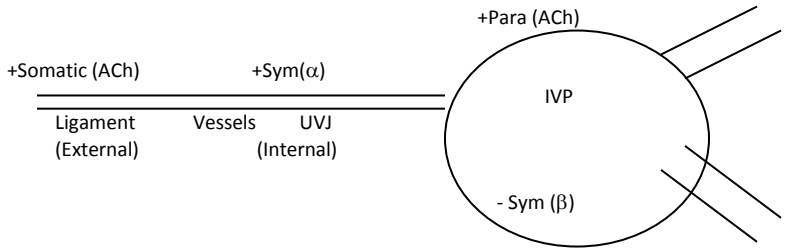
Urinary Incontinence

- Bladder joins urethra at UrethroVesicle Junction (UVJ) aka Internal Sphincter
- Urethra is suspended by pubourethral ligaments from pubic bone to middle 1/3 of urethra forming the External Sphincter
- It's always about IntraVesicle Pressure (IVP) vs.IntraUrethral Pressure (IUP)
- Urethra submucosa is made of estrogen sensitive vessels such that E dilates vessels allowing them to be engorged & effectively narrow intraurethral lumen increasing IUP
- internal sphincter contraction (1°) + external sphincter contraction (2°) + "mucosal coaptation" (2°) = IUP>IVP = continence
- Sym NS (T10-L2) = contracts UVJ (alpha) and relaxes bladder (beta) = prevents micturition
- Para NS (S2-S4) = contracts detrusor (ACh) = allows micturition
- Somatic NS (Pudendnal N.) = controls External Sphincter + Pelvic Floor = controls micturition
- Check bulbocarvenosal tone (contraction of anal spincter with compression of glans/clitoris or with erection or indwelling catheter)
- You don't want to pee when being chased by a tiger



	Increased Expulsive Forces	Decreased Retentive Forces		Other
	Urge aka Overactive	**Stress**	**Overflow aka Retention**	**Total Incontinence**
Mech	• detrusor over-activity 2/2 Irritants (UTI, foreign body, tumor, caffeine, alcohol), Neuro (CVA, DM, MS, Parkinsons, Dementia)	• relaxed pelvic floor dysfxn leading to involuntary urine release 2/2 normal atrophic changes from aging and estrogen deficiency, high parity esp w/ traumatic delivery, pelvic surgery, obesity, pelvic nerve injury, pregnancy	• detrusor under-activity 2/2 Meds (alpha antagonists, beta agonists, CCB, anticholinergics esp antidepressants and antihistamines, narcotics) Neuro (CVA, DM, MS, Parkinsons, Dementia) • decreased bladder compliance 2/2 radiation fibrosis, extrinsic pelvic disease, BPH, etc	• Obstetric Trauma from prolonged stage 2 or use of forceps (1° developing countries), Pelvic Radiation / Surgery (1° US), Diverticula → VesicoVaginal Fistula / UrethroVaginal Fistula / UreteroVaginal Fistula → loss of urine through vagina
S/S	• urgency/frequency/nocturia	• involuntary release esp from sneezing, coughing, exertion, laughing • often there are cysto-/urethro-/recto-/enteroceles • pts often have other S/S of dyspareunia, dyschezia, pelvic pressure	• bladder fills and then overflows therefore not increased urgency/frequency rather you just go infrequently but w/o control	
Tx	• Bladder Training w/ Biofeedback (consistent fluid intake, schedule voiding more frequently and more consistently, etc) • Electrical Stimulation (probe is inserted into vagina and provides electrical stimulation) • Anticholinergics: start w/ oxybutynin (Ditropan XL) b/c cheapest but most anticholinergic SEs (esp dry mouth, constipation, lethargy) then try tolterodine (Detrol LA), darifenacin (Enablex) then oxybutynin patch (Oxytrol) b/c most expensive but	• Bladder Training w/ Biofeedback • Kegel Exercises w/ Biofeedback to help women confirm that the muscles they are contracting are the right ones • Estrogen Creams • Pressaries (support device inserted into vagina that replaces lost structural support) • Electrical Stimulation • Surgery: Colposuspension, Periurethral Injections, Suburethral Sling, etc	• Bladder Training w/ Biofeedback • Stop suspecting meds or change dosing	• Surgery

	least anticholinergic SEs • Antispasmodics: flavoxate (Urispas) • ?: imipramine (Tofranil)