



# Montague – CTE Scholar 2009–2010

## Ashley B. Saunders, DVM, DACVIM (Cardiology)

### Veterinary Medicine & Biomedical Sciences



The stethoscope can be connected to an additional set of headphones so that the cardiologist can show students where to listen. In this image, the student (left) is using the Thinklabs Digital Recording Stethoscope to show the cardiologist what she hears.

Funding from the Montague – CTE Scholars Program allowed me to acquire a Thinklabs Digital Recording Stethoscope that can record and replay heart sounds. A digital stethoscope system is a valuable teaching tool that allows for amplification of sound and the ability to link to head phones for multiple users.

The veterinary students are exposed to physiology, heart sounds and how to perform auscultation of the heart and lungs over all four years of the professional program. Learning how to perform auscultation and interpret heart sounds takes practice and skill that can be developed with time. Additionally, recorded heart sounds are used to review cardiology residents in preparation for specialty board certification.



In addition to in-ear head phones (maroon arrow), noise reduction head phones (white arrow) can be used to reduce ambient noise, enhance the student learning environment and to provide an over the ear option for students that are hearing impaired.

The Thinklabs Stethoscope App for iPhone takes advantage of the multi-touch interface to record heart sounds from the stethoscope and to display waveforms in real time, edit sounds on screen, and save recorded sounds along with images and notes that can be sent via email. Funding from the Montague – CTE Scholars Program was used to acquire the app.



An interactive PDF file, “Heart Sounds,” has been produced as a teaching tool for veterinary students. Using PDF vs. PowerPoint, allows greater flexibility in terms of design as well as better integration of sound files (recorded using the ThinkLabs Digital Recording Stethoscope) and video files (recorded during cardiac ).

We developed an interactive PDF presentation for teaching heart sounds and testing student skills. The PDF presentation is available for self directed study. PDF files are capable of handling embedded sound and movie media just like a PowerPoint file. However, PDF files allow more flexibility when it comes to design considerations and multiple delivery options.



CENTER FOR TEACHING EXCELLENCE  
Office of the Dean of Faculties and Associate Provost