Neuroanatomy for Neuropsychologists

Neuroanatomy & Neuroradiology · https://neuro.vip/neuropsychology/neuroanatomy-neuroradiology/neuroanatomy-for-neuropsychologists/

Our Clinical Neuropsychologist's feedback on learning Neuroanatomy for Neuropsychologists

> Neuroanatomy is fascinating! However, it's not easy to learn for most of us. The better we are at neuroanatomy, though, the better we understand neuropsychology, neurology and brain imaging. I have personally tried and tested all of the resources which follow and offer some of my opinion or experience in the notes. If you are just starting out, perhaps as a "neuroanatomy for neuropsychologists" student, I would recommend making extensive use of the first resource, the Functional Neuroanatomy Course and ensuring that you engage with the interactive features throughout. You may find trying to learn neuroanatomy somewhat overwhelming at first - that's normal! As you begin to build a framework, the central nervous system begins to make more and more sense. You could also get into the habit of perhaps reading one Radiopaedia CNS case per day. Don't try to remember everything, the site is primarily for radiologists! Instead, expose yourself to brain images, try to recall the names of anatomical locations that you see and check if you are correct (many cases have a "show labels" feature). We have some localisation of brain region tips that may help. If you decide to purchase Sylvius or E-anatomy, spend 15-20 minutes per day testing yourself in these apps too. Once you feel more comfortable with neuroanatomy, you may wish to branch out to Assoc Prof White's Medical Neuroscience course, although, if you do, it might be wise to use common sense to selectively study the Modules most useful for a clinical neuropsychologist! I wish you all the best in grasping this wonderful subject.

Dr Graham Tyler

Consultant Clinical Neuropsychologist



Course (Online) by UBC

One of the internet's **best free neuroanatomy learning** sources provided by the University of British Columbia (UBC). Interactive learning materials make the task of learning neuroanatomy for neuropsychologists easier and fun!

- Regions of the Brain
- Horizontal Brain Slices with MRI
- Coronal Brain Slices with MRI
- Micrographs of the Brain
- Interactive Brain Modules: deep dive into parts of the brain wiht beautiful interactive presentations
- 3D Neuroanatomy Models: move the brain in 3D and practice labelled anatomy
- MRI Images in Coronal, Sagittal & Horizontal Planes
- Neuroanatomy Syllabus hint: download the interactive brain anatomy pdfs
- Stroke Models show blood flow and restricted diffusion in different types of stroke

Clinical Neuroanatomy by UBC

UBC offers further brain neuroanatomical modules in their Clinical Neuroanatomy section

Neuroanatomy Lab Videos by UBC

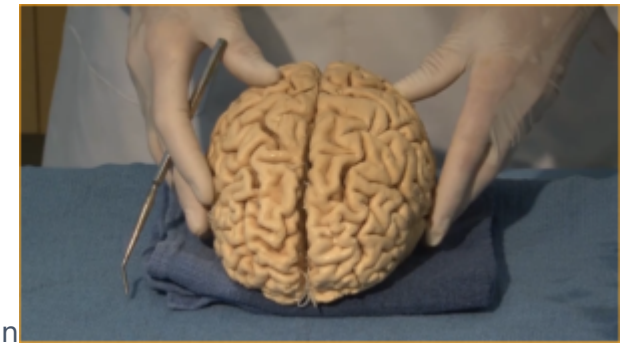
Real brains are dissected in the UBC lab for our learning. Much appreciation must go to the UBC Neuroanatomy team under Dr Krebs, as well as those who donated their brains to science.

