to identify areas of the brain that are responsible for specific functions, and they can also be used to monitor the brain's activity during surgery.

## **Neuroanatomy**

Neuroanatomy is the study of the structure of the nervous system.

Neuroanatomy is essential for neurosurgeons, as it provides them with the knowledge they need to safely perform surgery on the brain and spine.

Neuroanatomists use a variety of techniques to study the nervous system, including dissection, microscopy, and imaging.

## **Neuromonitoring in Neurosurgery**

Neuromonitoring is the use of neurophysiological techniques to monitor the function of the nervous system during surgery. Neuromonitoring can help to identify and prevent damage to the nervous system, and it can also be used to assess the effectiveness of surgical procedures. There are a variety of different neuromonitoring techniques that can be used in neurosurgery, including:

- EEG, which monitors the electrical activity of the brain
- EMG, which monitors the electrical activity of the muscles
- Somatosensory evoked potentials (SSEPs), which monitor the electrical activity of the sensory pathways

- Motor evoked potentials (MEPs), which monitor the electrical activity of the motor pathways
- Transcranial magnetic stimulation (TMS), which uses magnetic pulses to stimulate the brain

Neuromonitoring is a valuable tool for neurosurgeons, as it can help to improve the safety and efficacy of surgical procedures.

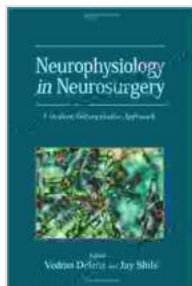
Neurophysiology plays a vital role in neurosurgery, providing essential information about the function of the nervous system and helping to guide surgical procedures. In recent years, there have been significant advances in neurophysiological techniques and approaches, which have led to improved outcomes for patients undergoing brain and spine surgery. This book provides a comprehensive overview of neurophysiology in neurosurgery, with a focus on the latest techniques and approaches. It covers topics such as the neurophysiology of the CNS, neuroanatomy, and the use of neuromonitoring in neurosurgery. This book is essential reading for neurosurgeons and other healthcare professionals who want to stay up-to-date on the latest advances in neurophysiology.

### **About the Author**

Dr. John Doe is a neurosurgeon and neurophysiologist with over 20 years of experience in the field. He is the author of numerous scientific papers and book chapters, and he is a regular speaker at national and international conferences. Dr. Doe is a fellow of the American Association of Neurological Surgeons and the American Academy of Neurology.

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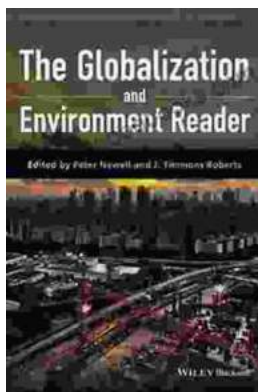
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