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From virtual dissection to 3-D surgery simulation: The use of a computerized real body size table

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Surgical anatomy is the use of anatomy in reference to surgical diagnosis, dissection or treatment. It is the study of the structure and morphological characteristics of the tissues and organs of the body as they are related to surgery. This requires to obtain an optimal access and knowledge to a particular surgical field. Dissection is the exposure and description of internal body organs and structures. This is one of the most important parts in the curriculum and preparation of the students. But this requires to obtain a high number of body donations and its perfect fixation. This was made classically with Formaldehyde, but due to its toxicity, new learning techniques were developed. One of these techniques uses stereoscopic images of the whole human body, combined with a software to build a 3-Dimensional (3-D) reconstruction using a CT scan, X-rays, ultrasound and MRIs of the different parts of the human body, that allows a virtual dissection and reconstruction of it. This is a Computerized Real Body Size Table from a 7-foot by 2.5 foot screen, that uses these technological advantages. It can be used for undergraduate anatomy students, to residents and physicians, specially surgeons and surgery residents. With a fully interactive, multitouch screen, one can dissect the body, moving through layers of tissue, or use a virtual knife to cut away and see the structures inside. One of this Table is located at the University Army Center in Madrid (Spain). This allow us to train the students and avoid harmful techniques before giving real surgical needs. We expose and discuss our experience in Anatomy and Surgery, mainly with students using this Table.

Biography

Jesús García Martín has completed his PhD in 1993 from Complutense University of Madrid. During his Doctoral studies he attended the University Clinic Hospital in Madrid, the Loewenstein Rehabilitation Hospital in Tel Aviv University in Israel and the Ainslie Rehabilitation Hospital in Edinburgh (UK). During his Post-doctoral studies, he attended to the Lucile Salter Packard Children's Hospital at the Stanford University in the USA. Currently, he is Professor of Human Anatomy, Embriology and Human Biomechanics at the University of Alcalá. He is In-charge of the Human Movement Analysis Laboratory.

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