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URINCONTROL

CONFIDENCE IN UR CONTINENCE

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BACKGROUND

No SUI
bladder neck and urethra supported, leading to no involuntary leakage

SUI
bladder neck and urethra poorly supported, leading to unwanted leakage

Stress urinary incontinence (SUI) is involuntary urine leakage upon physical exertion (e.g. laughing, coughing, sneezing)

Risk factors include **pregnancy**, **age**, and high **physical activity**

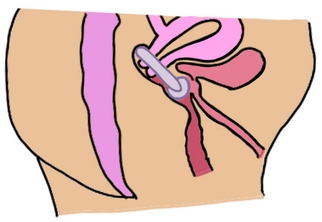
1 in 3 women in the US experience symptoms of SUI [1]

Only **45%** seek treatment due to embarrassment and social stigma [2]

NEED

Females with SUI need an accessible way of supporting the bladder neck during periods of increased abdominal pressure in order to reduce involuntary urine leakage.

ANATOMY TO MATHEMATICAL MODELING



The **pessary** is a ring-shaped device that provides support to the bladder neck and urethra to prevent leakage, but it is **associated with negative stigma** and **requires fitting consultations** by providers.

To effectively control leakage, pessaries must exert a certain force on the bladder neck and urethra:

$F_{pessary}/A > 1/\sin(\theta)*(P_{detrusor}+IAP-UCP)$ **Range = 1.46 N to 8.59 N**

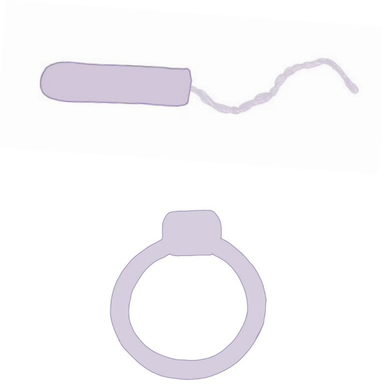
$F_{pessary}$ = pessary force
$P_{detrusor}$ = detrusor pressure
IAP = intrabdominal pressure
UCP = urethral closure pressure
$10° \leq \theta \leq 50°$
$A \approx 1\ cm^2$

OUR SOLUTION

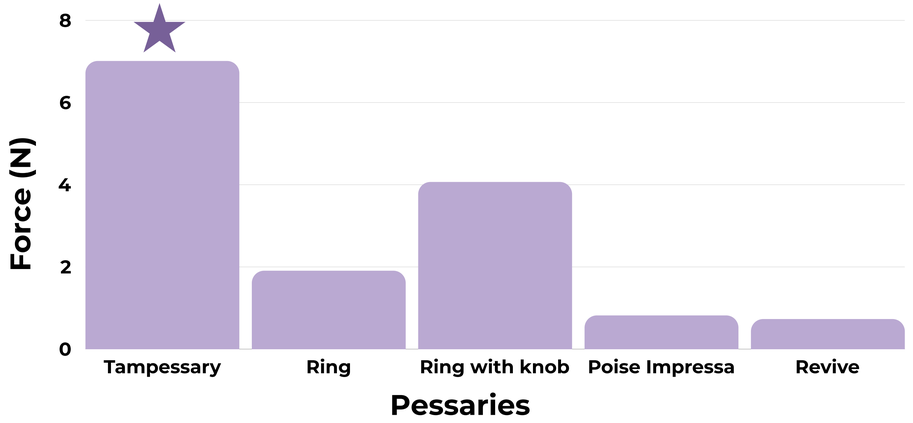
An over-the-counter orthotic device, the Tampessary, that provides support to the bladder neck and urethra to prevent involuntary leakage

Tampessary = Tampon + Pessary
Our device provides:

- Effective control of leakage
- Destigmatizing, tampon-like structure
- Easy insertion and removal
- Reusable
- Discreet
- Sanitary



COMPRESSION FORCE TESTING



Through benchtop testing, the **Tampessary** is able to provide greater support to the bladder neck and urethra, demonstrating greater effectiveness in preventing involuntary leakage.

NEXT STEPS

- Refine design and functionality
- Conduct patient studies
- File for provisional patent

1. Stress urinary incontinence (SUI). Urology Care Foundation. 2024. Accessed April 20, 2024. https://www.urologyhealth.org/urology-a-z/s/stress-urinary-incontinence-(sui).
2. Al-Shaikh G, Sadiqa S, Somaia O. et al. Pessary use in stress urinary incontinence: A review of advantages, complications, patient satisfaction, and quality of life." Int J Womens Health. 2018;10: 195–201. https://doi.org/10.2147/IJWH.S152616.