

Pelvic Floor Integrity

for

Movement Freedom & Longevity



Patricia A. VanGalen, M.S.
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Outline

- I. The Front Line
- II. Role in Movement Freedom & Robust Aging
 - Facts, Stats & Implications
 - Where does this fit into Coaching-Training?
- III. The Chicken or the Egg? Hmmmm
- IV. Across the Lifespan: Transitions
- V. Pelvic Floor Dysfunction / Disorders
 - Hypotonic (low-tone) and Hypertonic (high-tone)
 - Risk Factors
- VI. Prevention & Pre-Emption
- VII. Role of Uro-Gyno Physical / Physio Therapist
- VIII. Treatments & Surgical Options
- IX. Summary



Template | Reference Slide

I. The Front Line



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ROBUST Aging

=

Adaptability + Resilience + Durability

Hardiness

not frailty, fragility & fractures

Life span

Health span

Functional Independence?

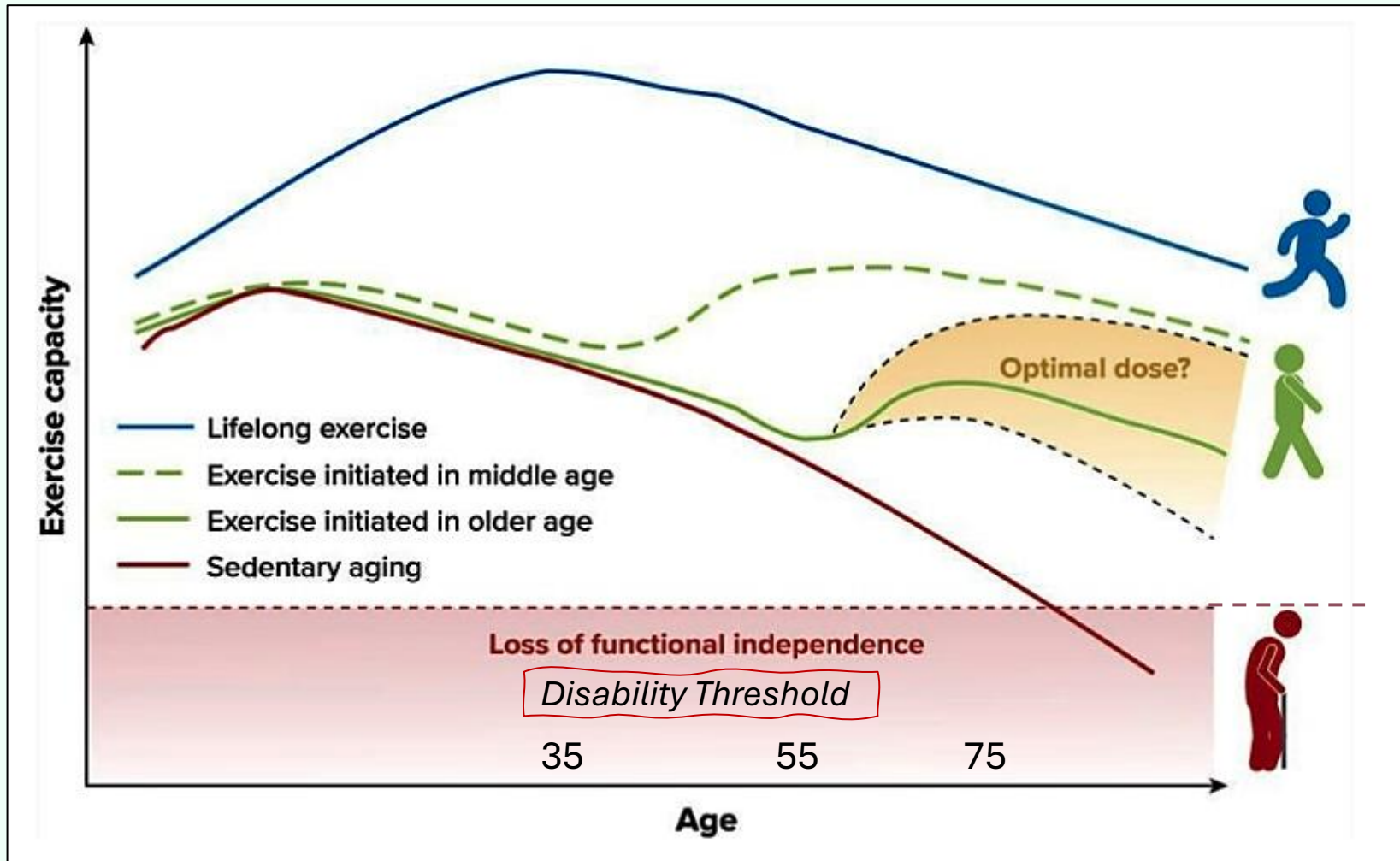
Brain span

Strength span

Play span

Reserve
Capacity

Overall
Robustness



The earlier one develops the exercise habit, the greater the odds of living independently into old age, as evidenced in this evidence-based schematic.

CREDIT: G. Carrick-Ranson et al / AR Medicine 2022.

On-Boarding

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Clinical / Research Questionnaires

Pelvic Floor Distress Inventory short-form (PFDI-20)

Australian Pelvic Floor Questionnaire

Pelvic Organ Prolapse/Urinary Incontinence Sexual Questionnaire-IUGA-Revised (PISQ-IR)

Create your own Intake Form

- specific movements that trigger incontinence issues
- enjoyable activities no longer do and want to do again

Get after the Pre-

- Frailty
- Penias
- Early Mobility Dis
- HTN
- OW
- Dyslipidemia
- Diabetes
- MetSyn
- +++

‘Nip in the bud’



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Bridging the Gap: a 2-way Street



- *UroGyn Physical Therapist*
- OB/GYN Teams
- URO-Gyn Teams
- Primary Care / Internist Teams
- Family Practice Teams
- Geriatricians
- Cardiac Rehab Phase II-III
- Clinical Exercise Physiologists
- Occupational Therapist
- Massage Therapist
- Performance Coaches
- Mental Health
- Dietitians
- Pharmacists
- Chiropractors
- Podiatrists
- Complementary/Alternative
/Integrative HCPs
- Cardiologists + Pulmonologists
- Dentists / Optometrists
- ++++++



Walk-Ins

in need of primary care

Members / Clients
requiring care/services

Patients

Ready + willing

Aging Well for Longer
w/ purpose, meaning
and relevance

FREEDOM to
live, labor, care-give,
play and compete,
for ALAP.

Live long, die short!

The Health-Brain-
Strength+Play spans +
Movement Longevity

Referring providers need to know that we

- **‘Know our stuff’**
- **DO NO Harm**
- **We get results**

Remember, they see sick and/or injured people DAILY, and hear too many accounts of health-fitness gone wrong. We CAN change this!

Incidence / Prevalence

- Epidemiologic studies indicate that approximately one in three to four (25%–37%) *community-dwelling women* are affected by PFDs, with the highest rates in menopausal women.
- The overall prevalence increases with age from 6% in young women between 20 and 29 years,
- to 32% between 50 and 59 years,
- to 53% in older women aged 80+ years.

