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Envisage life: Convergence between anatomy and 3D simulation

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Modern technology allows for the development of digital bodies with 3D models of human bodies that can replicate living anatomy and physiological functions. Sudip Bagchi, President - CLSS & Imaging, Triviron Healthcare explains



As one of the most complicated science concepts, physiology can be challenging to understand without integrating appropriate instructional materials. Modern technology resources offer invaluable benefits to teachers and learners in the digital age while bridging any learning gap to boost academic outcomes.

Triviron Healthcare in collaboration with Anatomage distributes Virtual Anatomy Dissection Table in India to bridge the gap between traditional learning and advanced learning. Unlike traditional cadaver-based learning, students don't have to worry about mistakes when dissecting 3D cadavers. In a 3-dimensional space, motions on the anatomical planes can be simulated for 360-degree viewing, enabling viewers to examine different movements a body makes. Anatomical terms such as flexion, extension, abduction, adduction can be hard to comprehend.

Modern technology allows for the development of digital bodies with 3D models of human bodies that can replicate living anatomy and physiological functions. Advanced technology such as 3D simulation also encourages learning activities involving experimenting with physiological responses to a stimulus or given scenarios. These technologies all aim to provide a scientific perspective into life; from when it's formed, functions and falls into illness.

With the growth of these virtual technologies, anatomy and physiology students are enabled to digitally access a wide variety of learning materials – anywhere and anytime. Aside from digital textbooks, online cadavers are made available for their usage. Students no longer need to depend on the lab's availability to examine gross anatomy models or walk to the campus library to borrow reference books. This level of convenience is helping A&P students to reclaim their most valuable resource – time.

To accelerate the applications of digital bodies in medical education and diagnostics, Anatomage develops a portfolio of digital bodies – Anatomage Bodies – that can be simulated to produce living anatomy and physiological reactions. Modelled after real human bodies, anatomage bodies transform Anatomy and Physiology concepts to reality by helping users visualise “life” better.

Pregnancy

- § Visualise and interact with the fetus scan to appreciate the anatomical structure of a fetus

- § Examine the anatomical changes that a female body undergoes to develop a suitable fetal environment for the baby

Cardiac motion

- § Digitally adjust heart rate to visualise various heart rhythms with an ECG

- § Visualise a living heart's electrical activities inside a digital body

Nervous pathway

- § Visualise the connection between nerve pathways and dermatomes

- § Use nerve pathways to pinpoint and identify pain locations

Physiological responses

§ Simulate 11 physiological pathways to visualize how a substance travels from one organ to another

§ Access essential physiological pathways including air pathways, blood flow, GI tract

Anatomical movements

§ Involve in hands-on kinesiology simulation activities to understand how a living body physiologically produce motions

Utilise a variety of simulation tools to manipulate skeletal, muscular, nervous, and cardiovascular tissue and activate anatomical movements on a digital body