

## NEUROSCIENCE UPDATE

**Barry D. Smith, Ph.D.**  
**University of Maryland, College Park**

### REFERENCES

#### SPECIALIZATION AND FOCUS: THE NEUROSCIENCES

Adolphs, R. (2003). Cognitive neuroscience: Cognitive neuroscience of human social behaviour.

National Review of Neuroscience, 4, 165•78.

Adolphs R. (2003). Investigating the cognitive neuroscience of social behavior. Neuropsychologia., 41, 119•26.

Cacioppo, J.T. (2002). Social neuroscience: understanding the pieces fosters understanding the whole and vice versa. American Psychologist, 57, 819•31.

Hall, D.A., & Moore, D.R. (2003). Auditory neuroscience: the salience of looming sounds. Current Biology, 13, :R91•3.

Ochsner, K.N., & Lieberman, M.D. (2001). The emergence of social cognitive neuroscience. American Psychologist, 56, 717•34.

#### NEUROIMAGING AND BEYOND

Curra, A., Modugno, N., Inghilleri, M., Manfredi, M., Hallett, M., & Berardelli, A.. (2002). Transcranial magnetic stimulation techniques in clinical investigation. Neurology, 59, 1851•9. .

Daskalakis, Z.J., Christensen, B.K., Chen, R., Fitzgerald, P.B., Zipursky, R.B., & Kapur, S. (2002). Evidence for impaired cortical inhibition in schizophrenia using transcranial magnetic stimulation. Archives of General Psychiatry, 59, 347•354.

Daskalakis, Z.J., Christensen, B.K., Fitzgerald, P.B., & Chen, R. (2002). Transcranial magnetic stimulation: a new investigational and treatment tool in psychiatry. Journal of Neuropsychiatry & Clinical Neuroscience, 14, 406•415.

Herwig, U., Kolbel, K., Wunderlich, A.P., Thielscher, A., von Tiesenhausen, C., Spitzer, M., & Schonfeldt•Lecuona, C.. (2002). Spatial congruence of neuronavigated transcranial magnetic stimulation and functional neuroimaging. Clinical Neurophysiology, 113, 462•468.

Herwig, U., Schonfeldt•Lecuona, C., Wunderlich, A.P., von Tiesenhausen, C., Thielscher, A., Walter, H., & Spitzer, M. (2001). The navigation of transcranial magnetic

stimulation. *Psychiatry Research*, 108, 123•31.

Hoffman, R.E., Hawkins, K.A., Gueorguieva, R., Boutros, N.N., Rachid, F., Carroll, K., & Krystal, J.H. (2003). Transcranial magnetic stimulation of left temporoparietal cortex and medication•resistant auditory hallucinations. *Archives of General Psychiatry*, 60, 49•56.

Jacobs, D.A., Lesser, R.L., Mourelatos, Z., Galetta, S.L., & Balcer, L.J. (2001). The Heidenhain variant of Creutzfeldt•Jakob disease: clinical, pathologic, and neuroimaging findings. *Journal of Neuroophthalmology*, 21, 99•102.

Jin, X., Wu, X., Wang, J., Huang, B., Wang, Q., Zhang, T., Niu, Z., & Zhang, X. (2002). Effect of transcranial magnetic stimulation on rehabilitation of motor function in patients with cerebral infarction. *Zhonghua Yi Xue Za Zhi*, 82, 534•537

Lewis, D.A. (2002). The human brain revisited: opportunities and challenges in postmortem studies of psychiatric disorders. *Neuropsychopharmacology*, 26, 143•54

Menon, R.S. (2001). Imaging function in the working brain with fMRI. *Current Opinions in Neurobiology*, 11, 630•636 .

Nicolelis, M.A., & Ribeiro, S. (2002). Multielectrode recordings: the next steps. *Current Opinions in Neurobiology*, 12, 602•6.

Pennisi, G., Alagona, G., Rapisarda, G., Nicoletti, F., Costanzo, E., Ferri, R., Malaguarnera, M., & Bella, R. (2002). Transcranial magnetic stimulation after pure motor stroke. *Clinical Neurophysiology*, 113, 1536•1543.

Tarr, M.J., & Warren, W.H. (2002). Virtual reality in behavioral neuroscience and beyond. *National Neuroscience*, 5 Suppl, 1089•1092

Van Essen, D.C. (2002). Windows on the brain: the emerging role of atlases and databases in neuroscience. *Current Opinion Neurobiology*, 12, 574•579.