The mysteries of menopause and urogynecologic health: clinical and scientific gaps. Marianna Alperin et al. *Menopause*. 2019 January; 26(1): 103–111.

Prevalence of Pelvic Floor Dysfunction [PFD] in the General Population and in Athletes

Sports Medicine and the Pelvic Floor. Gráinne M. Donnelly, PT, et al. *Current Sports Medicine Reports [ACSM]*; 22(3) March 2023.

- PFD can present in adolescence, nulliparous adult athletes and males.
- However, it is most associated with transitional periods during the female lifespan, such as *pregnancy* and *menopause* in which the prevalence has been demonstrated to be as high as 32% and 59%, respectively.
- in female athlete populations, it ranges from 23% to 80% depending on the symptoms explored.
- Approximately 50% of female *powerlifters* and *Olympic weightlifters* have urinary incontinence, 80% have anal incontinence, 23% have pelvic organ prolapse.
- Urinary incontinence has been more widely researched, with prevalence rates for several sports reported, such as 32% in rhythmic gymnastics and 76% in volleyball.

Pelvic Floor

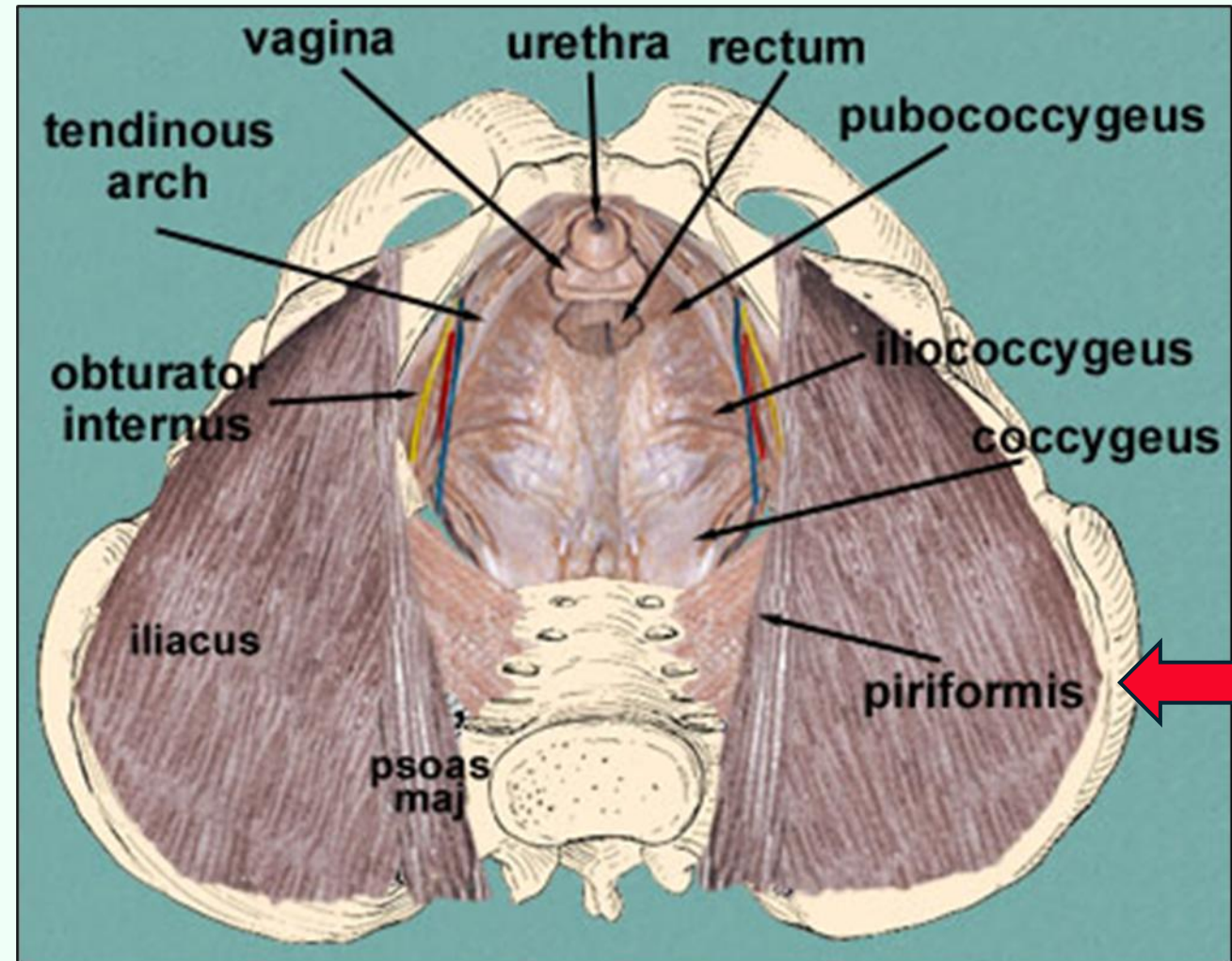
- refers to the compound structure which *closes the bony pelvic outlet*
 - Top layer – peritoneum [membrane] of pelvic viscera; supports ovaries and fallopian tubes
 - Middle layer – predominantly *muscular* tissue
 - Levator ani*, striated urogenital sphincter, external anal sphincter, ischiocavernosus, bulbospongiosus
 - fibro-muscular and fibrous tissues [Endo-pelvic fascia] - Passive
 - Bottom layer – skin

* broad, thin muscle group, situated on either side of the pelvis;
formed from three muscle components: the pubococcygeus, the iliococcygeus, and the puborectalis.

Female Pelvic Floor Muscles [PFMs]



- Support the pelvic organs
- Seal off the lower cavity



**Table 1.**

The pelvic diaphragm and beyond — anatomic origins, insertions, innervation, and function of the comprising pelvic floor muscles.

Muscle	Origin	Insertion	Innervation	Function
Pubococcygeus	Posterior pubic bone and ATFA	Anococcygeal ligament and coccyx	S3 to S5, direct innervation from sacral nerve roots	Forms part of the levator ani group and maintains <u>pelvic floor tone in upright position</u>
Iliococcygeus	Ischial spine and ATFA	Anococcygeal raphe and coccyx	S3–4	Forms part of the levator ani group and <u>voluntary control of urination</u>
Puborectalis	Pubic symphysis	Pubic symphysis	S3–4	Forms part of the levator ani group and <u>raises the pelvic floor</u>
Coccygeus	Ischial spine	Lower sacral and upper coccygeal bones	S4–5	Reinforces the posterior pelvic floor and support of fetal head
Piriformis	Anterior sacrum	Posterior-surface of greater trochanter	L5, S1 to S2 via nerve to piriformis	Lateral rotation, abduction of thigh, and retroversion of pelvis
Obturator Internus	Pelvic surface of ilium, ischium, and obturator membrane	Posterior surface of greater trochanter	L5, S1 to S2 via nerve to obturator internus	Lateral rotator of thigh

ATFA, arcus tendinous fascia pelvis.

Sports Medicine and the Pelvic Floor. Gráinne M. Donnelly, PT, et al. *Current Sports Medicine Reports [ACSM]*; 22(3) March 2023.

