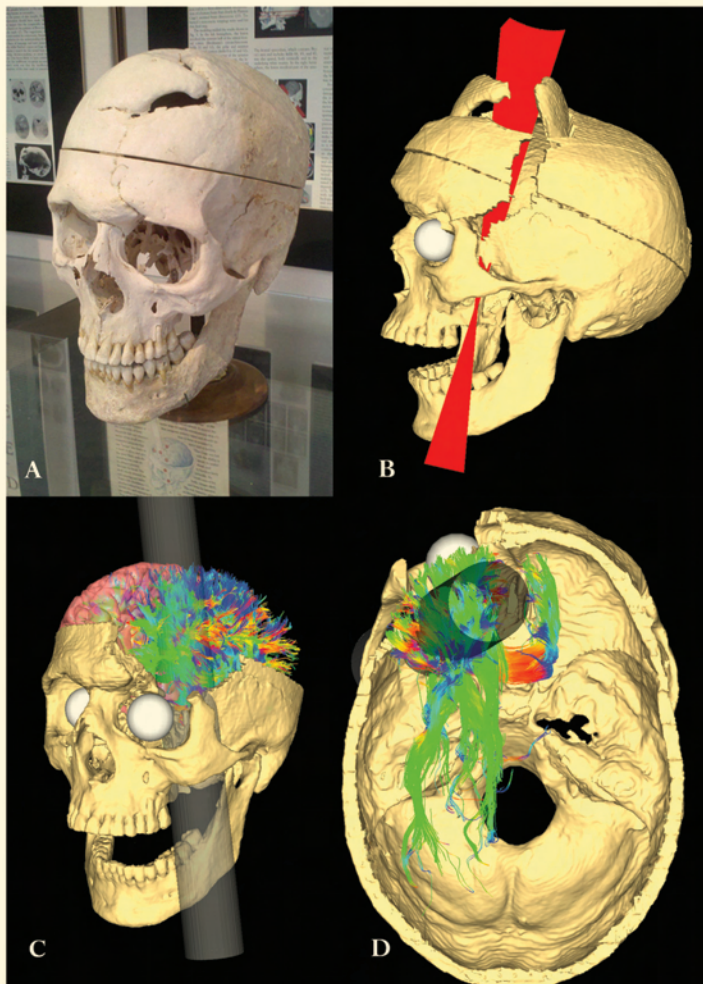


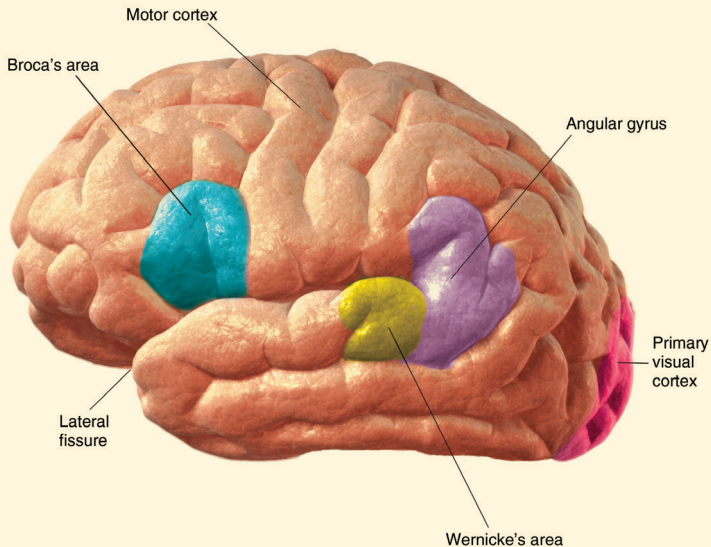
Figure 2.1 Phineas Gage's Brain



The area of damage to Phineas Gage's brain can be identified by examination of the path of the rod that went through his head.

