

New app lets med students study real human heart on iPad

March 7 2013, by Alexis Blue



(Medical Xpress)—Medical students at the University of Arizona are using a new study tool this semester that lets them interact with a real human heart at home – courtesy of their iPads.

The UA-developed [Heart](#) Anatomy Explorer I application, available for iPad, Windows and Mac, lets students view, rotate and zoom in on a series of images of an actual [human heart](#) as they learn about the organ's structures.

Providing views of the heart from all angles, both in and outside the

[chest cavity](#), it's an alternative to color-coded textbook drawings or illustrated [digital applications](#) students often use in their studies.

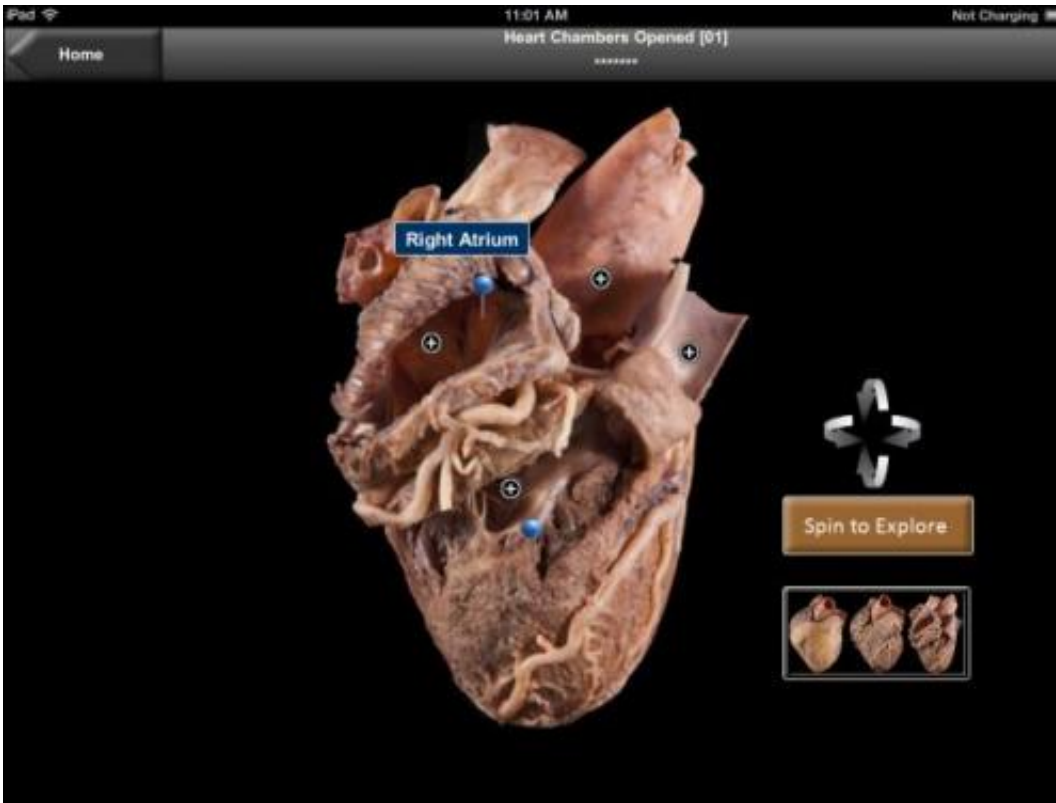
"A lot of times, in anatomy books, the colored images are really defined, but when you go back to the lab, it's totally different," said Nancy Phan, first-year medical student.

The ability to view and rotate images of a real heart makes it easier to understand how things fit together, said first-year medical student Katherine Nielsen.

Blue "pins" on many of the photos identify the different parts of the heart, while other images include text explaining what different structures do and how they work.

"This is a treasure," said first-year medical student Elise Vo. "The pictures are the best you could find, and the ability to be able to move them makes a big difference."