Van Essen, D.C. (2002). Surface•based atlases of cerebellar cortex in the human, macaque, and mouse. *Annals of the New York Academy of Science*, 978, 468•479.

Walters, N.B., Egan, G.F., Kril, J.J., Kean, M., Waley, P., Jenkinson, M., & Watson, J.D. (2003). In vivo identification of human cortical areas using high•resolution MRI: An approach to cerebral structure•function correlation. *Proceedings of the National Academy of Science USA.*, 100, 2981•2986.

## **BEYOND THE HUMAN GENOME PROJECT: THE "OMICS"**

Buyse, J.M. (2001). The role of genomics in antibacterial target discovery. *Current Medical Chemistry*. 8, 1713•26

Gerlai, R. (2002). Phenomics: fiction or the future? *Trends in Neuroscience*, 25, 506-9.

Kenyon, G.L., DeMarini, D.M., Fuchs, E., Galas, D.J., Kirsch, J.F., Leyh, T.S., Moos, W.H., Petsko, G.A., Ringe, D., Rubin, G.M., & Sheahan, L.C. (2002). Defining the Mandate of Proteomics in the Post•Genomics Era: Workshop Report. *Molecular Cellular Proteomics*,

1, 763•80.

Lan, N., Montelione, G.T., & Gerstein, M. (2003). Ontologies for proteomics: towards a systematic definition of structure and function that scales to the genome level. *Current Opinions in Chemical Biology*, 7, 44•54 .

Mundy, C. (2001). The human genome project: a historical perspective. *Pharmacogenomics*, 2, 37•49.

Zhen, Z. (2001). Progress in proteomics *Sheng Wu Gong Cheng Xue Bao*, 17, 491•3.

## **BRAIN STRUCTURE AND FUNCTION**

Allen, G., & Courchesne, E. (2003). Differential effects of developmental cerebellar abnormality on cognitive and motor functions in the cerebellum: an fMRI study of autism. *American Journal of Psychiatry*, 160, 262-273.

Almeida, R., & Stetter, M. (2002). Modeling the link between functional imaging and neuronal activity: synaptic metabolic demand and spike rates. *Neuroimage*, 17, 1065•79.

Geary, D.C., & Huffman, K.J. (2002). Brain and cognitive evolution: forms of modularity and functions of mind. *Psychological Bulletin*, 128, 667-698.

Gheusi, G., & Rochefort, C. (2002). Neurogenesis in the adult brain. Functional consequences [Article in French]. *Journal of Social Biology*, 196, 67-76.

Marien, P., Engelborghs, S., Fabbro, F., De Deyn, P.P. (2001). The lateralized linguistic cerebellum: a review and a new hypothesis. *Brain Language*, 79, 580•600.

Northcutt, R.G. Changing views of brain evolution. *Brain Research Bulletin*, 55, 663-674.

Panksepp, J., Knutson, B., & Burgdorf, J. (2002). The role of brain emotional systems in addictions: a neuro•evolutionary perspective and new 'self•report' animal model. *Addiction*, 97, 459-469.

Panksepp, J., Moskal, J.R., Panksepp, J.B., & Kroes, R.A. (2002). Comparative Approaches in Evolutionary Psychology: Molecular Neuroscience Meets the Mind. *Neuroendocrinology Letter*, 23, 105-115.

Philipson, L. (2002). Functional modules of the brain. *Journal of Theoretical Biology*, 215, 109•19.

Sosunov, A.A., Chelyshev, I.A., McKhann, G., Krugliakov, P.P., Balykova, O.P., & Shikhanov, N.P. (2002). Neurogenesis in the adult mammalian brain [Article in Russian]. *Ontogenez*, 33, 405-420.

Turlejski, K., & Djavadian, R. (2002). Life•long stability of neurons: a century of research on neurogenesis, neuronal death and neuron quantification in adult CNS. *Progress in Brain Research*, 136, 39-65.

Van Mier, H.I., & Petersen, S.E. (2002). Role of the cerebellum in motor cognition.

Annals of the New York Academy of Science, 978, 334•53 .

