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Doctors plan digital atlas of the body

By Roger Highfield
Science Editor

THE world's first full-colour, three-dimensional atlas of the knee has been unveiled by doctors in the United States.

It is the first step in a project to put an entire human body into digital form that can be displayed on screen or manipulated on computer.

Four or more corpses, donated to medical research, will be deep-frozen and used to create what is described as the first digital atlas of the body. It will be used by doctors for teaching and to plan surgery and radiotherapy.

Prof David Whitlock, who is organising the project with Dr Victor Spitzer at the University of Colorado, said: "It is from this last perfect gift that this material is drawn.

"We cherish the opportunity to use such material, which will provide extraordinary insights into the body."

Using medical scanning techniques, they are selecting organs from the corpses "that are as normal as we can understand it".

The organs will be frozen and sliced at intervals of as little as a quarter of a millimetre. Photographs of each slice are taken and fed into a computer which assembles the images in three dimensions.

The team has just produced a pioneering atlas of the human knee this way, based on 6,000 images. "This is the first demonstration of such an atlas based on real anatomy," said Prof Whitlock.

It will be used as a benchmark to compare with X-rays and images of patients taken with other medical scanning techniques. Any angle through the atlas can be displayed.

In all, some 64 anatomical structures can be seen in the computer recreation. Not only can any slice through the knee be called up, scientists will even be able to manipulate the images with a computer to show how organs age or wear.

"It is possible to warp the image to show the knee of a 20-year-old man or a 75-year-old woman's knee," said Prof Whitlock.

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