

Pelvic Floor Disorders

Steven Abramowitch, University of Pittsburgh



Our Team Spans Disciplines & Schools



Steven Abramowitch, Pitt

Bioengineering, Computational Modeling of Pelvic Floor, Soft Tissue Characterization, Vaginal Mesh Design



Gerard Ateshian, CU

Mechanical Engineering, Biomedical Engineering, Soft Tissue Mechanics



Philip Bayly, WUSTL

Mechanical Engineering, Biomedical Engineering, Cell and Tissue Biomechanics, Computational Modeling of Pelvic Floor



Christine King, UCI

Biomedical Engineering, Engineering Education, Health Systems



Katrina Knight, Pitt

Bioengineering, Computational Modeling of Pelvic Floor, Soft Tissue Characterization, Vaginal Mesh Design



Jerry Lowder, WUSTL

OB/GYN, Pelvic Floor Clinical Intervention



Helen Lu, CU

Biomedical Engineering, Biomaterials and Tissue Engineering



Spandan Maiti, Pitt

Biomedical Engineering, Mechanical Engineering & Materials Science, Computational Mechanics



Joshua Mauney, UCI

Urology, Tissue Engineering, Medical Device Testing



Pamela Moalli, Pitt

OB/GYN, Bioengineering, Uro/Gyn, Vaginal Mesh Expert, Female Pelvic Floor Health



Christine O'Brien, WUSTL

Radiology, Raman Spectroscopy, Maternal Hemorrhage, Wearable Devices



Ronald Wapner, CU

OB/GYN, Fetal Genetic Testing



Harry West, CU

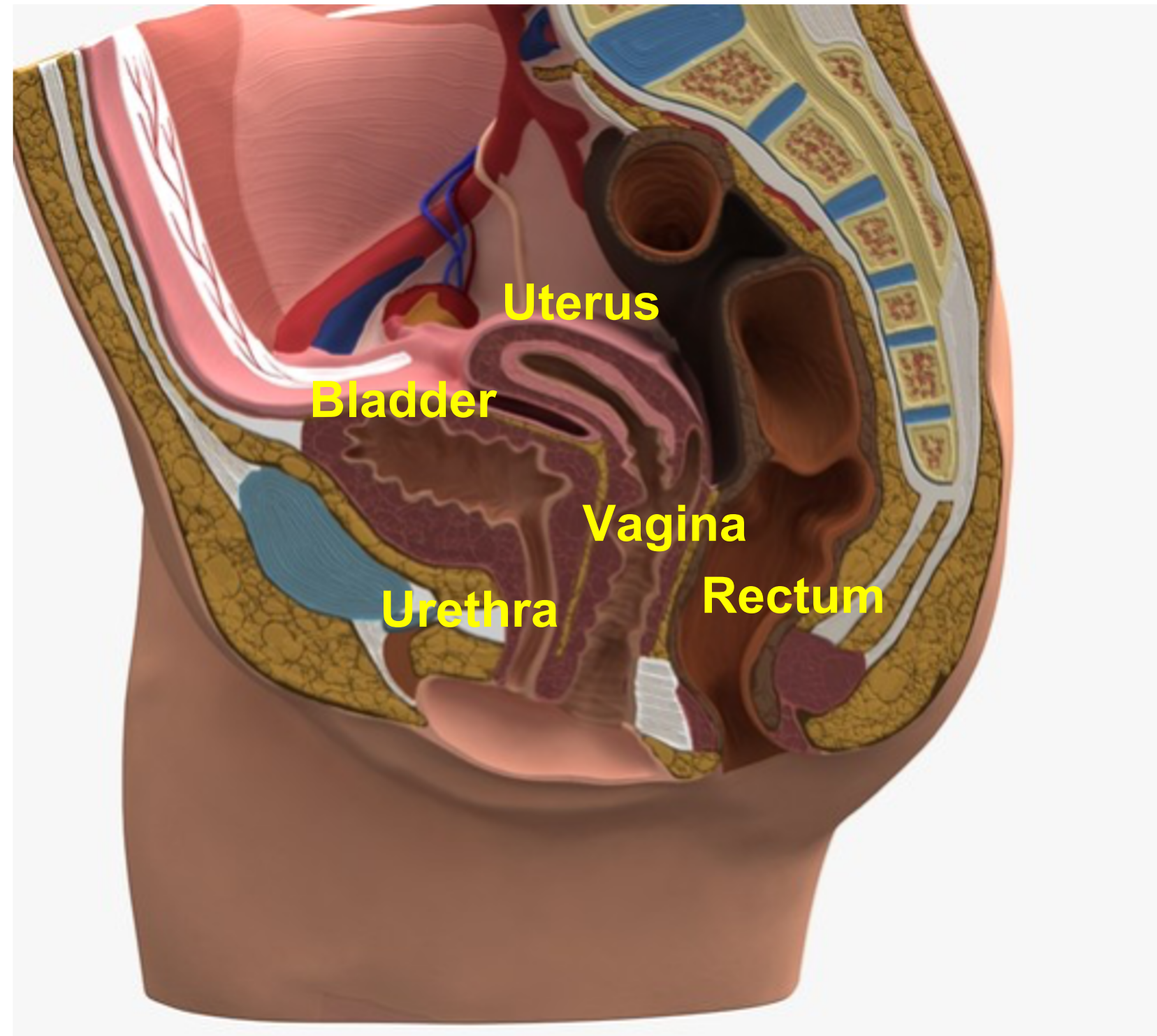
Mechanical Engineering, Industrial Engineering and Operations Research, Product Design Methodology, Service and Experience Design