## COGNITIVE NEUROSCIENCE

Deary, I.J. (2000). Psychometric intelligence differences and brain function. Novartis Foundation Symposium, 233, 58•72.

Dubnau, J., Chiang, A.S., & Tully, T. (2003). Neural substrates of memory: From synapse to system.. Journal of Neurobiology, 54, 238•53

Gibson, K.R. (2002). Evolution of human intelligence: the roles of brain size and mental construction. Brain Behavior Evolution, 59, 10•20 .

Giffard•Quillon, G., Piolino, P., Desgranges, B., & Eustache, F. (2001). Functional neuroanatomy of the autobiographical memory [Article in French]. Journal of Social Biology, 195, 343•9.

Gray, J.R., Chabris, C.F., & Braver, T.S. (2003). Neural mechanisms of general fluid intelligence. Nat Neuroscience, 6, 316•22.

Gron, G., Bittner, D., Schmitz, B., Wunderlich, A.P., Tomczak, R., & Riepe M.W. (2003). Variability in memory performance in aged healthy individuals: an fMRI study. Neurobiology Aging, 24, 453-462.

Matthews, P.M., Adcock, J., Chen, Y., Fu, S., Devlin, J.T., Rushworth, M.F., Smith, S., Beckmann, C., & Iversen, S. (2003). Towards understanding language organisation in the brain using fMRI. Human Brain Mapping, 18, 239-247.

Nyberg, L. (2001). Functional neuroimaging of cognition: state•of•the•art. Scandinavian Journal of Psychology, 42, 163•5.

Tsuzuki, T., Kawahara, T., & Kusumi, T. (2002). Connectionist modeling of higher level cognitive processes] [Article in Japanese]. Shinrigaku Kenkyu, 72, 541•55.

## THE AGING BRAIN

Ball, L.J., & Birge, S.J. (2002). Prevention of brain aging and dementia. Clinical Geriatric Medicine, 18, 485•503.

Cabeza, R., Anderson, N.D., Locantore, J.K., & McIntosh, A.R. (2002). Aging gracefully: compensatory brain activity in high•performing older adults. Neuroimage, 17, 1394•1402.

Esposito, E., Rotilio, D., Di Matteo, V., Di Giulio, C., Cacchio, M., & Algeri, S. (2002). A review of specific dietary antioxidants and the effects on biochemical mechanisms related to neurodegenerative processes. Neurobiology Aging, 23, 719-735.

Johnson, K.A., Bernard, M.A., & Funderburg, K. (2002). Vitamin nutrition in older adults. Clinical Geriatric Medicine, 18, 773-799.

Luchsinger, J.A., Tang, M.X., Shea, S., & Mayeux, R. Antioxidant vitamin intake and risk of Alzheimer disease. *Archives of Neurology*, 60, 203-208.

Park, D.C., & Gutchess, A.H. (2002). Aging, cognition, and culture: a neuroscientific perspective. *Neuroscience Biobehavioral Review*, 26, 859•67.

Troller, j., & Valenzuela, M. (2001). Brain ageing in the new millennium. *Australian and New Zealand Journal of Psychiatry*, 35, 788-808.

## **AFFECTIVE NEUROSCIENCE: DEPRESSION**

Bambilla, P., Barale, F., Caverzasi, E., & Soares, J.C. (2002). Anatomical MRI findings in mood and anxiety disorders. *Epidemiological Psychiatry*, 11, 88-99.

Benninghoff, J., Schmitt, A., Mossner, R., Lesch, K.P. (2002). When cells become depressed: focus on neural stem cells in novel treatment strategies against depression. *Journal of Neural Transmission*, 109, 947•62.

Davidson, R.J., Pizzagalli, D., Nitschke, J.B., Putnam, K. (2002). Depression: perspectives from affective neuroscience. *Annual Review of Psychology*, 53, 545•74.

Estibeiro, P., & Godfray, J. (2001). Antisense as a neuroscience tool and therapeutic agent., *Trends in Neuroscience*, 24, S56•62.

Feldman, R.P., Alterman, R.L., & Goodrich, J.T. (2001). Contemporary psychosurgery and a look to the future. *Journal of Neurosurgery*, 95, 944•56.

Gordon, M. (2001). Challenges of an aging population. *Annual Review of the College of Physicians & Surgeons (Canada)*, 34, 306•8.

