

Dr. Adrian Owen

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SCIENTIFIC LECTURE

“When Thoughts Become Actions: Imaging Disorders of Consciousness”

Friday, March 16th, 2012
1:30 - 2:30 p.m. (Theatre C)

ABSTRACT: The vegetative state is one of the least understood and most ethically troublesome conditions in modern medicine. It is a rare disorder in which patients who emerge from a coma appear to be awake, but show no signs of awareness. It is extremely difficult to assess cognitive function in such individuals, because their movements may be minimal or inconsistent, or because no cognitive output is possible. I will describe a series of functional neuroimaging paradigms that systematically increase in complexity, from simple sound and speech perception to elaborate mental imagery. By comparing responses in healthy participants scanned at different levels of propofol-induced anesthesia, we have been able to infer how much cognition remains in patients who are assumed to be vegetative, based solely on their patterns of brain activation. Indeed, in several recent cases, entirely non-responsive patients have been able to communicate real-time ‘yes’ and ‘no’ responses with 100% reliability by simply modulating their own neural activity. These findings open the door to the development of fully-fledged ‘brain-computer interfaces’ for routine two-way communication with some of these patients, which may ultimately allow them to share information about their inner worlds, experiences and needs.

Dr. Owen’s visit is a joint presentation of the University of Manitoba and the
Winnipeg Chapter of the Society for Neuroscience.

For more information, please contact canderson@sbrc.ca



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