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Selected internet viewings

Welcome to the *Annals'* regular review of what's happening on the web, what your patients are reading and what caught our eye this month.

If you wish to review web sites in your area of expertise, please E-mail your completed reviews directly to me, **Nick Cheshire**, at nickcheshire@blueyonder.co.uk. Authors must NOT submit their reviews more than once.

The editors regret that they cannot enter into correspondence with authors. It may be some months before your submission is reviewed.

Anatomy

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The UK undergraduate medical curriculum has undergone remarkable changes during the last decade. Since the GMC publication of *Tomorrow's Doctors* in 1993, there has been a gradual trend toward a systems-based, clinically-orientated approach to learning. A greater emphasis has been placed on communication skills and professional development over the basic sciences. One of my professors always used to say 'Operative surgery is anatomy' and 'Anatomy is the key to understanding surgical symptoms and signs'. Sadly, the average time spent learning anatomy in the lecture theatre and dissecting room has been sacrificed. The progression from student dissection of human cadavers to demonstrator or lecturer-led dissection is the current fashion. The charismatic old anatomy lecturer and enthusiastic young anatomy demonstrator may increasingly seek aid from developments in hardware and software technologies to convey their anatomical message. The dissecting scalpel and scissors have been traded in for the keyboard and mouse. Several respectable anatomical programs have been created in CD and DVD formats. However, an increasing number of web-based resources for learning anatomy are now available. The emphasis of learning anatomy today is from a clinically relevant stance, from finals straight through to memberships. These changes have coincided with the birth and growth of the 'internet generation'. Hopefully, this natural progression will mean good internet-based sites emerge as ubiquitous and comprehensive resources to reach the goal, perhaps more successfully than ever before.

www.vesalius.com

This site is developed by a US-based software company, naming their internet production after the 16th century Flemish anatomist and artist Andreas Vesalius. Regarded as the father of modern gross anatomy,

Vesalius, like Da Vinci, was a pioneer of using graphical communications to explore surgical anatomy and pathology. Launched in 1998, it is used by many US medical institutions. Aimed at medical students and surgical trainees, the portal is continually updated and uses over 9000 medical images and videos. These are divided into clinical folios for each surgical specialty along with narrative to illustrate the principal anatomical features relevant to a surgical procedure. There is also a function allowing the user to make notes and presentations which can be shared with other users. This is a useful portal for learning and revising surgical anatomy. Well worth the subscription fee.****

<http://www.bartleby.com/107>

This site presents the internet edition of the classic *Gray's Anatomy of the Human Body*. The current content is based on the 20th edition which was revised and re-edited in 2000. It features an extensive array of images and engravings (1247 to be precise) as well as a subject index with 13,000 entries. The site maintains a significant amount of text and images from the original publication by Henry Gray in 1858. In the same fashion, it delivers a descriptive anatomy of the human body including sections on microscopy and embryology. Updates have been included in areas such as variations in muscles and mechanics, as well as the physiology and laws of bone structure. More rational representations of the nervous system and associated physiological and pharmacological aspects have been included. The images are mainly black and white, but nevertheless have a high resolution. Despite being a little too detailed for the junior trainee, this is a great reference portal with fantastic narrative and original images.***

<http://www.instantanatomy.net>

This site is the brainchild of Dr Whitaker, Department of Anatomy at Cambridge University. Unlike the book by the same author, which works as an anatomical dictionary split into tissue types, the site presents anatomy in a systems-based format. Originating from the author's original diagrams and despite limitations in size and resolution, (resolved by purchasing the accompanying CD), the images are vibrant and clear. Learning tips, mnemonics and lists of questions are presented to bring out the relevance and basic principles of topics. This site is clear, easily navigated and well worth a look. Other authors of anatomical texts may follow suit, but for now this portal and its accompanying accessories are an attractive anatomical learning tool. It also contains anatomical cross-words – how could one resist!***