Hyman, S.E. (2001). Mental health in an aging population: the NIMH perspective. *American Journal of Geriatric Psychiatry*, 9, 330•9.

Honey, G.D., Fletcher, P.C., & Bullmore, E.T. (2002). Functional brain mapping of psychopathology. *Journal of Neurology & Neurosurgical Psychiatry*, 72, 432•9.

Martinez•Serrano, A., Rubio, F.J., Navarro, B., Bueno, C., & Villa, A.. (2001). Human neural stem and progenitor cells: in vitro and in vivo properties, and potential for gene therapy and cell replacement in the CNS. *Current Gene Therapy*, 1, 279•99.

Nestler, E.J., Barrot, M., DiLeone, R.J., Eisch, A.J., Gold, S.J., & Monteggia, L.M. (2002). Neurobiology of depression. *Neuron*, 34, 13•25.

Nestler, E.J., Gould, E., Manji, H., Bunacan, M., Duman, R.S., Greshenfeld, H.K., Hen, R., Koester, S., Lederhendler, I., Meaney, M., Robbins, T., Winsky, L., & Zalcman, S. (2002). Preclinical models: status of basic research in depression. *Biological Psychiatry*, 15, 503•28.

Perlis, M., Smith, M., & Orff, H. (2002). Major Depressive Disorder (MDD) is associated with a primary defect within the serotonergic system. *Sleep Med Review*, 6, 353•7.

Qureshi, N.A., al-Ghamdy, Y.S., & al-Habeeb, T.A. (2000). Drug addiction: a general

review of new concepts and future challenges. *Eastern Mediterranean Health Journal*, 6, 722-733.

Rajkowska, G. (2002). Cell pathology in mood disorders. *Seminar in Clinical Neuropsychiatry*, 7, 281•92

## **AFIXING@ BRAIN AND BEHAVIOR**

Bergman, H., & Deuschl, G. (2002). Pathophysiology of Parkinson's disease: from clinical neurology to basic neuroscience and back. *Mov Disord*, 17, S28•40

Blight, A.R. (2002). Miracles and molecules • • progress in spinal cord repair. *Nat Neuroscience*, 5 Suppl, 1051•4.

Boer, G.J., & Widner, H. (2002). Clinical neurotransplantation: core assessment protocol rather than sham surgery as control. *Brain Research Bulletin*, 58, 547•53

Chen, Z.Y., Cao, L., Wang, L.M., Guo, C., Ye, J.L., Chai, Y.F., & Yan, Z.Y. (2001). Development of neurotrophic molecules for treatment of neurodegeneration. *Current Protein Pept Science*, 2, 261•276.

Kondziolka, D., Wechsler, L., & Achim, C. (2002). Neural transplantation for stroke. *Journal of Clinical Neuroscience*, 9, 225•30.

Mayeux, R. (2003). Epidemiology of Neurodegeneration. *Annual Review of Neuroscience*, 24,

## **STATES OF CONSCIOUSNESS**

de Brito, A.F., de Souza, L.C., da Silva, A.V., & Langoni, H. (2002). Epidemiological and serological aspects in canine toxoplasmosis in animals with nervous symptoms. *Memorias do Instituto Oswaldo Cruz.*, 97, 31•5.

John, E.R. (2002). The neurophysics of consciousness. *Brain Research & Brain Research Review*, 39, 1•28.

Hobson, J.A., & Pace•Schott, E.F. (2002). The cognitive neuroscience of sleep: neuronal systems, consciousness and learning. *National Review of Neuroscience*, 3, 679•693.

Miller, W.F. (2001). The SD/LOC syndrome: spatial disorientation and loss of consciousness. *Aviation & Space Environmental Medicine*, 72, 321.

## **TEACHING NEUROSCIENCE IN INTRODUCTORY PSYCHOLOGY**

Alter, B.J., & Nelson, C.E. (2002). Perspective: Teaching evolution in higher education.

Evolution, 56, 1891-1901.

Anton, B.S., Rowland, D.L., & Wesselhoft, T. (2000). Collecting physiological data from students. In Handbook of demonstrations and activities in the teaching of psychology: Physiological-comparative, perception, learning, cognitive, and developmental, Vol. II (2nd ed.). pp.37-42.

Bacro, T., Gilbertson, B., & Coultas, J. (2000). Web-delivery of anatomy video clips using a CD-ROM. *Anatomical Record*, 261, 78-82.

