Decision-making in neurosurgery

- Stimulation of the human ventral tegmental area increases strategic betting
- Clinical characteristics and prognostic outcomes of spinal cord gliomas with intracranial metastasis: An integrated analysis based on individual cases
- Elevated Expression of TGFB1 in PBMCs Is Associated with Intracranial Aneurysm Formation, but TGFB3 Expression Implicated Rupture
- Perimesencephalic Subarachnoid Hemorrhage Bleeding Patterns Are Not Always Benign: Prognostic Impact of an Aneurysmal Pathology
- Machine Learning and Artificial Intelligence in Intensive Care Medicine: Critical Recalibrations from Rule-Based Systems to Frontier Models
- Optimizing TLIF Approach Selection: An Algorithmic Framework with Illustrative Cases
- A novel brain tumor magnetic resonance imaging dataset (Gazi Brains 2020): initial benchmark results and comprehensive analysis
- Deep Brain Stimulation Therapy for Drug-Resistant Epilepsy: Present and Future Perspectives

In psychology, decision-making (also spelled decision making and decisionmaking) is regarded as the cognitive process resulting in the selection of a belief or a course of action among several alternative possibilities. Every decision-making process produces a final choice, which may or may not prompt action.

Decision-making is the process of identifying and choosing alternatives based on the values, preferences and beliefs of the decision-maker.

Classification

see Clinical Decision-Making.

see Effective Decision-Making.

see Intraoperative decision-making.

see Shared decision-making.

Wang et al. recorded from deep brain stimulation subthalamic electrodes time-locked with acute stimulation using a Go/Nogo task to assess voluntary action and inaction. Beta oscillations during voluntary decision-making were temporally dissociated from motor function. Parkinson's patients showed an inaction bias with high beta and intermediate physiological states. Stimulation reversed the inaction bias highlighting its causal nature, and shifting physiology closer to reactive choices. Depression was associated with higher alpha during Voluntary-Nogo characterized by inaction or inertial status quo maintenance whereas apathy had higher beta-gamma during voluntary action or impaired effortful initiation of action. The findings suggest the human subthalamic nucleus causally contributes to voluntary decision-making, possibly through threshold gating or toggling mechanisms, with stimulation shifting towards voluntary action, and suggest biomarkers as potential clinical predictors [1)]

1)

Wang Y, Wang L, Manssuer L, Zhao YJ, Ding Q, Pan Y, Huang P, Li D, Voon V. Subthalamic stimulation causally modulates human voluntary decision-making to stay or go. NPJ Parkinsons Dis. 2024 Nov 2;10(1):210. doi: 10.1038/s41531-024-00807-x. PMID: 39488535.