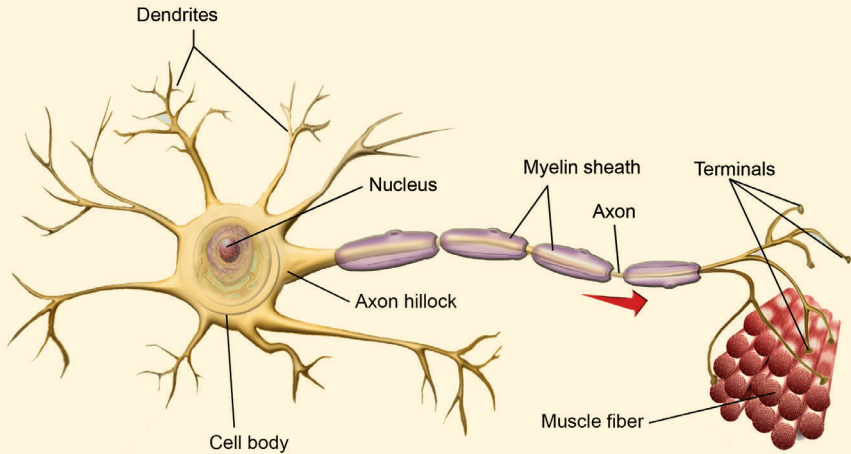
SOURCE: Van Horn, J.D., Irimia, A., Torgerson, C.M., Chambers, M.C., Kikinis, R., et al. (2012) Mapping Connectivity Damage in the Case of Phineas Gage. PLoS ONE 7(5): e37454. doi:10.1371/journal.pone.0037454

Figure 2.2 Broca's and Wernicke's Areas



Broca's and Wernicke's areas can be seen in reference to motor and primary visual cortex areas.

Figure 2.3 A Neuron



Figure

2.4

Distribution of Ions Inside and Outside the Resting Neuron

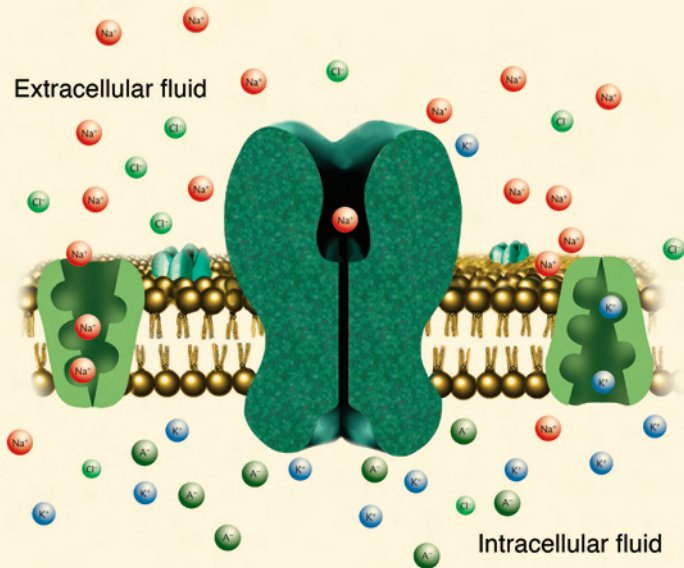
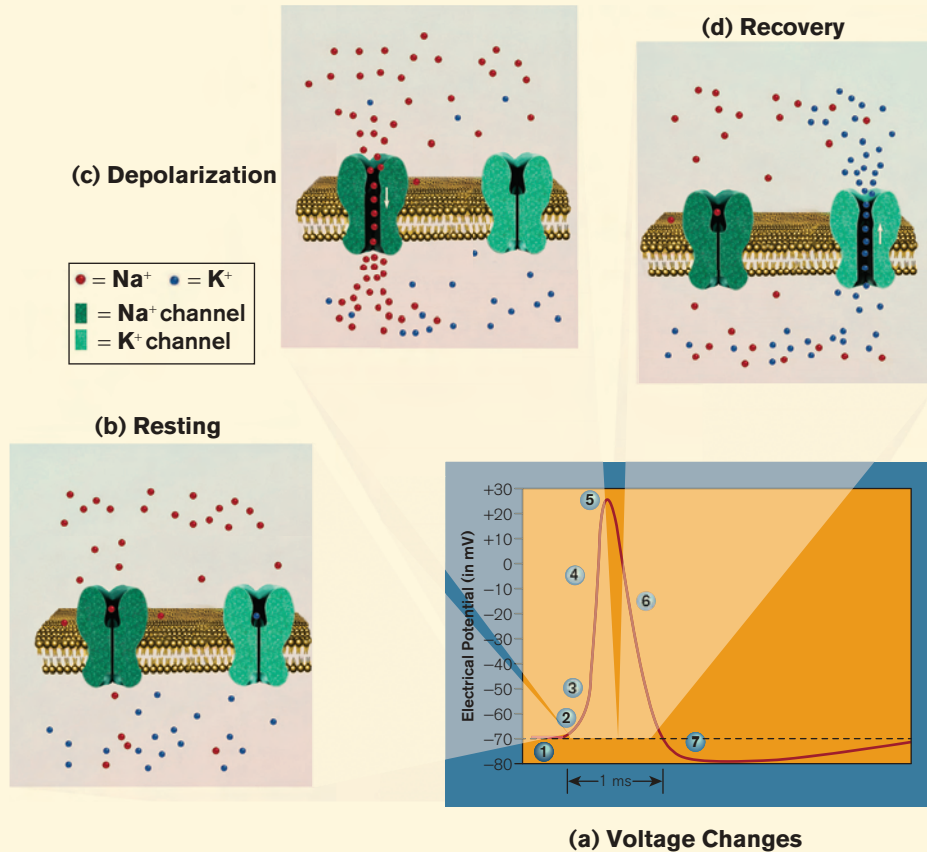


