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Multimedia/Software Review Section



OTHER REVIEWS IN THIS ISSUE
[Technical Books Section] Pages: |1| 2| 3| 4| 5| 6| 7| 8| 9| 10| 11| 12| 13| 14| 15| 16| 17| 18|
[Popular Books Section] Pages: |1| 2| 3| 4| 5|

[Books on CD/Audio Tapes] Pages: |1| [Software/Multimedia] Pages: |1|

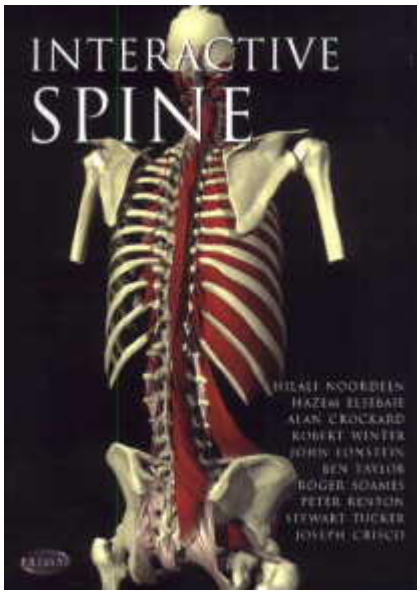
REVIEWS IN THE PREVIOUS ISSUE | NEXT ISSUE



INTERACTIVE SPINE

Interactive Spine (Windows Version) *by* Hilali Noorden, Hazem Elsebaie, Alan Crockard, Robert Winter, John Lonstein, Ben Taylor, Roger Soames, Peter Renton, Stewart Tucker and Joseph Crisco (September 2001): Programmers - Raymond Ko and Mike Porter
Published byPrimal Pictures Ltd., 2nd Floor, Tennyson House, 159-165 Great Portland Street, London W1W 5PA, UK. . . Email: email@primalpictures.com. Web: www.primalpictures.com and www.anatomy.tv
1 CD-ROM. ISBN: 1-902470-32-X. Price: £ 150.00, $ 250.00 [Also available in full Professional Set containing 6 CDs (1. Interactive Hand 2. Interactive Shoulder 3. Interactive Foot & Ankle, 4. Interactive Knee, 5. Interactive Hip and 6. Interactive Spine) for £ 400.00, $ 595.00]
System requirements:
PC: Win 95, 98, NT 4, 2000, Pentium, min 32 MB RAM; Mac: Min 20 MB RAM, 16 bit color, 604 processor upwards, Mac OS 7.1 or higher

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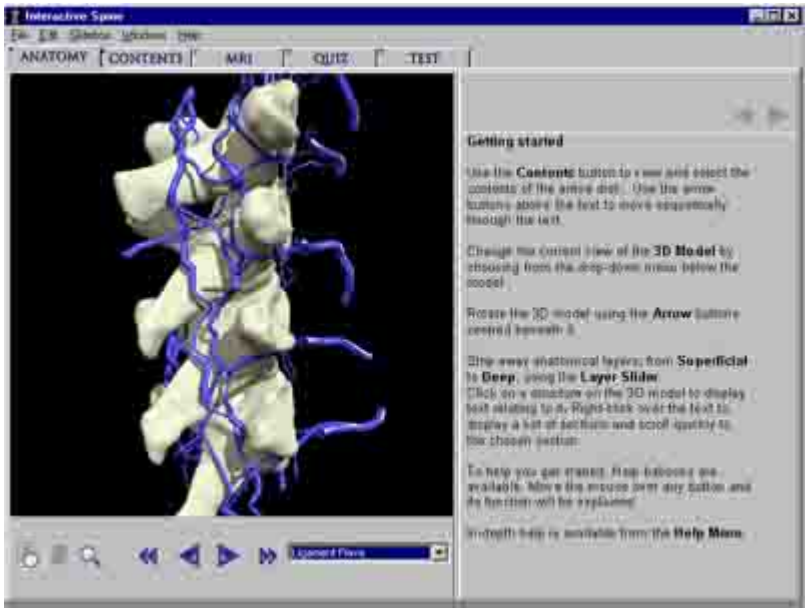


One of the best ways to learn human anatomy is to dissect more and more bodies and observe. I know it for sure. I am a forensic pathologist with an almost morbid interest in human anatomy. When I began my career in forensic pathology 25 years back, I had a rudimentary knowledge of anatomy - almost the same what an average medical graduate has. But over the years I dissected more and more bodies - with an eye on learning human anatomy - and today, I know a lot more than what I did 25 years back. Only rarely have I referred to books on anatomy during these years. Most of my knowledge has come through dissection and observation.