Pelvic Floor Disorders (PFDs)

Loss of support to or functional capacity of pelvic organs

- Pelvic organ prolapse
- Urinary incontinence
- Fecal incontinence
- Obstructed defecation
- Dyspareunia (sexual pain)

For most, pregnancy and birthing are the greatest risk factors



PFDs Manifest In Many Different Ways

Childbirth

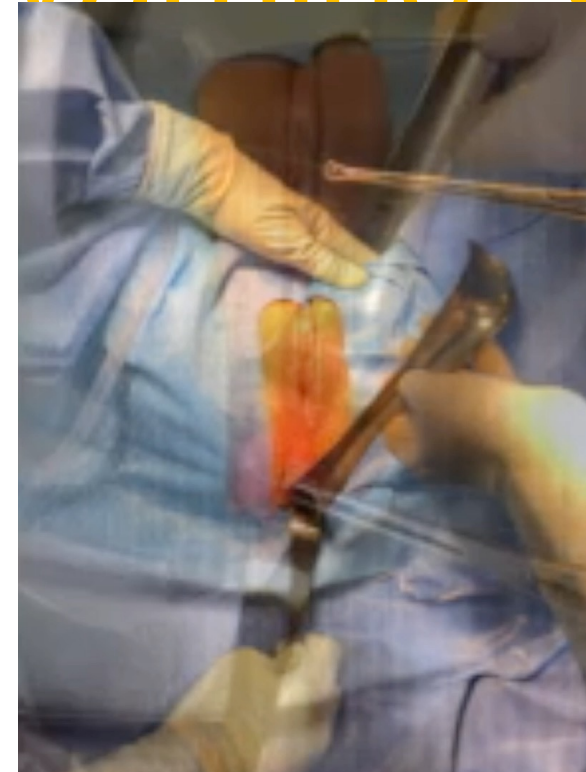


Maternal



Injury

Warning: Graphic Images



Women's Health Impacts More Than Women

These are not just an issue about female sexual health...

This is a family issue.

This is a mental health issue.

This is a quality-of-life issue.

These are disorders that have not yet been adequately addressed because...

They are hard to study.

