

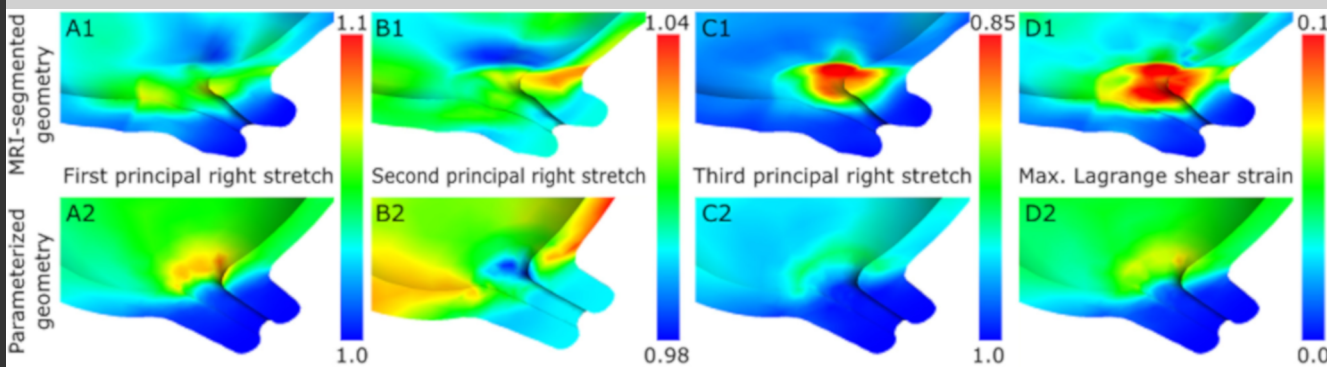


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Computational Biomechanical Models of Human Pregnancy. Evaluating the Risk of Preterm Birth



Kristin M. Myers

Associate Professor of Mechanical Engineering,
Columbia University, USA



Empresas invitadas:



Día : Martes 7 de Julio de 2020

Hora : 11:00h

Lugar : Seminario I, planta 4 de la E.T.S.I. Caminos, C. y P.
Campus Fuentenueva

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Computational Biomechanical Models of Human Pregnancy – Evaluating the Risk of Preterm Birth

Resumen:

The reproductive soft tissues that support the fetus undergo some of the most dramatic and unique growth and remodeling events in the human body. During pregnancy, the uterus and fetal membrane must grow and stretch to accommodate the fetus. Simultaneously, the cervix must remodel and be a mechanical barrier to keep the fetus within the uterus. All three tissues must withstand mechanical forces to protect, support, and maintain an optimal growth environment for the developing baby. Then, in a reversal of roles, ideally nearing term, the uterus begins to contract and the cervix deforms to allow for a safe delivery. I will also specifically characterize cervical material properties using a hyperelastic constitutive model that accounts for the cervical collagen fiber architecture and hormone-mediated remodeling relationships. Through this experimental and modeling effort I aim to identify which factor or combination of factors is responsible for clinically-observed mechanical dysfunction in pregnancy..

Kristin Myers



Kristin is an associate professor in the Department of Mechanical Engineering at Columbia University in the City of New York. Her current obstetrics research is done in collaboration with the Department of Obstetrics and Gynecology at the Columbia University Irving Medical Center. She received her Mechanical Engineering doctorate and masters degree from MIT and her bachelors degree from the University of Michigan. In 2017 Kristin was given the American Society of Mechanical Engineers Y.C. Fung Young Investigators award for her contributions to the field of biomechanics, and in 2019 Kristin was awarded the Presidential Early Career Award for Scientists and Engineers for her work in understanding tissue growth and remodeling in pregnancy.

U n i v e r s i d a d d e G r a n a d a

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