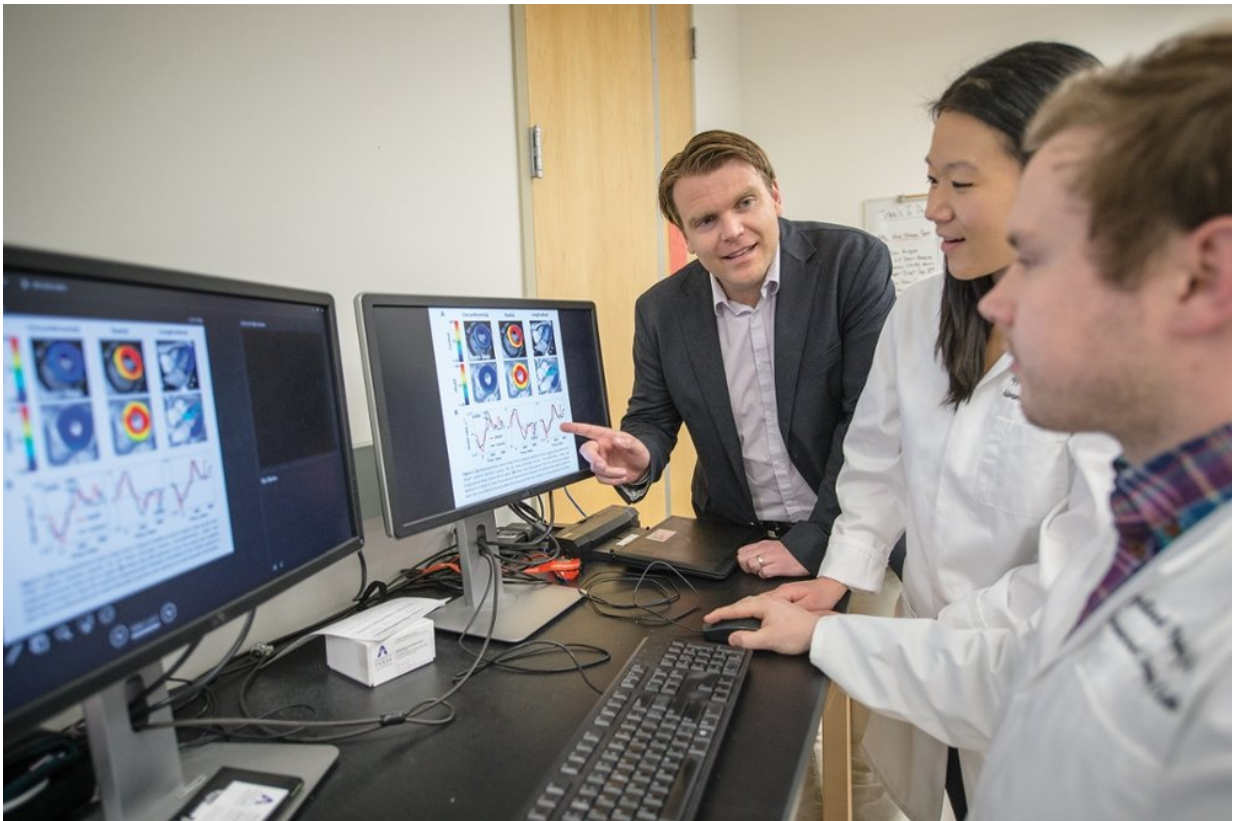


Researchers study influence of fat storage in the heart on cardiovascular disease

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Michael Nelson is part of a team of kinesiology researchers examining health and disease across the lifespan. Credit: University of Texas at Arlington

Michael Nelson, assistant professor of kinesiology at The University of Texas at Arlington, has received a new five-year, \$3.3 million grant from

the National Institutes of Health to study the link between fat storage in the heart and cardiovascular disease, as well as the influence of gender on the development of cardiac dysfunction.

"You're not supposed to store fat in the heart, but patients who suffer from obesity, diabetes or heart disease tend to store more fat in the heart," Nelson said. "This excess fat is often linked to structural and functional abnormalities. Interpretation of these data is always difficult however, because these patients also tend to have other cardiovascular abnormalities, such as insulin resistance and hypertension. Our study attempts to address this previous limitation."

Nelson and his team will study the effects of excess fat in isolation of cardiovascular or metabolic risk factors. Their preliminary data shows that men may respond differently than pre-menopausal women, who appear to be protected despite similar levels of fat in the heart. Nelson and his team of researchers will spend the next five years studying 60 healthy subjects - 15 men and 45 women - between the ages of 18 and 30 to better understand the links between different factors.

"The incidence of heart disease in premenopausal women is much less than their age-matched male counterparts," Nelson said. "After menopause, however, women quickly catch up to men, and in some cases, surpass them."

This major new grant in UTA's College of Nursing and Health Innovation is one of many new awards in the area of heart health over the last year, and reflects on the success of the College's strategic hires in kinesiology, a department whose research expenditures have grown significantly during the last four years.

"UTA's kinesiology department specializes in examining health and disease across the lifespan, with specialized research clusters looking at

cardiovascular health, bone and muscle health, fighting cancer, and motor control development in children," UTA President Vistasp Karbhari said. "This new NIH grant builds on ongoing research within the department and across UTA under our strategic plan theme of health and the human condition and highlights the research leadership and expertise of our renowned faculty. I'm pleased to see them serve as lead principal investigators on collaborative projects with researchers representing leading universities and major medical research centers from around the country."

Nelson, principal investigator on this project, will work with a team of researchers that includes Mark Haykowsky, professor of nursing at UTA and the Moritz Chair of Geriatrics, and Daisha Cipher, associate professor of nursing. Other co-investigators include researchers from UT Southwestern, Cedars Sinai Medical Center in Los Angeles and the University of Colorado in Denver.

Collaborative projects are a hallmark of health science research at UTA, with highly regarded faculty members from the College of Nursing and Health Innovation routinely partnering with talented colleagues from UTA's other schools and colleges, as well as outside institutions, to facilitate fundamental and high-impact clinical translational research.

"Health science research requires an interdisciplinary focus to take innovation to the next level, and we at the College of Nursing and Health Innovation are proud to be at the forefront as the University continues to excel in cutting-edge research," said Anne Bavier, dean of the College of Nursing and Health Innovation.

Opportunities for interdisciplinary research will be further enhanced when the state-of-the-art Science & Engineering Innovation & Research, or SEIR, Building opens in July 2018. In addition to supporting impressive campus-wide enrollment growth, the 220,000-square-foot

building will feature research neighborhoods in which scientists from various health science disciplines will work together in 12 collaborative laboratory spaces focusing on thematic areas like cardiovascular health, brain health, cancer and tissue engineering. SEIR also will provide new opportunities for the university's focus on the study of human genomics as it relates to improving health and finding solutions for disease.

Earlier this year, the NIH also awarded Nelson a \$441,000 grant to build new imaging technology to study blood vessel function in patients with heart failure. This technology could lead to quicker diagnosis and life-saving treatment. Nelson is collaborating with colleagues from UTA's Department of Biomedical Engineering on this grant. Since joining UTA two years ago, Nelson has helped bring in more than \$4 million in grants.

"Over the last four years, UTA has received \$11.5 million from the NIH, which speaks to the university's growing reputation as a major health science research institution," said Duane Dimos, UTA vice president for research.

Research funding in the College of Nursing and Health Innovation rose by 45 percent from 2016 to 2017, due in part to the recent addition of 10 leading health care scholars to the college's faculty.

Provided by University of Texas at Arlington

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