Figure 2.5 Ions' Movement and Voltages During and After an Action Potential



Figure

2.6

Release of Neurotransmitter by the Presynaptic Neuron Into the Synapse

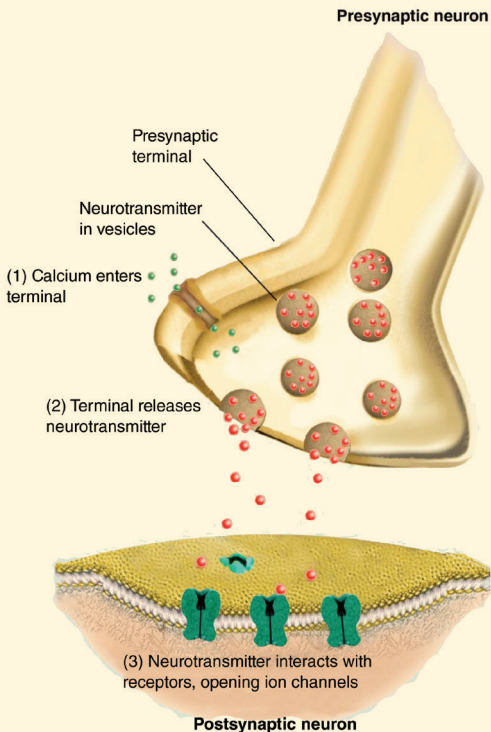


Figure 2.7 Diagram of the Four Lobes of the Brain and Functions Lateralized in These Areas