Neuroanatomy Videos - Watch the first video below - click this link for more

Embedded media: https://www.youtube.com/embed/xB7rXw_3gVY?si=JroPcFa4Tzh33Pqh

Neuroanatomy for Neuropsychologists by University of Utah

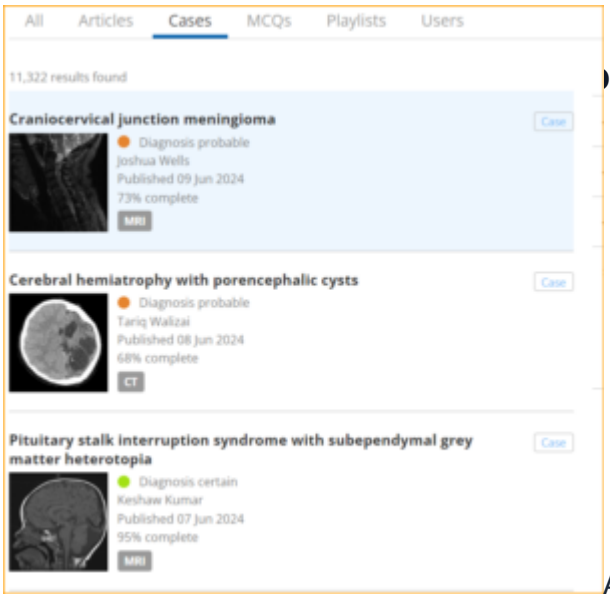
Another amazing series of Neuroanatomy lab-based dissection videos is offered by University of Utah School of Medicine.



- 01 - Introduction to the Human Brain
- 02 - The Normal Unfixed Brain
- 03 - Orientation: The Planes of the Brain
- 04 - The Meninges
- 05 - The Ventricles
- 06 - The Spinal Cord & Monosynaptic Reflex
- 07 - The Unfixed Spinal Cord
- 08 - Cranial Nerves
- 09 - Brain Stem & Reflexes
- 10 - Cerebral Circulation
- 11 - Cortical Localization
- 12 - Three Critical Vertical Pathways
- 13 - Sensation from the Body
- 14 - Sensation from the Face
- 15 - The Most Important Pathway: Motor Control
- 16 - The Visual Pathway
- 17 - Control of the Pupil
- 18 - Control of the Eye Movements
- 19 - Vestibular System
- 20 - Auditory System
- 21 - Cerebellum
- 22 - Basal Ganglia
- 23 - Comparison of the Motor Systems

- 24 - Hypothalamus
- 25 - Olfactory System
- 26 - Limbic System

View all Videos



›radiology

An excellent resource with a fantastic mission to provide as much free clinical neuroradiological training and development to as many as possible. The clinical case studies (filtered by Central Nervous System) provide somewhat more advanced professional development for neuropsychologists. The site also offers training courses and learning pathways. Our Clinical Neuropsychologist recommends the neurodegenerative learning pathway, whilst he does not recommend the Medical Imaging Anatomy course (for neuropsychologists) as the focus on neuroimaging is minimal.

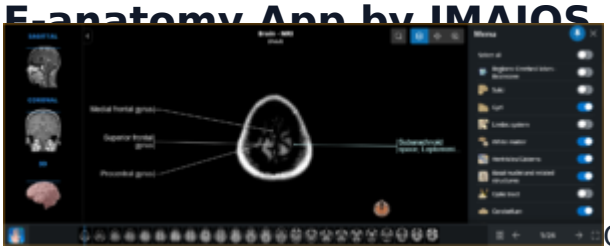
If you are from a low income country, you can apply to Radiopaedia for a free all access pass. If not, the all access pass is not essential for non-video content and if you do wish to access video learning pathways, the pass is not expensive compared to many other training routes.

Visit Radiopaedia

This is a helpful app for visualising the brain's lobes,

gyri, sulci, subcortical and functional areas, and white matter tracts, as well as Brodmann areas in 3D. Multiple views are displayed on screen at the same time helping you understand where in 3D space the anatomy of interest is located. Views and highlights appear both on a 3D Brain model and MRIs of all planes. The windows version of the app is currently free from the windows store. The Android and iPad versions can be downloaded for free, whilst a small payment is required to unlock certain levels. This is one from the definitely download to learn brain anatomy list!
Visit Brain Tutor 3D

E-anatomy App by IMAIOS

One of the most **expensive** ways to learn

neuroanatomy for neuropsychologists - at the time of writing it costs US$95 per year (you may be able to get it for free if you are enrolled at a participating university). However, it offers a comprehensive diagrammatic **atlas of the brain,** along with **MRI, CT, MRA and MR cerebral venography**, and the ability to turn on and off different parts of systems (e.g., arteries, ventricles, sulci, gyri, brainstem). The MRI Axial Brain module is **free** at the current time, so you can check that out before deciding whether to subscribe! Your subscription is valid for desktop, ipad, iphone and android versions of the app.