View this book on Amazon

But I could have this facility (of dissecting a seemingly endless number of human bodies) because of the peculiarity of my profession. Not all medical professionals get such an opportunity. Certainly medical students do not have the luxury of dissecting more than a body or two during their training. How do they learn anatomy then? By cramming up Gray or Grant? That certainly is not the best method. What do they do? Is there no hope for them? Fortunately now there *is* a method to learn anatomy in this "hands-on" dissection fashion, sitting right in your study!

Figure 1: On starting the CD, you are greeted with five tabs at the top. Each of these tabs takes you on a world of its own. Note the various tools at the bottom. Clicking on the right and left arrows will allow you to rotate the structure in any way you want!



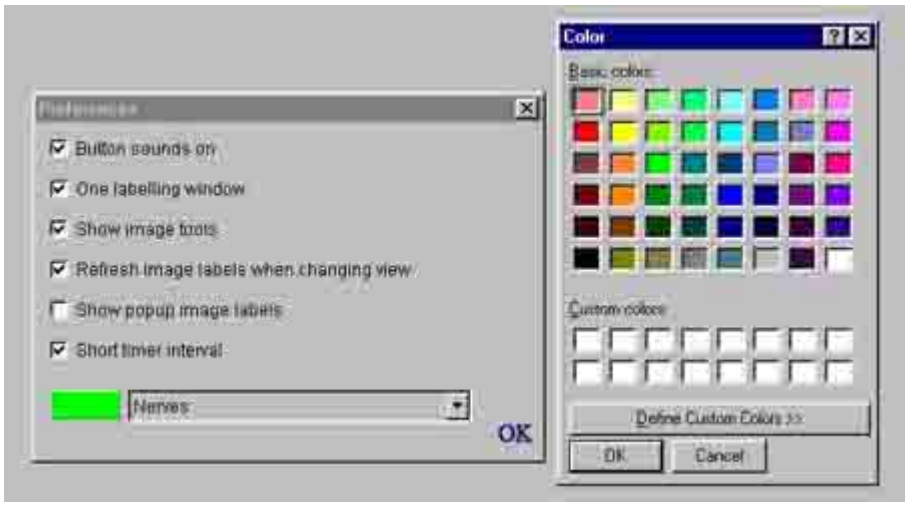
Welcome to the full Professional Set containing 6 CDs from Primal Pictures Ltd. Not only do these CDs allow you to disassemble a human being - and then reassemble it - but to do a lot more activities. When you are through with these CDs you know the subject as thoroughly as can be.

Take for example the *Interactive Spine*, the CD, we at the Journal office decided to review first. The CD is extremely interactive with a number of links and hyperlinks all interconnected very intricately. For a beginning you are greeted with five tabs at the top. These are labeled: Anatomy, Contents, MRI, Quiz and Test. You can click on any tab to go to that particular topic. Each of these has a number of subtopics.

Clicking on "Anatomy" tab will allow you to access a number of anatomical structures related to spine. You can chose these structures through a "drop down box" at the lower left hand side. You can chose a total of 18 anatomical structures (yes, I actually counted them!). Some of these are: Occipital bone, C4 Vertebra, Ligament flava, atlanto-occipital joint, basivertebral veins (lumbar), neck muscles and so on. Once you click on a particular structure, it appears on your screen.

Now you can experiment with this structure in a number of ways. You can rotate it clockwise or anticlockwise. And you can do so either step by step or continuously. Being able to rotate a structure has the great benefit of letting the student study it from all angles. It is almost like having the structure in your own hand - probably more. For one can understand being able to rotate, say, an actual T6 Vertebra, but can you rotate, say, intervertebral foramina, even if you had an actual human body in your possession? There seems no easy way of doing this. But this CD allows you to rotate structures like these, and allow them to be studied from all angles.