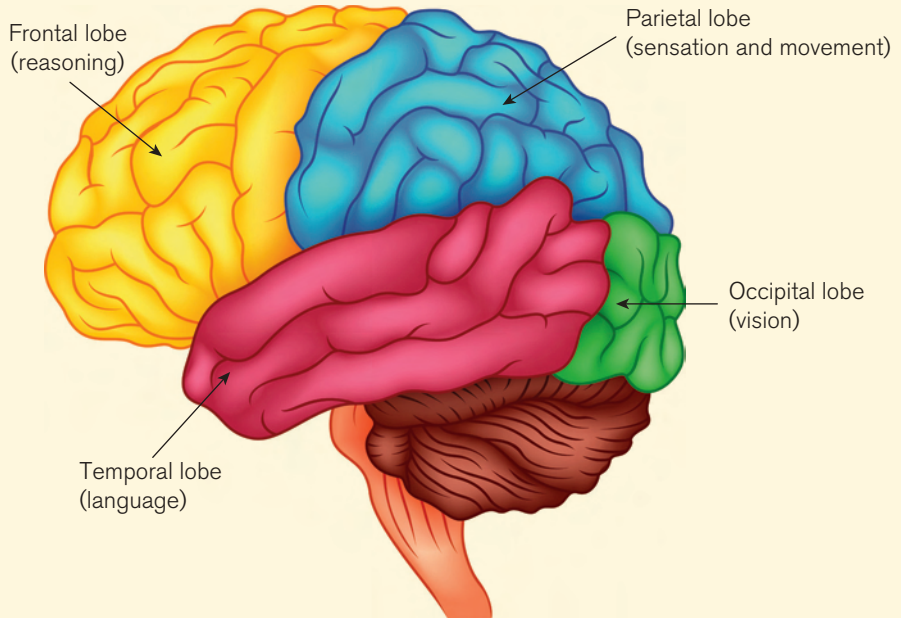


Figure 2.8 Recording Electrical Activity in a Neuron

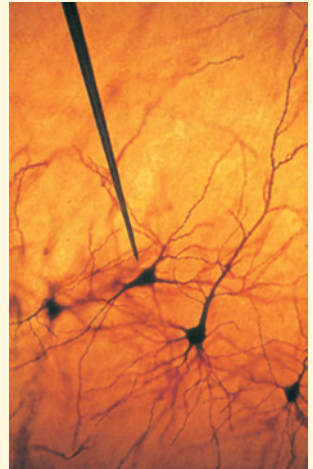
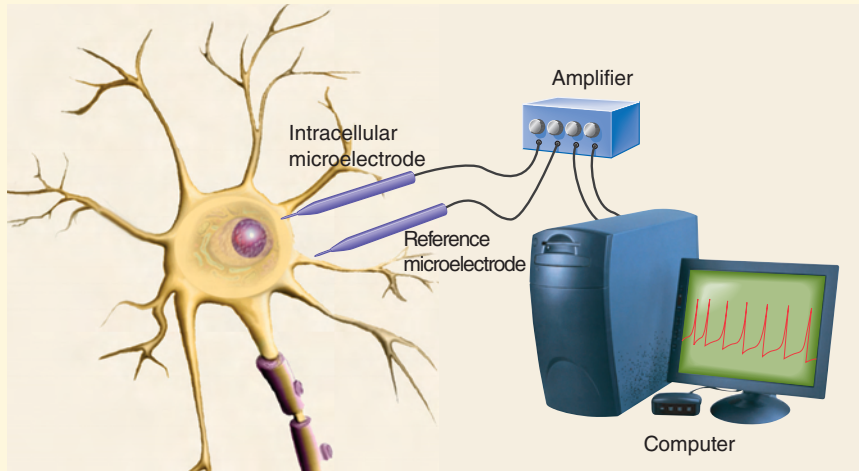