<http://www.netanatomy.com>

NetAnatomy is a US-site developed by the American Association of Clinical Anatomists and the Association of Anatomy, Cell Biology and Neurobiology. The published findings of a US

working group in 1996 investigating the anatomy content in undergraduate medical training, have acted as guidelines for development of this easy to use, USMLE-friendly site. Despite areas still under construction, such as the gross anatomy section, it offers an extensive array of radiographic images and cadaveric cross-sections developed by the National Library of Medicine's (NLM) Visible Human ProjectRRR. Endorsed and awarded by *Scientific American* amongst others, the site is certainly worth viewing for its radiological and cross-sectional image bank rather than the lacking narrative.**

http://www.nlm.nih.gov/research/visible/visible_human.html

The Visible Human ProjectRRR was created by the NLM in 1986. Its aim was to develop accurate 3-dimensional representations of normal male and female anatomy using CT, MRI and cadavers. Acclaimed by a variety of institutions in the US, it is extensively used in many medical schools stateside and abroad. The internet has allowed access to the project's vast array of diagrams, cross-sectional anatomy, and videos which are displayed in an attractive 'TV screen' style format. These are best viewed on a system with good specifications and the usual movie players. For the anatomy enthusiast, the site has links to an on-line interactive chat facility for communicating with other viewers, and a 'Toolkit' for playing around with the images. Although this portal requires an expensive subscription, it is well worth it, especially if one can convince their affiliated institution to buy it! The site has a link to 'Volume 1: Head and Neck Anatomy' which gives a flavour for this well-organised, detailed and entertaining anatomical resource.****

<http://www.vh.org/adult/provider/anatomy/HumanAnatomy/CrossSectionAtlas.html>

This work provides a high-quality colour photographic and radiological atlas of cross-sectional anatomy. The creators claim this site represents a renaissance in cross-sectional anatomy due to modern advances in radiological techniques. There is an interesting section on the history of cross-sectional anatomy since the early 16th century, including the works of De Reimer, Dwight, McEwan, Eycleshymer and Schoemaker amongst others. Photographic images and corresponding cross-sectional radiology are presented with anatomical narrative cross-referenced with Morris's *Human Anatomy* and Gray's textbook. This is a great resource for the anatomist, surgeon and radiologist. Given its easy-to-use format and attractive photography it may also act as a good educational and diagnostic aid.***

<http://www.nlm.nih.gov/exhibition/dreamanatomy/>

This interesting site is another production by the NLM. Purely of anatomical and historical interest, it provides a great variety of images and works drawn from the NLM archive. Stating 'the anatomical body as our inner reality, a medium through which we imagine society, culture and the human condition', it aims to demonstrate anatomical imagination in some of its most astonishing incarnations, from 1500 to today. There are sections on the history

of anatomy, philosophy and a great gallery of prints, paintings, engravings and lithographs. If not for anatomical interest, it provides a great source of historical images for presentations.***

<http://www.anatomy.tv/default.aspx>

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

Anatomy.tv was launched in April, 2001 and is the on-line version of software developed by Primal PicturesRRR team, established in 1991. Medically accurate, 3-D graphics are created from scans, and accompanied by animations, schematics, prosections, MRIs and surgical procedures. Easy-to-use tool-bars allow the user to control the view, add or remove layers, and investigate specific tissues in further detail. These are supplemented by clinical videos and text contributed by clinical specialists. The titles range from interactive 3-D anatomy and virtual procedures to orthopaedics and sports injuries titles, all endorsed by a variety of organisations, academic institutions and general practices. Although the online version does not have full access to the software series, it still provides a dynamic interactive means of learning anatomy. It is currently being re-engineered in an XML format which aims to house the whole database and enable interaction between students, educators and clinicians making this more than just an atlas. With plans to adapt this 'new learning media' to pathology and physiology, it is a thoroughly impressive portal.****

Back pain

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www.arc.org.uk

This website is the home of the Arthritis Research Campaign (ARC). The charity produces a broad selection of information leaflets for patients on conditions relating to arthritis, and these can be commonly found in orthopaedic departments. This website offers online access to the complete range of patient information leaflets that they currently produce. The back pain leaflet provides detailed, but concise, information about back pain in general. It is written in a question and answer format, covering all aspects of back pain, and includes advice on back exercises. Patients commonly have concerns or queries regarding analgesics and anti-inflammatories, and this site also offers information on the commonly prescribed arthritic medications. All booklets can be downloaded in PDF for printing. The site also has several links to other relevant UK-based sites dealing with arthritis, and pain management problems. In addition to patient education, the ARC also produce books and DVDs for professionals and students working with arthritis, which can be obtained free of charge via this site. A useful site with basic information for patients if you do not stock the leaflets in your department.***

www.spine-health.com

An American website offering access to a large collection of articles and information relating to back pain. As with many American sites it also