Buskist, W., (2002). Effective teaching: Perspectives and insights from division two's 2-and 4-year awardees. *Teaching of Psychology*, 29, 188-193.

Carmichael, S.W., & Palina, W. (2000). Animated PowerPoint as a tool to teach anatomy. *Anatomical Record* 261, no. 2 (2000): 83-88.

Dockser Marcus, A. (2002). Can a machine diagnose depression? *Wall Street Journal*, 239, no. 100, D1; D3.

Filler, T.J., Abele, H., Vollmar-Hesse, I., Peuker, E.T. (1999). New ways in Internet-based education in anatomy. *Annals of Anatomy*, 181, 499-508.

Geuna, S., & Giacobini-Robecchi, M.G. (2002). The use of brainstorming for teaching human anatomy. *Anatomical Record*, 269, 214-216.

Graham, R.B. (1999). Unannounced quizzes raise test scores selectively for mid-range students. *Teaching of Psychology*, 26, 271-273.

Harcum, E. (2002). Reaction time as a behavioral demonstration of neural mechanisms for a large introductory psychology class. In Handbook for teaching introductory psychology: Vol. 3: With an emphasis on assessment. pp .200-201.

Haws, L., & Oppy, B.J. (2002). Classroom demonstrations of auditory perception.

*Teaching of Psychology*, 29,147-150. Johnson, D.E., & Schroder, S.I. (2002). Annotated bibliography on the teaching of psychology: 2001. *Teaching of Psychology*, 29, 337-344.

Hott, A.M., Juetjer, C.A., McInerney, J.D., Christianson. C. Fowler, R., Bender, H., Jenkins, J., Wysocki, A., Markle, G., & Karp, R. (2002). Genetics content in introductory biology courses for non-science majors: Theory and practice. *Bioscience*, 52, 1024-1035.

Levy, G.D., & Peters, W.W. (2002). Undergraduates' views of best college courses. *Teaching of Psychology*, 29, 46-48.

McCann, L.I., Perlman, B., & De Both, T.L. (2001). Instructor evaluations of introductory psychology teaching techniques. *Teaching of Psychology*, 28, 274-276

McNeal, A.P., & Mierson, S. (1999). Teaching critical thinking skills in physiology. *American Journal of Physiology*, 277, S268-S270.

Mierson, S. (1999). Skits and games to enhance students' learning of physiology. *American Journal of Physiology*, 277, S283-S284.

Miller, D.B. (2002). The nature-nurture issue: Lessons from the Pillsbury doughboy. In Handbook for teaching introductory psychology: Vol. 3: With an emphasis on assessment. pp.233-235.

Moran, W.M. Denton, J., Wilson, K., Williams, M., & Runge, S.W. (1999). A simple, inexpensive method for teaching how membrane potentials are generated. *American Journal of Physiology*, 277, S51-S59.

Newlin, M.H. (2002). Integrating technology and pedagogy: Web instruction and seven principles of undergraduate education. *Teaching of Psychology*, 29, 325-330.

Perlman, B., & McCann, L.I. (2002). Students' pet peeves about teaching. In. *Handbook for teaching introductory psychology: Vol. 3: With an emphasis on assessment*. pp. 19-21.

Pollack, R. (2001). Some practical suggestions for teaching science in the Liberal Arts. *Annals of the New York Academy of Sciences*, 935, 275-281.

Ragonzine, F. (2002). SuperLab LT: Evaluation and uses in teaching experimental psychology. *Teaching of Psychology*, 29, 251-254.

Rowland, D.L., Kaariainen, A. & Houtsmuller, E.J. (2000). Interactions between physiological and affective arousal: A laboratory exercise for psychology. *Teaching of Psychology*, 27, 34-37.

Russo, E. (2001). Fighting Darwin's battles. *Scientist (Philadelphia)* 15, no. 6n 1; 13.

Sheldon, J.P. (2000). A neuroanatomy teaching activity using case studies and collaboration. *Teaching of Psychology*, 27, 126-128.

Sikorski, J.F., Rich, K., Saville, B.K., Buskist, W., Drogan, O., & Davis, S.F. (2002). Student use of introductory texts: Comparative survey findings from two universities. *Teaching of Psychology*, 29, 312-313.