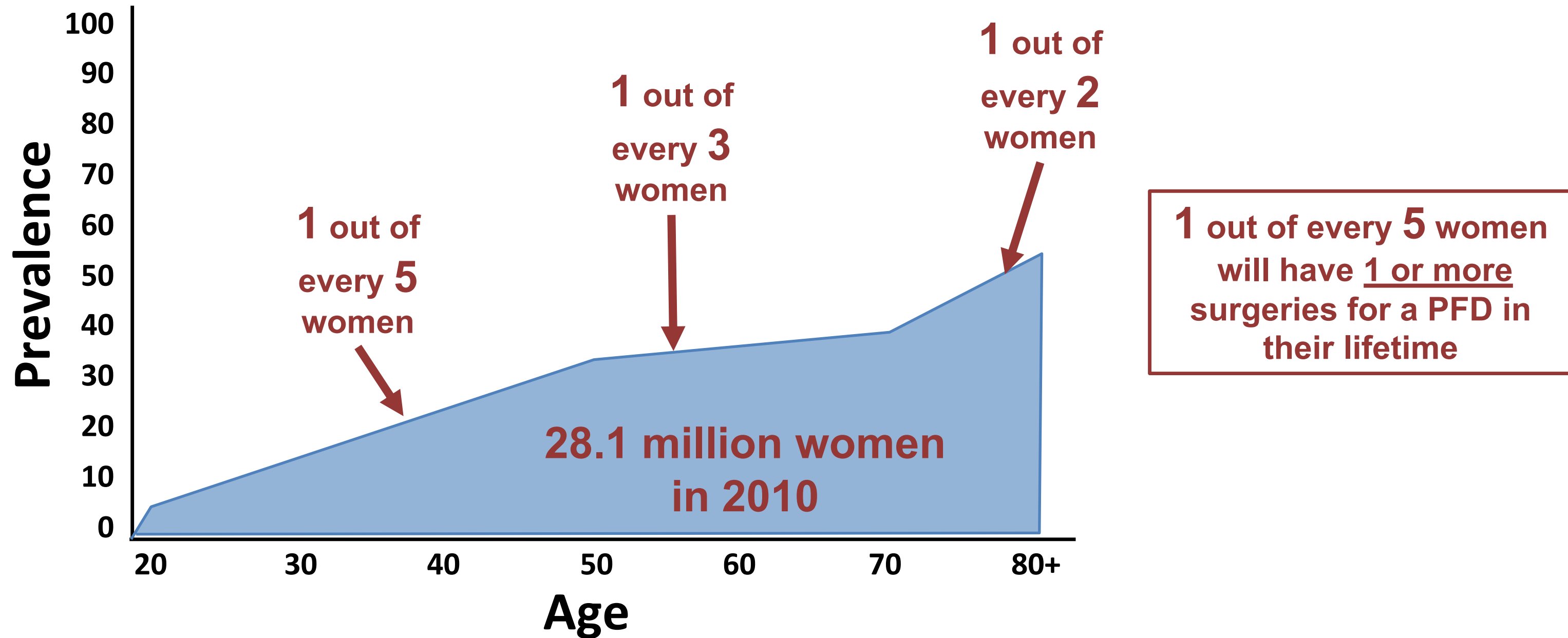
They are private.

We have been historically uncomfortable with female genitalia.



PFDs Are Way More Common Than You Think

At this moment, 24% of adult women have at least one PFD



*Projected to be 43.8 million women in 2050 w/ annual cost of over \$25 billion to US economy

Now is the time to act!

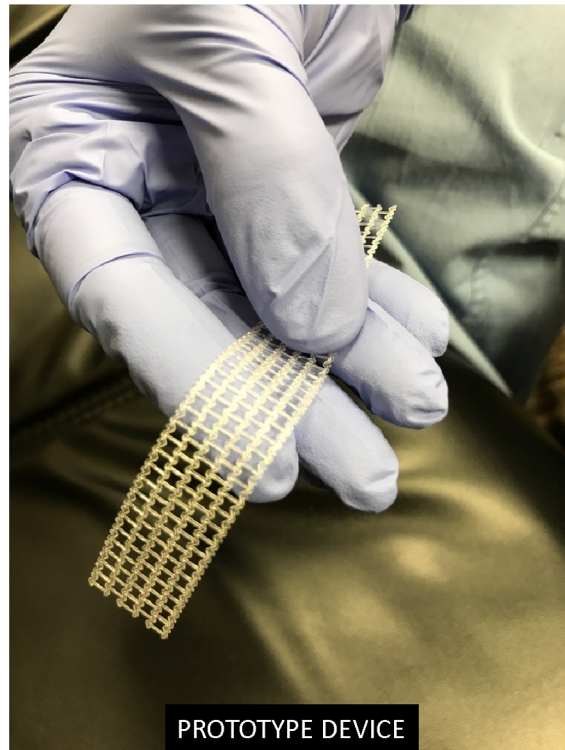
Tremendous Opportunities for Innovation

- No therapies to prevent pelvic floor injury
- Majority of injuries are undiagnosed
- No motivation to determine if an injury occurred
- No therapies to address pelvic floor injury immediately after delivery
- No therapies to identify and prevent age related decline
- Current repairs fail or result in complications ~30-60%

Changing the Clinical Paradigm

YEARS 1-2

Enable currently developed solutions to achieve commercialization via our innovation ecosystem.



PROTOTYPE DEVICE

PFDs Are an Outstanding Systems Test Bed

Historically underfunded area of medicine

Mechanical injuries w/ mechanobiological consequences



Tackle tremendous engineering challenges with innovation

We can decrease their prevalence and cost to society & improve the well-being of women