Ramifications

- Quality of life
 - Social + emotional + psychological + sexual + occupational
- DAILY hygiene / care / concerns
- Barrier to exercise and PA
 - the beginning of 'downward spiral' towards the Disability Threshold
- Mobility disability – ADLs [Activities of Daily Living]
IADLs [Instrumental ADLs] – thriving in place
- Increased Fall Risk
- Nursing home admissions



To date, a significant body of knowledge has accumulated, consistently demonstrating the detrimental *quality of life* effect of these common conditions.

Astoundingly, *69% of hospitalized patients* with serious illnesses who were asked to evaluate different health states as compared with death,
... considered urinary and fecal incontinence “same or worse than death”, which was higher than the number of people who rated “relying on a ventilator to survive.”

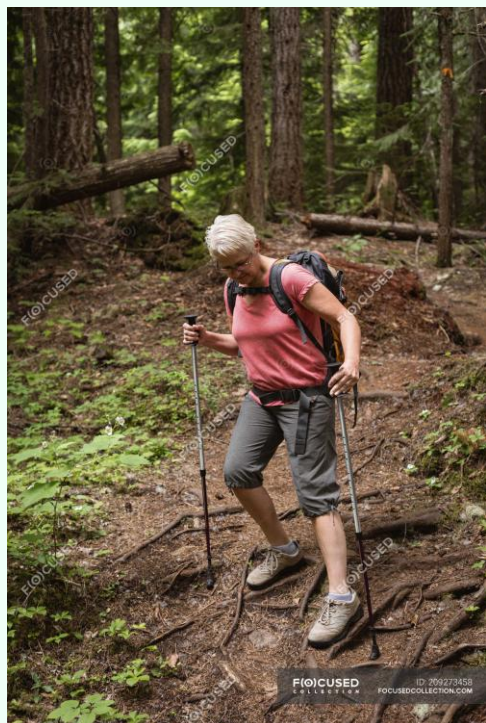
Rubin EB, Buehler AE, Halpern SD. States worse than death among hospitalized patients with serious illnesses. *JAMA Intern Med* 2016;176:1557–1559.

The mysteries of menopause and urogynecologic health: clinical and scientific gaps. Marianna Alperin et al. *Menopause*. 2019 January; 26(1): 103–111.

Economic Impact



- Aggregate cost for men and women in 1995
 - \$26.3 billion – ¼ borne by patients themselves
 - Including diagnostic testing, medical and surgical therapy, meds, routine care, hospitalization, skin irritation, related infections, falls, and other factors
- Annual direct costs of UI in women
 - \$12.4 billion
 - 70% of all costs for routine care



"I am only as 'free'
as the environment
I can move in,
with competence
and confidence"

Pat VanGalen, M.S.
Changing the *way*, and the *pace*,
at which we age.





Functional Training is ...

Investing in our *reserve capacity*, our *robustness*...

So that the 'seasoned' client or athlete CAN

- Live, Labor, Play, Care-give & Compete ...
- At their desired level (competence) and intensity (capacity) ...
 - With confidence and automaticity ...
 - Within their *chosen environments* and in *emergency* situations,
- While adding *purpose* to 'living life' and enhancing all aspects of health and well-being, that is QOL, despite the curveballs that will strike,
- for ALAP.

The 7S Training Buckets ...

in *Functional* Training for Robustness

The Freedom Buckets

1. Spirit
2. Suppleness & Stability
3. Gait Speed w/ Sprint-like Mechanics
4. Strength & Power
5. Skills: ABC-PRS
6. Stamina – Spurts [HIIT + SIT] & Steady
7. Specificity & Specifics

S's = Simple
not EASY!

Bucket #2



Suppleness & Stability: The Movement Integrity Bucket
The Baby Bucket & The Ground Game

Bucket #2



Freedom to ...

- MOVE, to get in to, and out of a wide variety of positions
- TRANSFER from position-to-position, task-to-task
- LIVE and THRIVE where I choose, for ALAP
- Restore & refill Buckets #3, #4, #5, #6

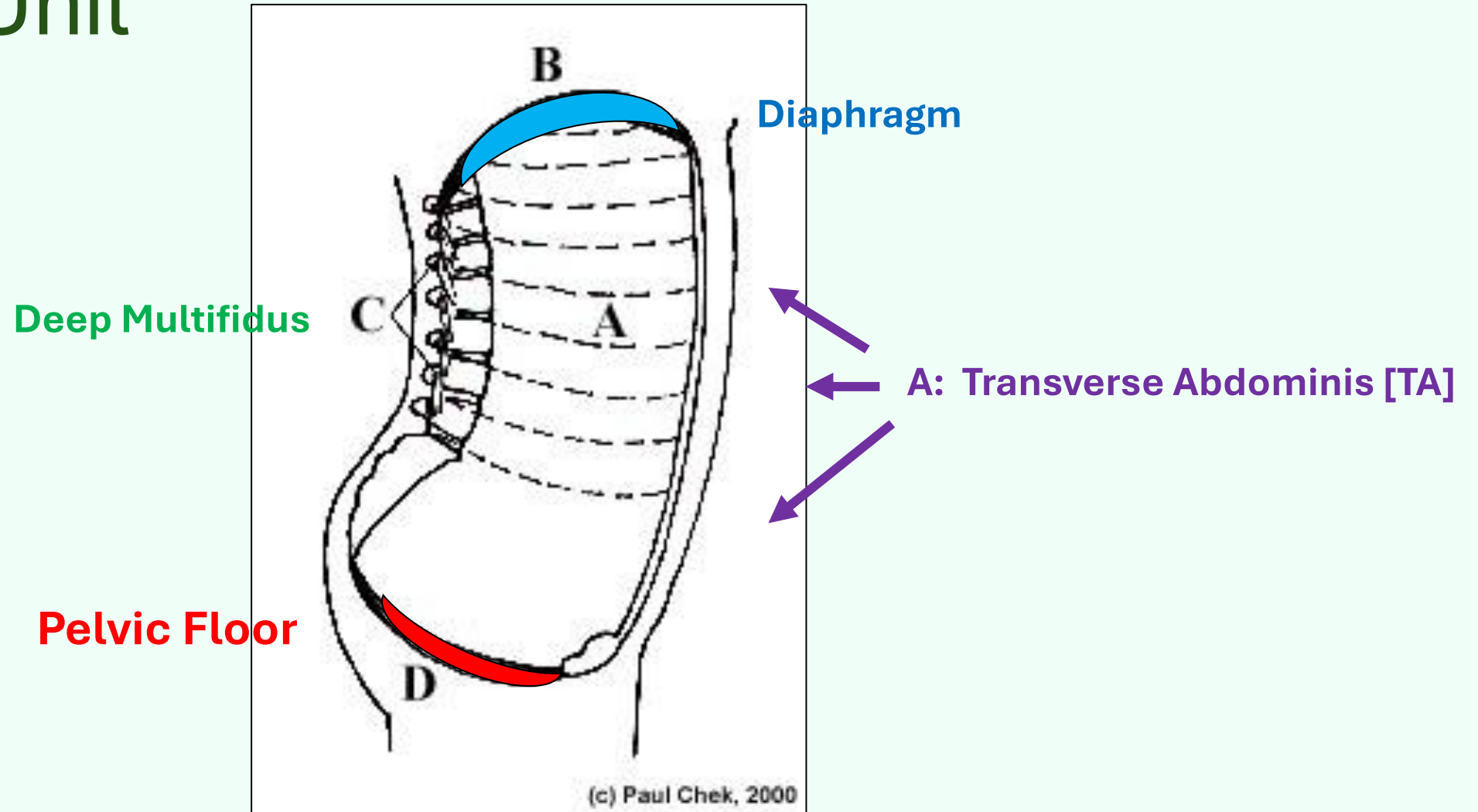
Bucket #2



The Antithesis to ...