Staub, N.L. (2002). Teaching evolutionary mechanisms: Genetic drift and M&M's(R) Bioscience, 52, 373-377.

Terry, T. (1999). Weaving the Web into biology teaching *Bioscience*, 49, 733-741.

## **USEFUL WEBSITES FOR TEACHING NEUROSCIENCE**

Although all introductory psychology textbooks contain brain drawings, there is considerable variability in the quality of the art, and most books do not provide multiple views of brain structures, which can be very useful when students are trying to understand relative locations in the brain. Some of the websites listed below provide a variety of views, as well as descriptions of structures and their functions. In addition, some contain images from neuroimaging techniques. Some sites will be useful for presenting materials during lecture, while others can be accessed by students for individual study and increased understanding.

[http://anatomy.uams.edu/htmlpages/anatomyhtml/neuro\\_atlas.html](http://anatomy.uams.edu/htmlpages/anatomyhtml/neuro_atlas.html)

This one has a fairly complete brain atlas, with a variety of views that can be accessed from a list. All views are labeled with numbers identifying structures.

[http://brighamrad.harvard.edu/education/online/BrainSPECT/Normal\\_Anat/Normal\\_Anat.html](http://brighamrad.harvard.edu/education/online/BrainSPECT/Normal_Anat/Normal_Anat.html)

This site provides good images of SPECT scans.

[http://defiant.ssc.uwo.ca/Jody\\_web/fMRI4Dummies/anatomical\\_brains.htm](http://defiant.ssc.uwo.ca/Jody_web/fMRI4Dummies/anatomical_brains.htm)

This is a good site if you need unlabeled images for exams.

<http://education.yahoo.com/reference/gray/184.html>

Here you will find the classic Gray's Anatomy, including neuroanatomy.

<http://freud.tau.ac.il/~shakhar/neuro/images.html>

Here you will find good basic brain images. Included is a computer reconstruction showing the brain lobes from 4 angles.

<http://mncs10.med.nyu.edu>

NYU School of Medicine, Department of Neurosurgery site. This site provides detailed, fully illustrated explanations of neurosurgery. In addition, links provide numerous, fascinating case studies that highlight a diverse range of central and peripheral nervous disorders.

<http://medlib.med.utah.edu>

A good site for structures and disorders. Click on Webpath\Anatomy/Histology or on Webpath\Tutorials\CNS Degeneration

<http://pegasus.cc.ucf.edu/~Brainmd1/brain.html>

This is a potentially useful teaching site. It includes basic brain structures.

<http://psych.hanover.edu/Krantz/neurotut.html>

This site provides several interactive tutorial that explain everything from simple diffusion to integrated neural processing. Designed for an introductory class, these tutorials ar both easy to understand and very interesting.

<http://www.brain•mart.com/>

This site sells models of the brain that can be useful for teaching.

<http://www.brainplace.com/bp/atlas/ch3.asp>

This one includes high-quality SPECT images.

<http://www.cmrr.umn.edu/research/fmri.shtml>

Here you will find high-quality fMRI images that can be rotated.

<http://www.indiana.edu/~pietsch/home.html>

This site offers links to hypertexted journals, images and other web sites devoted to topics such as split-brain research and brain damage. These pages are sometimes humorous and always interesting and thus provide a great way for students to learn about the brains

[http://www.iprs.it/brainelsa/BACKUP\\_cd/schede/brain\\_anatomy.htm](http://www.iprs.it/brainelsa/BACKUP_cd/schede/brain_anatomy.htm)

This one contains several simple, labeled views of brain.

<http://www.macalester.edu/~psych/whathap/UBNRP/Imaging/fmri.html>

This site has good descriptions of all neuroimaging techniques.

[http://www.mch.com/clinical/radiology/fmri/3D\\_index.html](http://www.mch.com/clinical/radiology/fmri/3D_index.html)

Here you will find good fMRI images, with case histories of patients.

<http://www.med.harvard.edu/AANLIB/home.html>

This is the widely cited Whole Brain Atlas from Harvard. It is the premier brain site on the web. Through this site students can access virtually any view of the brain. Also, many disorders are extensively covered with detailed brain images and explanations.

<http://www.musc.edu/tmsmirror/fMRI/TMS•fMRI.html>

This site contains rotating fMRI images shot during TMS stimulation.