Visit E-anatomy

Neuroimaging Bootcamp by INC



A recorded (somewhat fast paced)

neuroanatomy/neuroimaging bootcamp provided by Iowa Neuroimaging Consortium under the following topics:

Day 1 - Neuroimaging as Data Science

Day 2 - Neuroanatomy
Day 3 - Brain Function
Day 4 - Specialty Imaging
Day 5 - Neuroimage Analysis

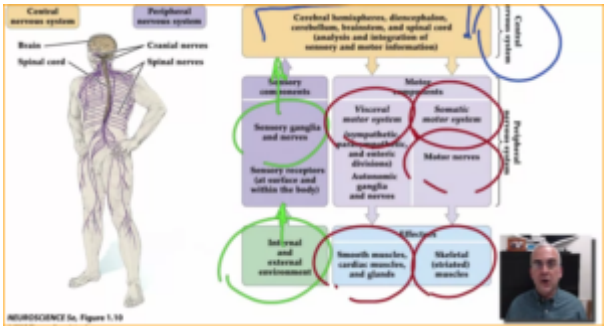
For neuropsychologists, you may not want to watch the entire bootcamp, but **we can recommend (in this order)**:

Day 2: Human Neuroanatomy Primer Video (first 50 mins) + Human Neuroanatomy Slides
Day 1: MRI Physics Video (until time point 1hr 39) | MRI Physics Slides
Day 2: Anatomical Neuroimaging Video (until time point 1hr 59) | Anatomical Neuroimaging Slides

Visit Neuroimaging Bootcamp

Medical Neuroscience MOOC

Associate Professor White from Duke University shows his passion for Neuroscience in this free MOOC. You can start anytime. Be warned that the content can be rather advanced in some modules and not all modules are relevant to clinical neuropsychologists learning neuroanatomy. You will definitely find the **brain labs** useful and relatable.

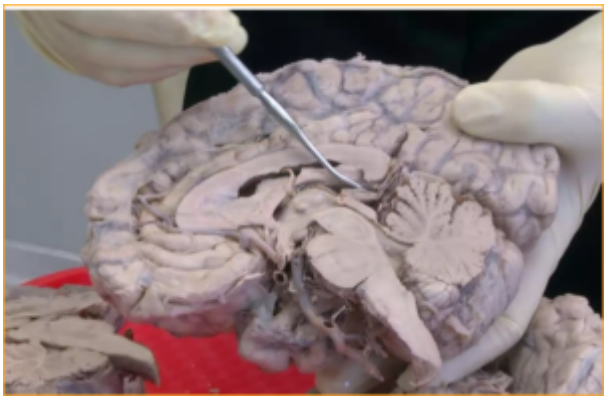


If you are new to neuroanatomy, I would recommend leaving this course until you have built a framework of neuroanatomy, clinical neurology and clinical neuropsychology that you can attach the learning from Medical Neuroscience to so that you don't feel overwhelmed!

Visit Medical Neuroscience

Neurobiology of Everyday Life

Professor Peggy Mason from the University of Chicago is another leader in the "passionate about brains" world! Her free MOOC, "Understanding the Brain: The Neurobiology of Everyday Life" offers neuroanatomy and neurobiology at **somewhat more of an accessible level** than the Medical Neuroscience MOOC. It also includes **Brain labs**, with not only human brains, but also sheep brains!



Visit Neurobiology of Everyday Life