- The Tin Man, Scarecrow or dysfunctional blend of both
- Early Mobility Disability
- Pelvic Floor Dysfunction
- A shrinking movement sphere [Proprioceptive-Somato-Sensory Deadsville]

Inner Unit

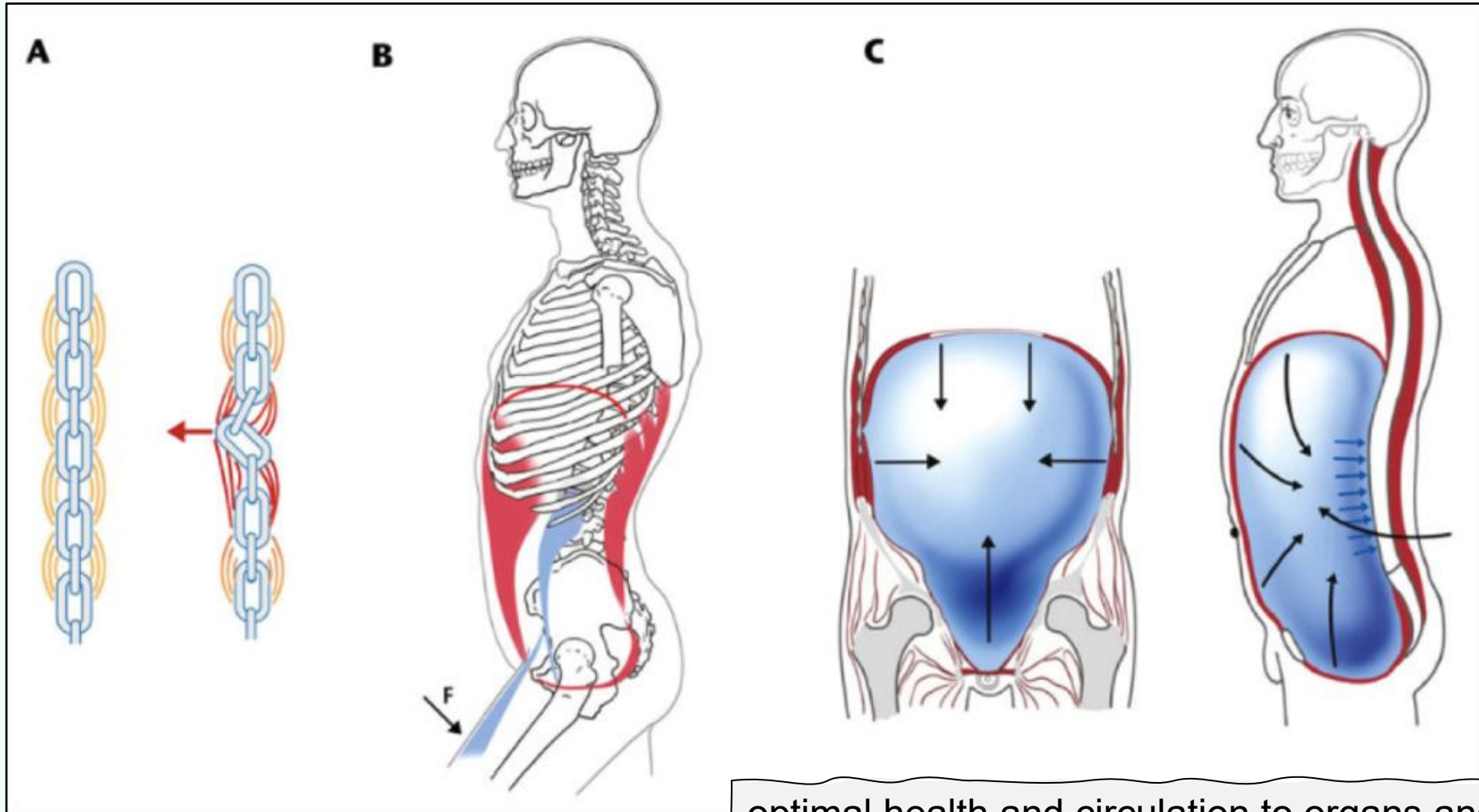


Proximal Stability

Alignment

Breathing

Motor Control



optimal health and circulation to organs and systems
and optimal movement.

Dynamic Neuromuscular Stabilization

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How your **foot** affects your pelvic floor



hip joint

Biomechanical changes from the ground up



Connection in brain mapping of motor and sensation - the genitals and foot are mapped next to each other



