SEMINAR SERIES

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The Center for Research in Human Movement Variability (MOVCENTR)

The Tortured Artery

Featuring Dr. Jason Mactaggart

University of Nebraska Medical Center

Friday, Jan. 28 | 12:00 - 1:15 pm | Via Zoom

https://unomaha.zoom.us/s/92012305734

PRESENTATION ABSTRACT

My laboratory studies arteries from different areas of the body and we invent new devices and methods of vascular repair for open cardiovascular and endovascular surgery. My work focuses on the architecture and function of the largest human artery, the aorta, and the main artery that spans the thigh and knee to feed blood to the legs and feet, the femoropopliteal artery. In the lab we study both normal and diseased arteries, investigating how basic blood vessel structure and shape change in the short term as our heart pumps and we move our legs, and over longer periods of time as we age. We measure and model flow and mechanical forces to help predict how different arteries and repair devices, like stents and synthetic bypass grafts, interact and respond to perturbations. We use our experimental data to help create computer models of functioning arteries and like Boeing models a jet under different flight conditions to look for weaknesses in a wing, our lab models arteries repaired with different devices or materials to look for weaknesses in our current therapeutic approaches. Though some patients do very well with certain surgical and interventional treatments, problems such as repair durability, high cost, and the frequent occurrence of other short and long-term complications demand improvement. This is especially true for repairs of the major arteries in the thigh, around and below the knee, and certain regions of the aorta. Vascular surgeons have long performed exquisitely customized operations. Combining new experimental methods with classical anatomical, physiological, and histopathological studies of human and large animal arteries will enhance the precision and personalization of therapeutics for vascular and endovascular surgery once thought the realm of science fiction.

ABOUT DR. MACTAGGART

Jason MacTaggart was born in Oelwein, Iowa the day before Christmas in 1973. He grew up in Cedar Falls, Iowa and spent many weekends exploring the driftless area around his grandparents' northeastern Iowa farms. Jason studied biology and ran cross-country and track at Wartburg College in Waverly, Iowa, then graduated from the University of Iowa College of Medicine in 2000. After medical school he moved to Omaha where he completed a 5 year general surgery residency and 2 additional years performing vascular biology research at the University of Nebraska Medical Center. He finished his formal education with two years of advanced training in endovascular and vascular surgery at the University of California San Francisco. Jason returned to UNMC in 2009 and he continues to offer broad vascular surgical clinical services and cutting edge endovascular operations to Nebraskans and other patients from the region at the university and the Omaha VA. He is a clinician-scientist with an NIH funded laboratory studying endovascular stenting for lower limb occlusive disease and the physiology of aortic stiffening and stent-grafting. His inventions in the area of minimally invasive catheter based technologies for arterial trauma, aneurysms and occlusive disease have been awarded multiple United States patents and form the basis for two recently created start-up companies, Vessel Wave Technologies and Aquablade.

more info at **cobre.unomaha.edu**

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