Photo at right courtesy of Bob Jacobs

Figure 2.9 Stereotaxic Instrument Used in Single-Cell Recordings

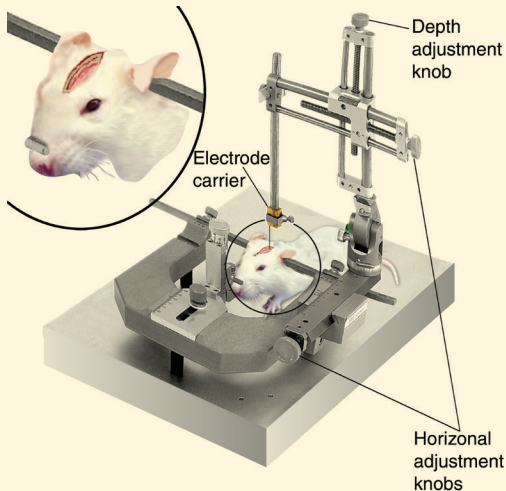
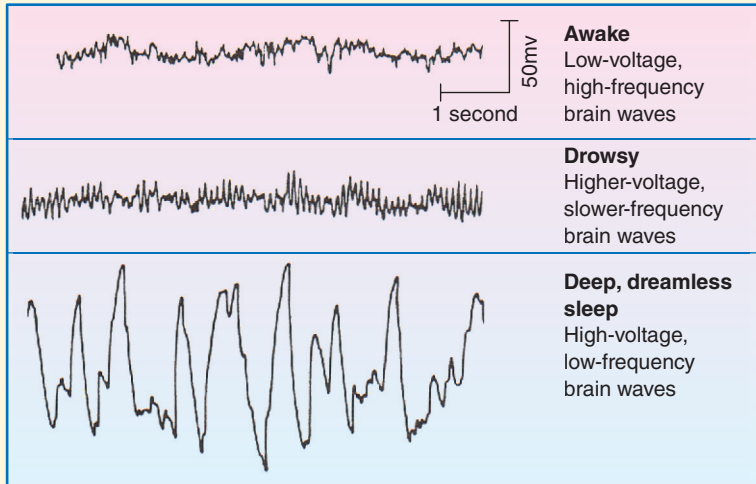
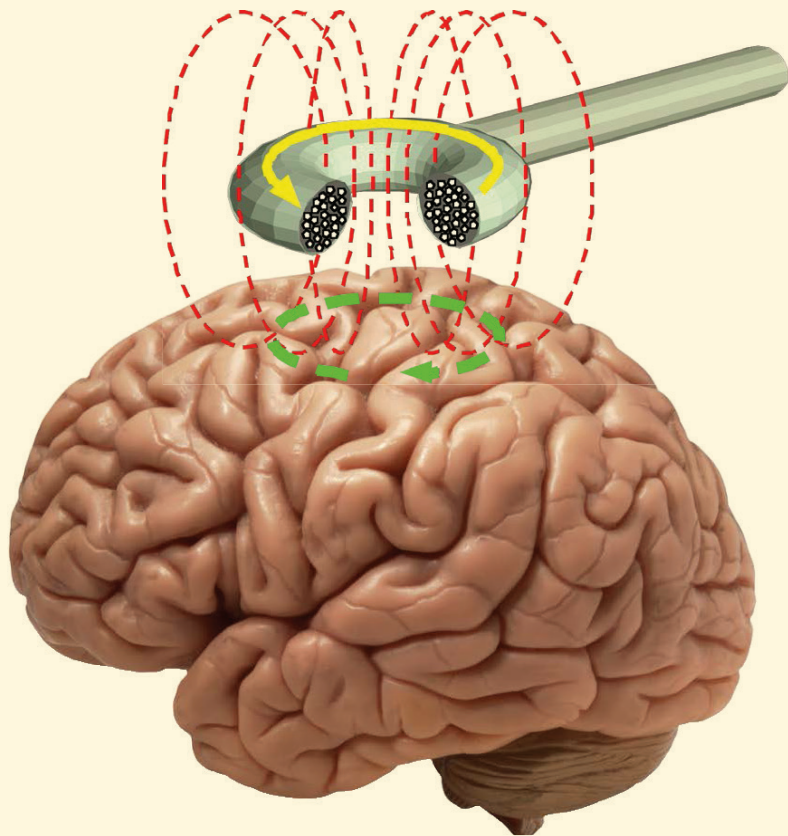


Figure 2.10 Sample EEG Recording



SOURCE: From *Current Concepts: The Sleep Disorders*, by P. Hauri, 1982, Kalamazoo, MI: Upjohn.

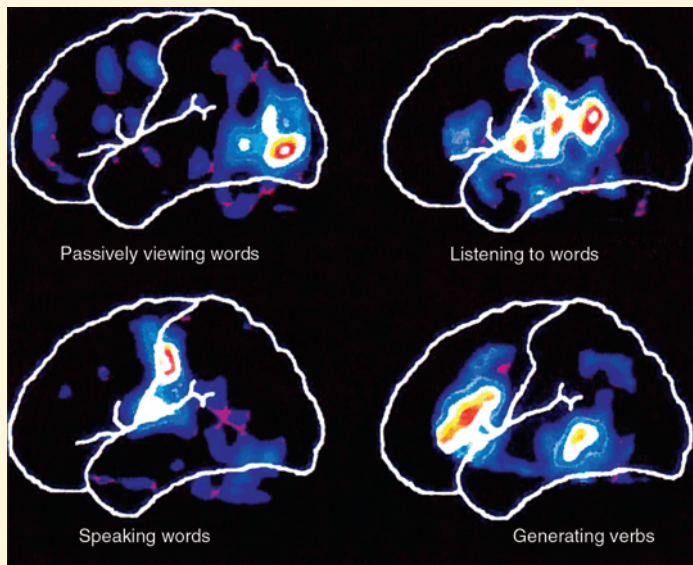
Figure 2.11 Transcranial Magnetic Stimulation (TMS)