Fascial connections from the foot to the spine

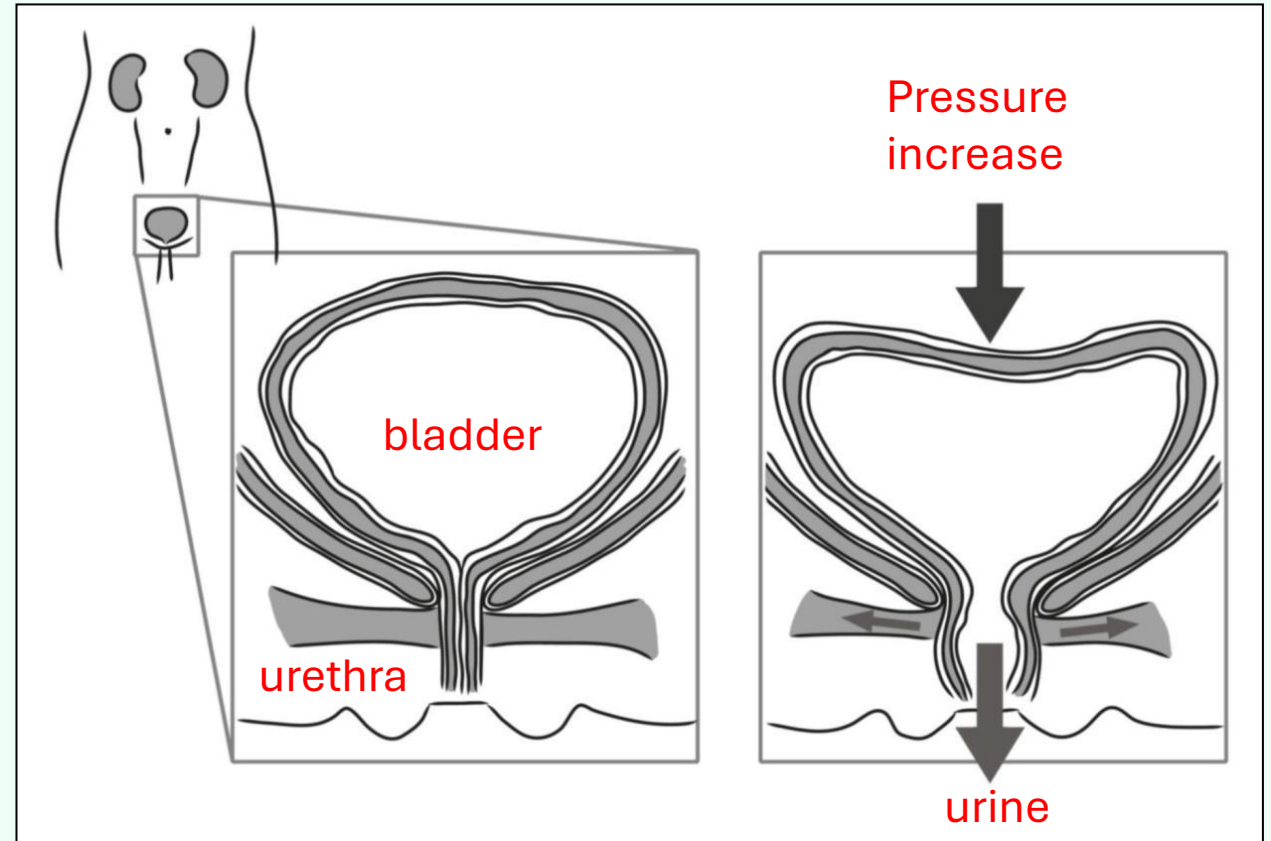


Both are shock absorbers, load transfer

@pelvichealth

Stress Urinary Incontinence – CAN be a ‘pressure management’ dysfunction

- Urinary leaking with coughing, sneezing, exercise
- Most common form of UI
- With an increase in intra-abdominal pressure [IAP], the *PFM, abdominals and deep multifidus do NOT co-activate.*



Incontinence due to exercise

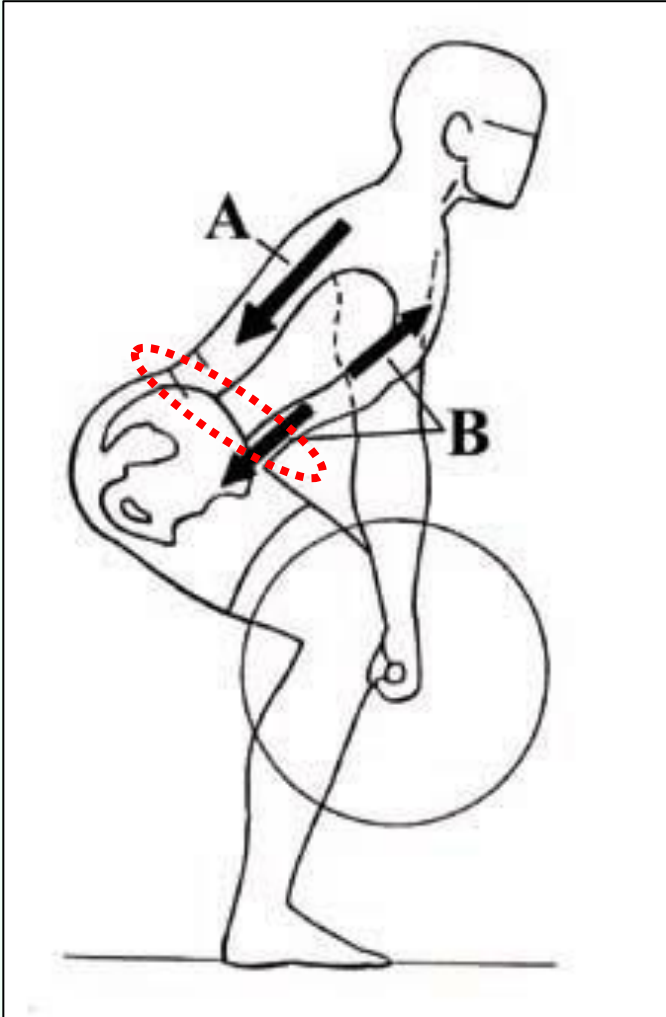


Goldstick, O. & Constantini, N. (2014). **Urinary incontinence in physically active women and female athletes.** *Br J Sports Med*, 48(4), 296-298.

Mary Marshall, PT, DPT, OCS, CSCS

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IAP [Intra-Abdominal Pressure]



To stabilize [fixate, stiffen] the axial skeleton + minimize lower lumbar compression..

TA & IO [post. fibers] draw umbilicus inward....

Hoop tension: Viscera pushed **up** into diaphragm & **down** into pelvic floor

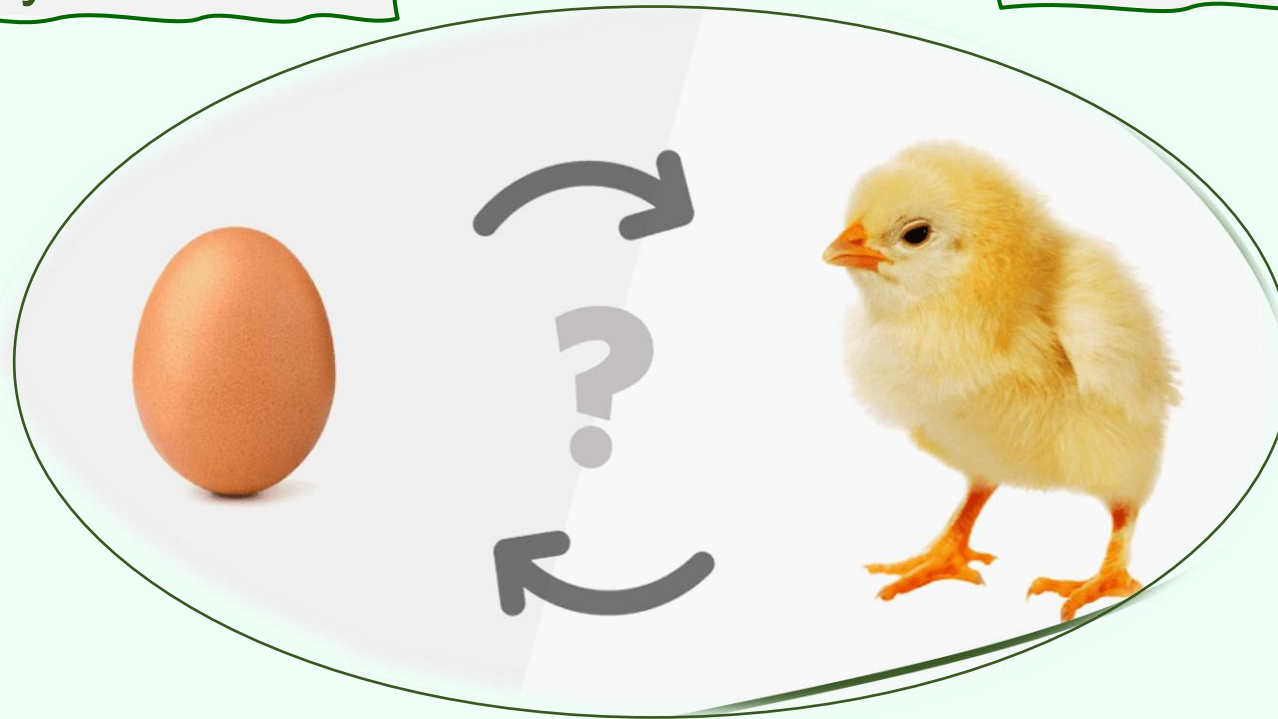
Innate breath-holding increases tension in diaphragm; may unload L4-5 by as much as 40%.

