

COLLABORATIVE HEART: A Q&A WITH CARDIOVASCULAR RESEARCHER MORTEN JENSEN



Dr. Morten Jensen has developed remarkable lifelike artificial tissues to aid medical students in their training.

Heat disease costs the state too many lives and consumes too many resources. In Arkansas, it is the top killer of both men and women. Coupled with strokes is estimated by the U.S. Centers for Disease Control and Prevention to cost the nation \$219 billion annually.

As an associate professor of engineering at the University of Arkansas, Morten Olgard Jensen (Ph.D. and Dr. med.) is dedicated to developing life-saving technology for use in cardiovascular surgery. For its first installment of Discovery Economics, the Arkansas Research Alliance sat down with Jensen, a 2015 ARA Scholar, to discuss his most recent cardiovascular research, its impact on Arkansas and his aspirations for the future.

ARA: What's new for you and your research team at the University of Arkansas?

Jensen: We recently received a grant from the National Institutes of Health [for \$417,000] to make improvements in repair and replacement heart valve surgery — specifically to improve long-term performance. The goal of this work is to create new, force-validated models of the heart valves for intelligent surgery planning and device development, using nature's own stress-minimization concepts for maximum longevity of valve interventions.

ARA: How did you become interested in cardiovascular research?

Jensen: When I studied engineering in Denmark, I was introduced to an interdisciplinary environment at a university hospital that focused on building the bridge between the clinical and engineering worlds with an innovative approach to solving critical problems. I was invited to join a cardiovascular laboratory at Georgia Tech/Emory. Since then, my interest in using an engineering approach to solving problems for people to make the world around us a better, safer and healthier place has dominated my career in academia and industry.

ARA: How does your research impact the economy and health of our state?

Jensen: Cardiovascular disease is the number one killer worldwide, and Arkansas ranks among the hardest-hit states for heart disease. Treatment is costly, and the loss of productivity is significant. Building a strong and successful research portfolio in this area helps drive top-level clinicians to the state and also retain those already here. In addition, the Heartland is a relatively under-tapped resource for ideas and topics for engineering and clinical collaborative projects that can build new companies and create jobs.



UA researcher Morten Jensen

ARA: What would you do with “astronomical” levels of funding?

Jensen: I'd create an institute that brings cardiovascular clinicians together with scientific and engineering researchers, preferably at a location that is close to or at a hospital campus. I've worked in similar environments both in Europe and the U.S., and having engineers and clinicians work in the same building enhances research collaborations tremendously. The clinicians can call up the engineer and ask, “Hi, could you come take a look at something quickly with me?”

ARA: You clearly have an appreciation for collaboration. Why is it so important for research?

Jensen: When COVID-19 hit, we developed a custom-designed, clear acrylic box that can shield clinicians when they

intubate patients infected with the coronavirus. The project was a collaboration between us, a cardiothoracic anesthesiologist, the Fay Jones School of Architecture and the Arkansas Research Alliance, who had provided me with a grant to further my work. Research is impossible without a network. We should do everything in our power to foster collaboration. **S**

Discovery Economics is a forum for Arkansas Research Alliance scientists and researchers to shine a light on their important work and how it impacts the Arkansas economy. Founded in 2016, the ARA Academy of Scholars and Fellows is a community of strategic research leaders who strive to maximize the value of discovery and progress in the state. Douglas Hutchings serves as Director of the ARA Academy. Learn more at ARAlliance.org.