CARNEGIE MELLON UNIVERSITY
BME 2025 FALL SEMINAR SERIES

BIOMEDICAL ENGINEERING
Carnegie Mellon University

Biomechanics for Improving Patient Outcomes in Pelvic Organ Prolapse Repairs

PRESENTED BY

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SCHEDULE

Doherty Hall (DH) 2315

Thursday
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(9:30-10:30 AM)

Pelvic organ prolapse (prolapse) significantly impacts the quality-of-life of millions of women world-wide. Surgical repairs of prolapse often involve the use of synthetic meshes – devices that were not originally designed for prolapse repairs. Thus, mesh usage has been hampered by unacceptably high complication rates and there is a need for alternative devices. Our team uses an interdisciplinary approach, combining biomechanics, biology, computational modeling, and animal models, to define the problems associated with current synthetic meshes. Specifically, we have found that pore collapse and mesh wrinkling leads to one of the most common mesh complications, mesh exposure. With this enahnced knowledge, we are developing a novel device for prolapse repairs. This talk will highlight how designing a device specifically tailored for the intended mechanical and biological environment can lead to improved outcomes. Ultimately, it is our goal that this research will result in products and clinical recommendations that will aid in the treatment of women with prolapse globally.