III. The Chicken or the Egg? Hmmmm

... A bidirectional relationship

Sarco-Dyna-Power-Osteo penias
Pre-Frailty

Pelvic Floor Dysfunction



Pelvic Floor Dysfunction

Sarco-Dyna-Power-Osteo penias
Pre-Frailty

Table 1. Summary of main findings on the bidirectional relationship between sarcopenia and pelvic floor disorders [PFDs].

Category	Main Findings	Details
Bidirectional Relationship between Sarcopenia and PFDs	<i>Sarcopenia's Impact on PFDs</i>	- Sarcopenia contributes to the <i>'initiation'</i> of PFDs, exacerbates their severity, and complicates recovery efforts through mechanisms such <u>as decreased muscle strength and reduced force-generating capacity</u> in the PFM. - Reduced <u>muscle mass and quality</u> (power, fiber-type ratio, fiber-connective tissue architecture, metabolic efficiency) increase the risk of SUI, UUI, and POP. - Sarcopenia-associated muscle deterioration, including a decreased <u>cross-sectional area</u> and increased <u>fibrosis of type II muscle fibers</u>, are critical factors in these conditions.

SUI Stress Urinary Incontinence
 UUI Urge Urinary Incontinence
 POP Pelvic Organ Prolapse

Grosman, Y.; Kalichman, L. Bidirectional Relationships between Sarcopenia and Pelvic Floor Disorders. *Int. J. Environ. Res. Public Health* 2024, 21, 879. <https://doi.org/10.3390/ijerph21070879>



Table 1. (cont.) Summary of main findings on the *bidirectional* relationship between sarcopenia and pelvic floor disorders.

Category	Main Findings	Details
Bidirectional Relationship between Sarcopenia and PFDs	<i>PFD's Impact on Sarcopenia</i>	• PFDs lead to reduced physical activity due to discomfort and a <i>fear</i> of incontinence, which accelerates sarcopenia progression. • UI and FI contribute to declines in physical performance and muscle strength. • The reduction in physical activity associated with PFDs inhibits the maintenance of muscle mass and quality, further exacerbating sarcopenia.

UI Urinary Incontinence
FI Fecal Incontinence



Table 1. (cont.) Summary of main findings on the bidirectional relationship between sarcopenia and pelvic floor disorders.

Category	Main Findings	Details
Mechanisms of Interaction	<i>Muscle Deterioration</i>	- The age-related deterioration of the <u>levator ani muscle group and sphincter muscles</u> parallels sarcopenia. - The decrease in the muscle <u>cross-sectional area</u> and increased <u>fibrosis</u> affect both the pelvic floor integrity and overall muscle function.
	<i>Muscle Fiber Changes</i>	A reduction in <u>type II muscle fibers</u> in PFM and skeletal muscles is a common pathway contributing to PFDs.
	<i>Neural Control [as measured by EMG-nerve conduction]</i>	Decreased <u>motor unit firing rates</u> and increased MUAP [<u>motor unit action potential</u>] <u>amplitudes</u> in PFM mirror the changes seen in sarcopenia, contributing to PFDs.



Table 1. (cont.) Summary of main findings on the bidirectional relationship between sarcopenia and pelvic floor disorders.

Category	Main Findings	Details
Shared Risk Factors	<i>Physical INactivity</i>	- Physical <u>INactivity</u> leads to the deterioration of skeletal and PFM, contributing to a cyclical relationship between sarcopenia and PFDs. - This cycle results in an increased risk <u>of both conditions</u>, which further discourages physical activity, exacerbating the progression of sarcopenia and PFDs.
	<i>Nutritional Deficiencies</i>	Deficiencies in protein, vitamin D, and minerals directly affect both skeletal muscle and pelvic floor integrity.



Table 1. (cont.) Summary of main findings on the bidirectional relationship between sarcopenia and pelvic floor disorders.

Category	Main Findings	Details
Shared Risk Factors	Metabolic Syndrome	- MetSyn* accelerates muscle degradation through <u>insulin resistance and chronic inflammation</u>, contributing to both sarcopenia and PFDs. <u>Obesity-related pressures</u> and altered <u>adipokine profiles</u>* further weaken the PFM and connective tissues, increasing the risk of these conditions.

* MetSyn - A cluster of 3 of 5 Risk Factors: Hyperglycemia / Meds | HTN/Meds | Visceral Fat (WHR) | Dyslipidemia (low HDL + high TGs)/Meds | Other

* fat cell signaling molecules; regulate metabolism, inflammation, immune response, etc.



Table 1. (cont.) Summary of main findings on the *bidirectional* relationship between sarcopenia and pelvic floor disorders.

Category	Main Findings	Details
Shared Risk Factors	<i>Menopausal Hormonal Changes</i>	- There are indications that estrogen deficiency during menopause may affect <i>muscle protein synthesis</i>, <i>mitochondrial function</i>, and <i>inflammatory responses</i>, contributing to sarcopenia. - Estrogen depletion <i>may weaken the pelvic tissue</i>, increasing the susceptibility to PFDs such as UI and POP. - However, much of the research is based on in vitro studies, highlighting the need for <i>further clinical research</i> to confirm these findings.



Table 2. Summary: practical implications for management of sarcopenia and PFDs.

Implication	Description
Integrated Screening and Management	Implement integrated screening protocols in clinical practice to concurrently address sarcopenia and PFDs, recognizing their bidirectional and cyclical relationships and any underlying conditions. Screen
Comprehensive, Inter-Disciplinary Care	Foster interdisciplinary collaboration among <i>geriatricians</i>, urogynecologists, physical therapists, nutritionists, and psychologists to provide holistic and comprehensive care plans that enhance patient outcomes by addressing the <i>interconnectedness</i> of skeletal muscle integrity, PFDs, and overall health. Network



Table 2. Summary: practical implications for management of sarcopenia and PFDs.

Implication	Description	Physical-Physio-therapist
Tailored Rehabilitation Programs Resistance Training	- Develop personalized rehabilitation programs that specifically address the <u>unique needs of patients with sarcopenia and PFDs</u>, ensuring comprehensive care that covers all aspects of <u>both</u> conditions. - Incorporate resistance training into rehabilitation programs to maintain muscle mass, muscle strength, and pelvic floor integrity. - This includes <u>specific, safe and effective exercises for both</u> conditions, such as those that enhance overall muscle strength while also targeting the pelvic floor muscles. - Recommendations include progressive resistance training and the inclusion of pelvic floor muscle exercises to improve outcomes without exacerbating PFD symptoms.	Thread-Incorporate



IV. Across the Lifespan: Transitions

What am I
bringing
to my
30s, 40s, 50s, 60s +++?