<http://www.neuroguide.com/>

Many resources and some links that are not always reliable.

<http://www.neuropat.dote.hu/atlas.html>

University of Debrecen, Hungary. English Version. This site provides links to images, tutorials, teaching modules, case reports, etc. Topics covered range from structure of the neuron to the peripheral and central nervous systems to the structure of the brain. In addition, disorders of different parts of the nervous system and the brain are also thoroughly covered by this site. Also has links to other sites dealing with neuroanatomy and neuropathology on the internet at <http://www.neuropat.dote.hu/index.html>

<http://www.neuropsychologycentral.com/index.html>

This website offers vast amounts of information on every aspect of neuroscience - from clinical assessment to interesting homepages top current physiological research. The site also offers links to employment and research opportunities as well as the latest software and journal articles. In addition the presentation of materials is multi-media, with moving pictures and auditory instructions.

<http://www.uni•hohenheim.de/~rebhan/rp.html>

University of Hohenheim, Germany. English Version. CNS Disorders - What's New. This site provides basis and current knowledge of several different brain disease (Alzheimer's, Parkinson's, etc.), drugs and other environmental factors (i.e. strokes). The student can also access the latest journals on there topics and even discuss these topics with other students over the internet. Finally, this site offers links to other related web sites.

[http://www.uwm.edu/~tking/demo2\\_6.htm](http://www.uwm.edu/~tking/demo2_6.htm)

This is a simple view of the brain with clicks to simple descriptions.

<http://www.waiting.com/brainfunction.html>

This site contains basic brain drawings with structures described.

<http://www9.biostr.washington.edu/cgi-bin/DA/imageform>

This is the widely cited Digital Anatomist. It includes 3-D composites of brain structures.

## **VIDEOTAPE REFERENCES**

Nathan H. Hart and Gary Anderson compiled a listing of films and videotapes on neurobiology and behavior. It was published in 1990 issue of American Zoology pages 707•714. It lists over 60 titles, provides summaries of the films' contents and gives information about how they can be obtained.

Alcohol: Brain Under The Influence, 1998, 43 minutes

Racing legend Arie Luyendyk discusses driving safety, as the effects of alcohol on the brain are demonstrated.

The Brain, 1995, 20 minutes.

Produced by Granada Productions. Introduces brain structure and functions, localization of brain activity, motor and sensory neurons, and simple reflex arcs. Computerized tomography, magnetic resonance imaging, and advanced surgical techniques are used to explore the brain.

The Brain, 1994, 25 minutes

Produced for the Learning Chanel, this video discusses the brain including its composition and which section of the brain causes which function, and its role in the nervous system.

The Brain: Creating a Mental Elite, 1973, 22 min.

Discussions with W. Penfield, Roy John, Marian Diamond and David Krech about chemical stimulation, electrical stimulation and environmental conditioning.

Brain (PET)

**NIMH Quick Time Video. Animated model of the brain with PET scans superimposed. A Positron Emission Tomography (PET) scan reveals brain activity by visualizing the destination of a radioactive tracer.**

**Brain Spin:**

**NIMH Quick Time Video. A 3D surface rendering of the brain of a living human, reconstructed from multiple MRI "slices." MRI reveals the brain's structure using a large magnet and a radio wave.**

**Classic Experiments in Behavioral Neuropsychology, 1978, 19 min.**

**Paul Weiss, Roger Sperry, Jose Delgado, Vincent Dethier present their research.**

**Depression: Fighting the Dragon, 2002, 44 minutes.**

**The video follows five people who have struggled for years to overcome this debilitating condition. Two of the five have family histories of the disease. Their moving personal stories are enriched by the perspectives of leading researchers, and by glimpses of the sophisticated brain • imaging technologies which now enable us to see what is happening in the human brain during depression and its treatment. In addition to medication, the video discusses some new and experimental treatments, but also stresses the continuing value of combining medical treatment with psychotherapy and mutual support groups, as well as the need for public education to combat the stigma that is still attached to mental illness.**

**The Discovery of Animal Behavior, 1982,**

**A six part series, 60 min each.**

**Ear • to • Ear (MRI)**

**NIMH Quick Time Video. Animation created by taking multiple scans or slices through the brain and running them stacked as a movie. Magnetic Resonance Imaging (MRI) is used to noninvasively display the structure of the living human brain.**

**The Ears and Hearing, undated, 22 minutes.**

**Produced by Encyclopaedia Britannica Educational Corporation. This video shows the**

structure and functions of the human ear, and demonstrates how the ear transmits sound waves to the brain. Describes how hearing aids and surgery may improve the hearing of some people.

