

*Joint Department of*

# BIOMEDICAL ENGINEERING



UNC  
CHAPEL HILL

NC STATE  
UNIVERSITY

C o u l t e r   S e m i n a r   S e r i e s   P r e s e n t s

## “Sex Difference in Anterior Cruciate Ligament Morphology and Knee Joint Laxity: Implications for ACL Injury Risk and Prevention”

**Sandra Shultz, PhD**

Professor

Department of Kinesiology

University of North Carolina at Greensboro



Dr. Sandra Shultz (Sandy) is Director for the Center for Women’s Health and Wellness and Professor and Co-Director of the Applied Neuromechanics Research Laboratory in the Department of Kinesiology at UNC Greensboro. Sandy began her career as a certified athletic trainer and strength and conditioning specialist, where she cared for numerous females who suffered from season ending anterior cruciate ligament (ACL) injuries. This inspired her to pursue an academic research career which focuses on identifying the risk factors that increase a female’s susceptibility for knee injury and developing intervention strategies to mitigate that risk. A primary line of this work has been to comprehensively characterize sex differences in ACL morphology and knee joint laxity, the genetic, hormonal and anatomical factors that contribute to the development of these sex differences, and the consequences of these sex differences on knee joint function and ACL injury risk during sport related activity. Dr. Shultz has published more than 135 peer-review publications, including 6 consensus statements related to ACL injury risk and prevention in the physically active female. Her research has been supported by the National Institutes of Health, the NATA Research Foundation, NFL Charities, and the North Carolina Biotechnology Center.

### ABSTRACT

Between the ages of 11-17 years, there is a rapid and steady increase in anterior cruciate ligament (ACL) injuries that is substantially greater in females compared to males. During this time of rapid growth and development, females also develop structurally smaller ACLs and greater knee joint laxity compared to males, and smaller ACLs and greater knee laxity have consistently been identified as strong independent risk factors for ACL injury. This seminar will examine the physical and hormonal factors that likely contribute to the development of these sex differences, and the implications of these findings for ACL injury risk and prevention.

**Friday, January 28th  
12:00 Noon**

**Presented From: 321 MacNider Hall (UNC)**

Videoconferenced to: 4142 Engineering Building III (NC State)  
& East Carolina University (ECU)