When did I
start
investing?

The Transitions

- Puberty
- Pre-Peri-Post-**Natal**
- **Pre**-Peri-Menopause
- Peri-Menopause
- Menopause
- Post-Menopause
- 60 ++++++

*Dodge
&
Delay
Sarco penia
Osteo penia
Dyna penia!*

*Fight
Frailty,
Fragility
&
Fractures
with a
Vengeance!*

TABLE 1 The Stages of Reproductive Aging Workshop [STRAW] +10 staging system for reproductive aging in women

Body composition and cardiometabolic health across the menopause transition.

Marlatt KL, Pitynski-Miller DR, Gavin KM, et al.

Obesity
(Silver Spring).
2022;30:14–27.

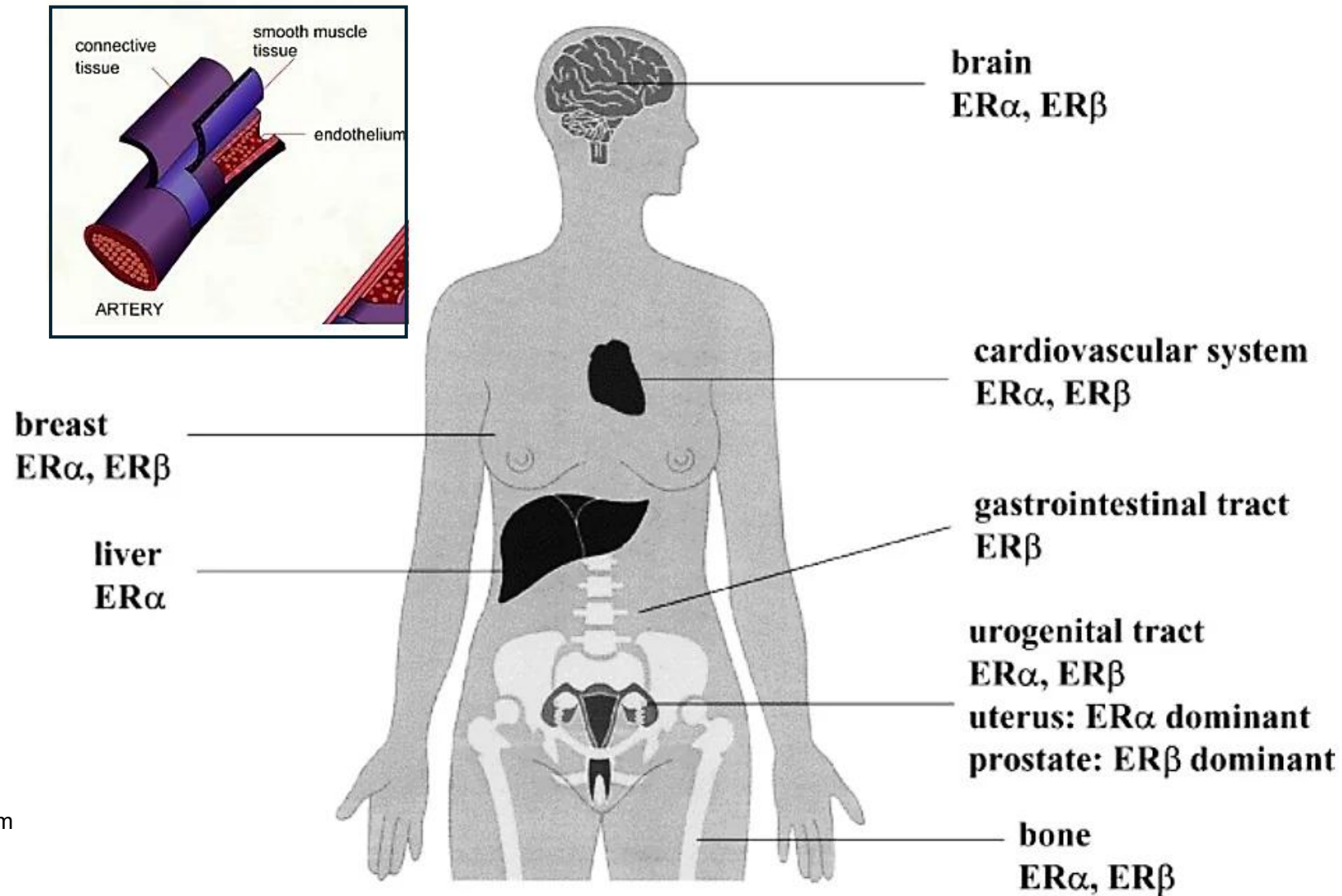
<https://doi.org/10.1002/oby.23289>

Menarche					FMP (0)					
Stage	-5	-4	-3b	-3a	-2	-1	+1a	+1b	+1c	+2
Terminology	REPRODUCTIVE				MENOPAUSAL TRANSITION		POSTMENOPAUSE			
	Early	Peak	Late		Early	Late	Early		Late	
					Perimenopause					
Duration	variable				variable	1-3 years	2 years (1+1)		3-6 years	Remaining lifespan
PRINCIPAL CRITERIA										
Menstrual Cycle	Variable to regular	Regular	Regular	Subtle changes in Flow/ Length	Variable Length: Persistent ≥7-day difference in length of consecutive cycles	Interval of amenorrhea of ≥60 days				
SUPPORTIVE CRITERIA										
Endocrine FSH AMH Inhibin B			Low Low	Variable * Low Low	↑ Variable * Low Low	↑ >25 IU/L ** Low Low	↑ Variable * Low Low	Stabilizes Very Low Very Low		
Antral Follicle Count			Low	Low	Low	Low	Very Low	Very Low		
DESCRIPTIVE CHARACTERISTICS										
Symptoms						Vasomotor symptoms Likely	Vasomotor symptoms Most Likely		Increasing symptoms of urogenital atrophy	

This table was adapted with permission from the previously published STRAW+10 staging guidelines (11).
Abbreviations: AMH, anti-Müllerian hormone; FMP, final menstrual period; FSH, follicle-stimulating hormone.
↑ = elevated.
*Blood draws during early follicular phase (cycle days 2-5).
**Approximate expected concentration based on assays using current international pituitary standard.