In transcranial magnetic stimulation (TMS), a magnetic coil is waved over the area of the brain one wishes to study to stimulate neuron activity in that area.

SOURCE: Courtesy of Eric Wassermann, M.D., Behavioral Neurology Unit, National Institute of Neurological Disorders and Stroke.

Figure 2.12 Images From fMRI Scans of the Brain Taken During the Different Language Tasks Identified in the Scan



SOURCE: Adapted from Petersen, S. E., Fox, P. T., Posner, M. I., Mintun, M., & Raichle, M. E. (1988). Positron emission tomographic studies of the cortical anatomy of single-word processing. *Nature*, 333, 585–589.

Figure 2.13 Stimuli Used in the Barron et al. (2011) Study

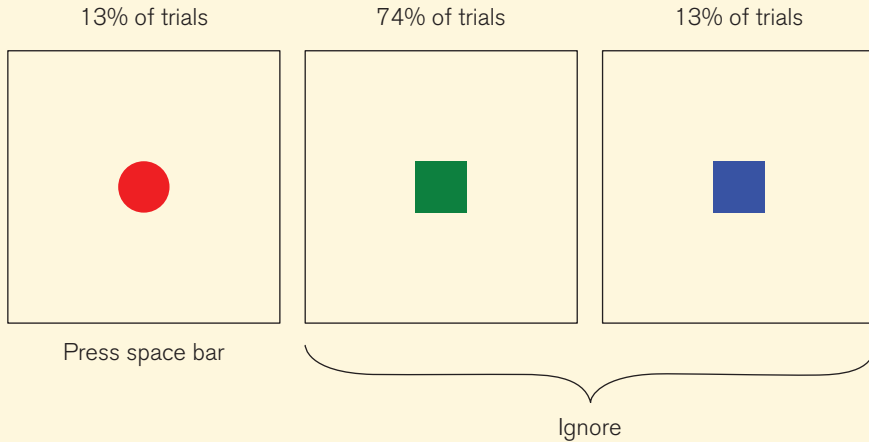
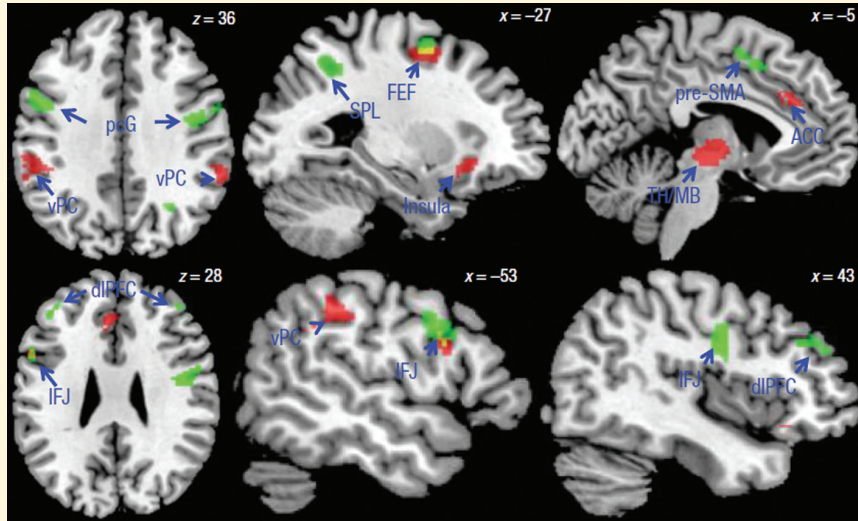


Figure 2.14 Activity Compared for the Focal and Nonfocal Prospective Memory Tasks From fMRI Scans in the McDaniel et al. (2013) Study



SOURCE: Figure 1, McDaniel, M. A., LaMontagne, P., Beck, S. M., Scullin, M. K., & Braver, T. S. (2013). Dissociable neural routes to successful prospective memory. *Psychological Science*, 24, 1791–1800.