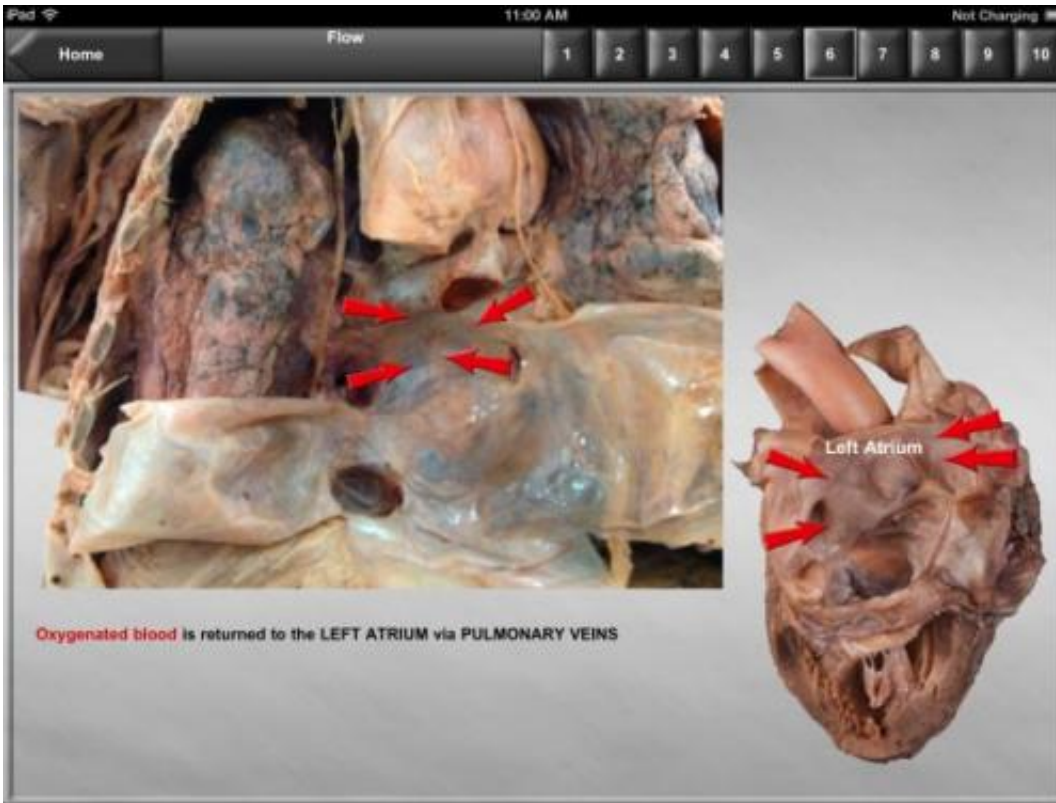
While [medical students](#) have the opportunity to interact hands-on with human cadavers in anatomy labs, the Heart Anatomy [app](#) lets them continue studying a real heart after they've left the hospital.



Students tap on blue pins on the image to learn the names of different structures.

Most students access the app on [iPads](#), which are issued to all medical students at the beginning of their careers in the UA College of Medicine.

The idea for the Heart Anatomy app was born from a chance run-in on an elevator between Maria Helen Czuzak, associate specialist and anatomical instructor in the department of cellular and [molecular medicine](#), and Mark Nelson, professor of pathology.



Included in the app is a series of images designed to teach students about blood flow through the heart.

The two, who had not previously met, got to talking and soon realized they were facing similar teaching challenges.

Czuzak was trying to come up with a way to create a digital catalog of human organs to give students in her anatomy classes a more comprehensive view of organs than they get from medical atlases of two-dimensional photos.

"When you just snap a photograph of a heart, you lose the depth and things are flat, and you can't see how things once upon a time related to each other," Czuzak said. "With the rotational, three-dimensional heart, you can rotate it, and you don't lose that depth and dimension."

At the same time, Nelson was exploring how he might use technology to give his pathology graduate students greater experience with real human organs, after funding cuts eliminated the pathology department's wet lab, where students once interacted directly with human specimens.

Czuzak and Nelson decided to team up to create something that could serve them both.

"The ultimate goal is to be able to bring in current technology that students are adept at using and able to help them facilitate their learning," Nelson said.

They worked with the University's Office of Instruction and Assessment to develop the heart app, which, fittingly, became available for download on Valentine's Day for first-year medical students to beta test. Once the students provide feedback to Czuzak and Nelson, the app will be further improved and made available for pathology graduate students and for general release.

Charlie Hill, principal applications systems analyst/developer in the Office of Instruction and Assessment, led the technical development of the app, while Gary Mackender, senior information technology support analyst, helped photograph the cadaver heart.

While the app only covers the heart at this time, the hope to include more organs in the future and to add functionality such as interactive quizzes for students to use in their studies, Czuzak said.

"These students are not only going to be tested on cadaver material in my class, they're going to be practicing medicine on real people," Czuzak said. "This is the advantage of using real specimens in the app – this is what they're going to see when they open up a chest."

Provided by University of Arizona

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