Figure 2: You can choose the color of any structure such as an artery, vein, muscle or bone etc. Clicking on Edit->Preferences will allow you to customize the CD in a number of other ways. Here the reviewer is chosing the color of the nerves



This is not all. You can zoom in any structure, by clicking on a magnifying lens provided at the bottom, you can drag any image by clicking on a "hand icon", and you can label any image by clicking on a "finger icon" provided at the bottom left. I tried clicking this "finger icon" on several structures, and was amazed at the number of things that immediately happen. For one thing, the structure you click on, gets "selected" by a "red cross-wire" kind of label and on the right side you get to read extensive information on that structure. This text not only gives you information on anatomy and clinical pathology texts, but allows you to jump on to several hyperlinks. Here is an example:

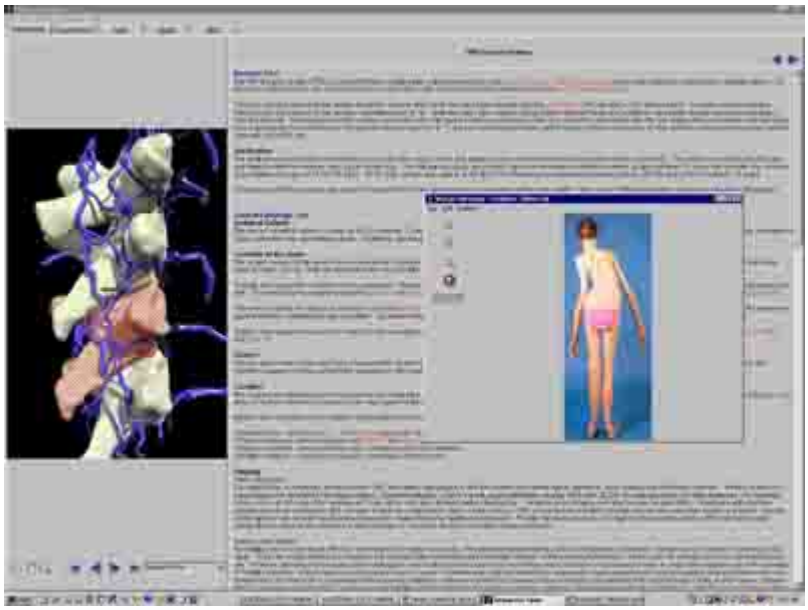
For a beginning, I selected *Ligament flava* from the drop-down box, and then labeled the fifth thoracic vertebra by using the "finger icon". Immediately a 2000-word text appears in the right side window (yes, I used my word processor to actually count the words. For the curious, the exact word count is 1987 words!). This text is divided in several sub-sections. In the clinical pathology section, I could jump on to several context related hyperlinks.

This is a portion of text that greeted me, when I selected the *fifth thoracic vertebra*:

Contours of the Spine

The overall contour of the spine in the coronal plane is straight. However, in the sagittal plane the contour changes with development. At birth, there is a kyphotic posture to the whole spine (primary curves). With development of the erect posture, lordotic (secondary) curves develop in the cervical and lumbar spines.

Figure 3: The text in the right hand window is completely interactive and allows you to jump on to several hyperlinks. Here we are seeing a patient with scoliosis.



Overall, spine alignment is altered in many conditions. Scoliosis (Slide 1 and Slide 2), which is a descriptive term for lateral curvature, is usually accompanied by rotational abnormality as well. This can be due to congenital deformity (Slide 1 and Slide 2), degeneration or associated with numerous neuro-muscular conditions. The most common type, however, is idiopathic.

One way to quantify the degree of curvature is to use the Cobb Measurement Method. The curvature is measured by drawing a line along the upper and lower end plates of the respective upper and lower vertebrae that are most tilted. The angle between these lines is then measured, usually by drawing additional lines at perpendicular angles to the end-plates .

Sagittal plane alignment can also be altered by disease and injury. This is manifested clinically with abnormal kyphosis (Slide 1, Slide 2, Slide 3 and Slide 4) or lordosis (Slide 1, Slide 2 and Slide 3).

You can see that the text refers to a number of slides. These are actually hyperlinks and when you click on one of these, you get to see that slide. This is what I got when I clicked on one of the slides (figure 3).

You can print - on paper and as pdf files - the contents you are viewing at any given time. I tried printing as pdf files, and could print even the images. Virtually the entire CD can be printed in pdf format. You can also print it normally on paper.

Choosing MRI tab is a great experience in itself. You get two windows side by side. The left box shows the real structure and the right one shows the MRI images. There are drop down boxes in both these windows, where you can chose image. You can then match an actual structure with its MRI image and vice versa.

There is a large section containing quiz and tests, which help you to test on what you have learnt.

In short a great CD and a must for every medical professional, including medical students. I thoroughly enjoyed wading through this CD.

Order *Interactive Spine* by Clicking here