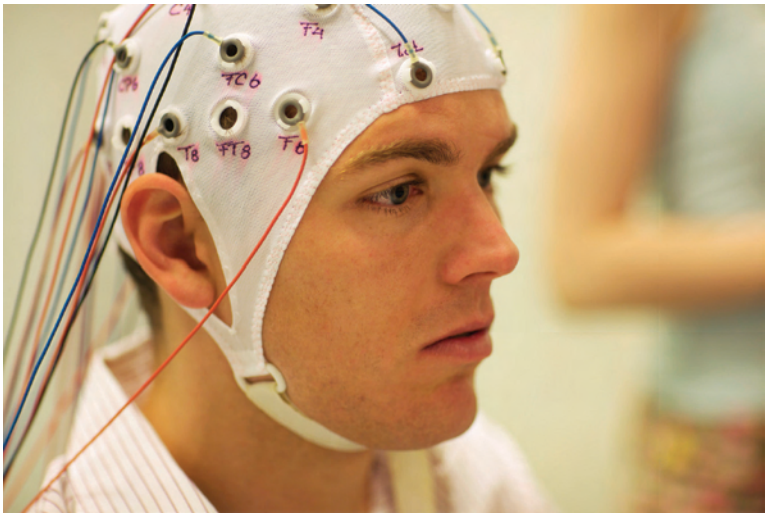


Photo 2.1 In recording an EEG, a scalp cap with electrodes in different locations on the head is worn by the participant.



Photo 2.2 A person receiving a MEG scan.

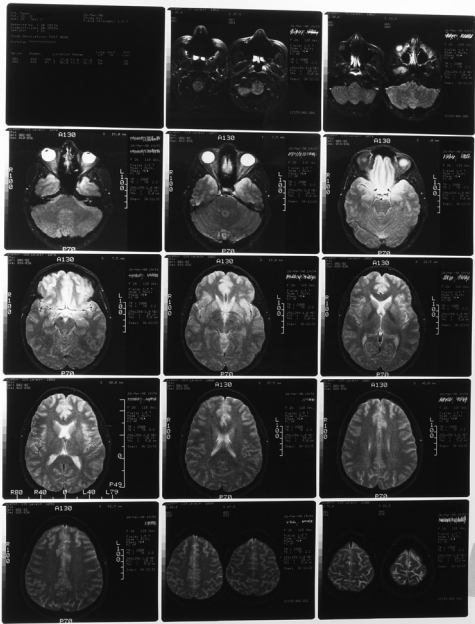


Photo 2.3 Images from an MRI of the brain.

control

on cocaine

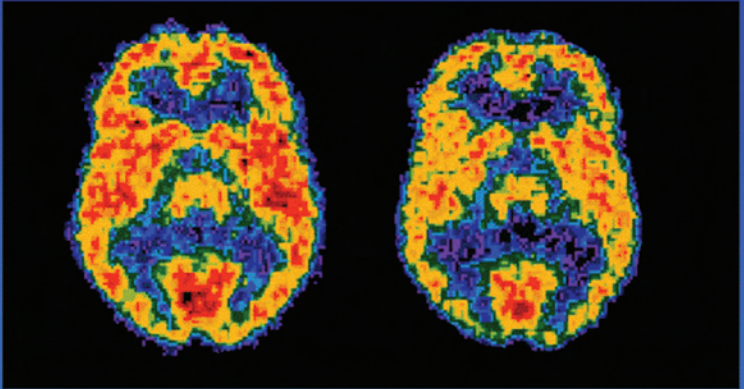


Photo 2.4 A PET scan. The areas in red are the most active, those in blue are least active.