Short Communication

NEUROINFORMATICS: THE INTEGRATION OF SHARED DATABASES AND TOOLS TOWARDS INTEGRATIVE NEUROSCIENCE

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There is significant interest amongst neuroscientists in sharing neuroscience data and analytical tools. The exchange of neuroscience data and tools between groups affords the opportunity to differently re-analyze previously collected data, encourage new neuroscience interpretations and foster otherwise uninitiated collaborations, and provide a framework for the further development of theoretically based models of brain function. Data sharing will ultimately reduce experimental and analytical error. Many small Internet accessible database initiatives have been developed and specialized analytical software and modeling tools are distributed within different fields of neuroscience. However, in addition large-scale international collaborations are required which involve new mechanisms of coordination and funding. Provided sufficient government support is given to such international initiatives, sharing of neuroscience data and tools can play a pivotal role in human brain research and lead to innovations in neuroscience, informatics and treatment of brain disorders. These innovations will enable application of theoretical modeling techniques to enhance our understanding of the integrative aspects of neuroscience. This article, authored by a multinational working group on neuroinformatics established by the Organization for Economic Co-operation and Development (OECD), articulates some of the challenges and lessons learned to date in efforts to achieve international collaborative neuroscience.

Keywords: Neuroinformatics; data sharing; analytical tools; integrative neuroscience.

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