Encyclopedia of Human Behavior, 1951, 28 minutes.

Development of eye-hand coordination begins with intra-uterine growth of the anatomical structures of the eyes, hands, and central nervous systems. This video shows the development of eye grasp, and grasp, and prehension; illustrates the concept of reciprocal interweaving, and the child's conquest of gravity; and demonstrates rationale of clinical tests of child development.

Experiment: Biology • the Nature of the Nerve Impulse, 1985, 15 min.

Examines the relationship between frequency and intensity of stimulus and response in adult locusts.

In a Frog's Eye, 1965, 30 min.

Jerome Lettvin of MIT studies the frog's eye using eletrophysiological techniques.

Language & Mind

Noam Chomsky presents his seminal ideas on the nature of language and the mind. Produced in cooperation with MIT and Princeton University, this is Noam Chomsky's exclusive presentation of his work in the area of language and mind, and in the development of his theory of generative grammar. Produced at Princeton University.

Living with Grace, 1983, 28 minutes.

This program explores the life of a women who lives without memory because of Alzheimer's disease. Through the documentation of behaviors associated with the disease, memory loss, emotional liability and catastrophic reactions, the viewers come to understand the frustrations from both the perspectives of the care giver and the Alzheimer's victims.

The Mind's Eye, 1980, 61 min.

Reviews the human visual system.

The Rod Cell, 1980, 25 min.

The Senses, 1995, 20 minutes.

Produced by Granada Productions. Discusses the role of the senses in providing information to the brain, how sight and balance operate and interact, and how modern technology can be used to overcome sensory limitations.

Signals and Receptors, 1977, 24 min.

Prof. Changeux's work on the neuromuscular junction is reviewed.

Trouble in Mind Series, 1999

Series of videos on various psychological disorders. Titles includes:

Anti•Social Personality (2000)

Attention Deficit Hyperactivity Disorder (ADHD or ADD), 1999

Delerium, 2000

Depression, 1999

Eating Disorder (1999)

Obsessive•Compulsive Disorder, 1999

Panic Disorder, 1999

Postpartum Disorder, 2000

Post Traumatic Stress Disorder, 1999

Psychosomatic Disorder, 2000

Schizophrenia, 1999

Visual reality, 1994, 25 minutes

Produced for the Learning Channel. Discusses the eye (its components and its defenses), and how the eye and brain work in unison to see.

When the Mind Goes Wrong, 1992, 43 minutes.

This is an extraordinary and provocative series of portraits of individuals with a range of

brain dysfunctions. The seven brief segments focus on schizophrenia, manic depression, epilepsy, stroke, head injury, headaches, and addiction. In addition to the personal stories, which give viewers a vivid sense of what it is like to live with these conditions, the segments include interviews with physicians who speak briefly about what is known about the disorders, and what can be done to help those who have them. The modular structure of the series lends itself to a wide variety of uses in the classroom and in continuing education.

## SOFTWARE REFERENCES

The following list contains some of the software developed to aid in the study of brain and body functioning.

A.D.A.M. The Inside Story (/adam.html)

A.D.A.M. The Inside Story '97 Edition (/adam97.html)

A.D.A.M. Interactive Anatomy, Student Edition (/adam\_interactive.html)

Principles of Psychobiology: Amazon.com Customer Page (/amazon.html)

Principles of Psychobiology: System Hardware Requirements (/bhardware.html)

Principles of Psychobiology(c) Module Overview (/bmodules.html)

BodyWorks for Windows Version 5.0 (/bodyworks5.html)

BodyWorks for Windows Version 6.0 Standard Version (/bodyworks6.html)

Books the Brain Sciences from Red Reef Publications (/books.html)

Humanscope by Axion Spatial Imaging (/humanscope.html)

Kids Science: Human Body by Mars Software (/kidsscience.html)

**Mosby's Medical Encyclopedia Version 2.0 (/mosbys.html)**

**Total Body and how the Mind Works (/totalbody.html)**

**Ultimate Human Body Version 2.0 (Windows) (/ultimate\_body.html)**