I’d like to introduce Josh Hutcheson, a doctoral candidate at Vanderbilt University who works in Mechanobiology.

**Interviewer:** What is important to know about the heart and how it works in relation to disease?

**Mr. Hutcheson:** When looking at a biological system, we spend a great deal of time looking at it on the cellular level. We are looking for the intersection between cell biology and engineering/physical science. Understanding the stresses put on cells helps us understand what is happening to an organ.

**Interviewer:** How does the structure of the heart relate to the stresses it incurs?

**Mr. Hutcheson:** Heart valves are designed to move with blood flow, and consequently experience a lot of stress over time. Biomechanics plays an important role in the function of these valves.

**Interviewer:** Can this stress lead to problems with the valves/heart over time?

**Mr. Hutcheson:** Stress can cause the valve to become stiffer over time. 25% of people over 65 years of age tend to show signs of valve disease.

For additional information on heart valves, the following video link might be helpful: [http://www.youtube.com/watch?v=hmnzhuYRjz8](http://www.youtube.com/watch?v=hmnzhuYRjz8)