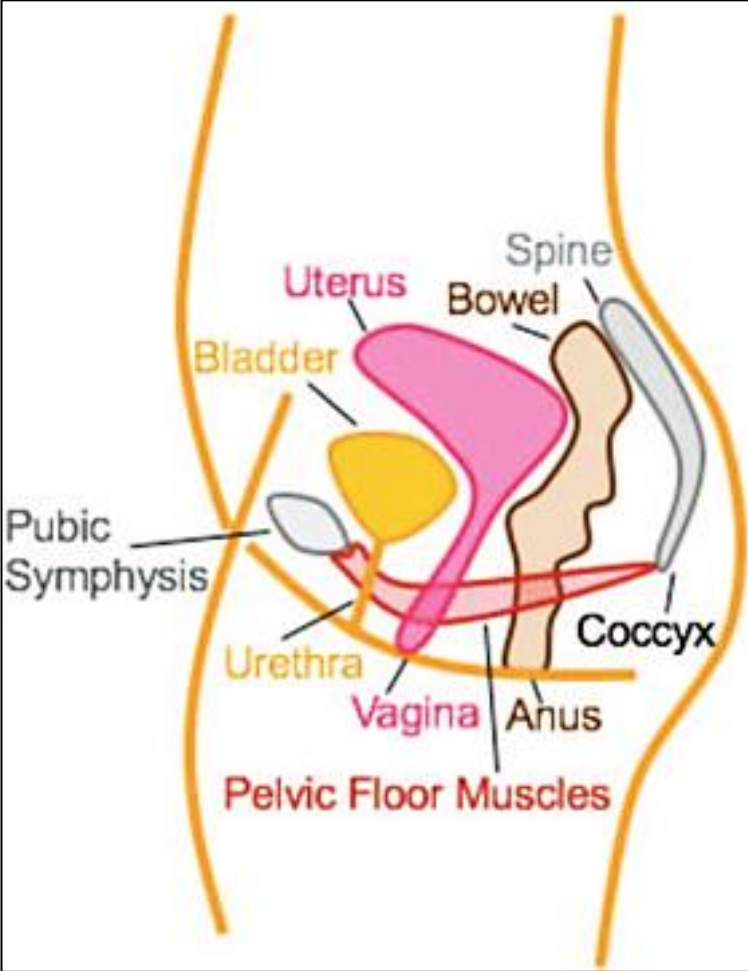


Estrogen Receptor Distribution Within the Body



Location of estrogen receptors [Er] in the female pelvic organs and soft tissues. Menopause. 2019 Jan;26(1):103–111. doi: [10.1097/GME.0000000000001209](https://doi.org/10.1097/GME.0000000000001209)

Fig. 1



System	Tissues	Expressed ERs
Reproductive	Uterus, Vagina	<u>ERα</u> , <u>ERβ</u> , GPER
Urinary	Bladder, Urethra	<u>Erβ</u>
Gastrointestinal	Bowel, External Anal Sphincter	<u>ERα</u> , <u>ERβ</u>
Musculoskeletal	Pelvic Floor Muscles, Uterosacral Ligaments	<u>ERα</u> , <u>ERβ</u>



Table 1
Resources and Recommendations for health and fitness professionals:

Menstrual Cycle and Hormone Changes

Table 1 Resources and recommendations for health and fitness professionals—menstrual cycle and hormone changes				
	Adolescent	Pregnant	Postpartum	Master
Screening recommendations (topics to be included)	Screen for age at menarche Screen for regularity/average cycle length	Screen for awareness of contraindications to exercise Inquire about insulin sensitivity	Screen for readiness to return to sport [see references (37–39)] Screen for successful lactation if chosen [see references (37–39)]	Screen for menstrual irregularities (perimenopause) and cessation of menstrual cycle (menopause) Screen for vasomotor symptoms, decreased quality of sleep, vaginal dryness, adverse mood, migraine headaches, reduced concentration, and slower mental performance
Considerations	Normalize discussions to reduce embarrassment and promote self-awareness Education about breast development	Educate about altered perceived difficulty because of changes in metabolism Intensity may need to be modified	Awareness of potential transient decrease in bone mineral density Levels of estrogen, progesterone, and relaxin may be increased compared with prepregnancy	Environment changes to manage vasomotor symptoms Mode of exercise Recovery time between workouts might need to increase Important to add mobility and strength to training schedule
	Education about the menstrual cycle for both athletes and professionals			
	Premenstrual symptoms and potential workout modification if needed (fluid retention, weight gain, mood and behavior changes, pain, fatigue, impaired sleep quantity and quality, breast soreness, and headaches)			
	Cycle and symptom tracking using tracking applications or fitness trackers			
Referral recommendations	Physician evaluation if menarche doesn't occur by 15 y/within 3 y of breast development Physician evaluation if significant irregularity in cycle or severe premenstrual and/or menstrual symptoms	Refer to supervising practitioner if athlete presents with vaginal bleeding, abdominal pain, regular painful contractions, muscle weakness affecting balance, amniotic fluid leakage, dyspnea before exertion, dizziness, headache, chest pain, and calf pain or swelling	Refer to specific professionals if an athlete has the inability to successfully return to sport. Note this may be a variety of different providers based on need (mental health, bone health, lactation issues, etc.)	Physician evaluation if there is an inability to participate in sports because of symptoms or health (repeated musculoskeletal injuries)

Leveling the Playing Field: Key Considerations for the Female Endurance Athlete Across the Lifespan.

Christopher, Shefali M. et al.
NSCA | www.nsca-scj.com | 2025



Table 4

Resources and Recommendations for health and fitness professionals:

Pelvic Floor Health

50's-80's

Table 4 Resources and recommendations for health and fitness professionals—pelvic floor health				
	Adolescent/ nulliparous adult	Pregnant	Postpartum	Master
Screening recommendations (topics and forms that should be on intake)	Need to be screened because of the risk of developing incontinence Pain could be related especially pelvic pain	Always screen with this population	Always screen with this population (no matter mode of delivery)	More susceptible to urinary tract infections, pelvic pain, dyspareunia, and urinary incontinence
	Pelvic Floor Distress Inventory short-form (PFDI-20)			
	Australian Pelvic Floor Questionnaire			
	Pelvic Organ Prolapse/Urinary Incontinence Sexual Questionnaire-IUGA-Revised (PISQ-IR)			
Considerations	Relation between eating disorders and urinary incontinence Relation between low energy availability and incontinence	Pelvic floor training can prevent development of incontinence	No association between physical activity after childbirth and pelvic floor disorders No association between when running was initiated in the postpartum period and urinary incontinence symptoms	Frequent association of pelvic floor disorders with aging
	Females are under informed about pelvic floor dysfunction			
	Females under report/do not disclose symptoms—create a comfortable and safe environment			
Referral recommendations			Return to sport after childbirth should be individualized and based on previous training history, current cardiorespiratory and musculoskeletal capacity, musculoskeletal symptoms (such as pain or pelvic floor dysfunction), and the individual's goals [see references (37–39)]	
	Refer symptomatic female athletes to appropriate health care providers, such as a pelvic health physiotherapist, gynecologist, and/or urogynecologist			

Leveling the Playing Field: Key Considerations for the Female Endurance Athlete Across the Lifespan.
Christopher, Shefali M. et al.
NSCA | www.nsca-scj.com | 2025



Table 5 Resources and Recommendations for health and fitness professionals: **Resistance Training**

Table 5 Resources and recommendations for health and fitness professionals—resistance training				
	Adolescent	Pregnant	Postpartum	Master
Screening recommendations (topics and questions that should be on intake)		Screen for symptoms restricting exercise in pregnancy (pain, body mechanics, etc.)	Questions about pregnancy and exercise Questions about medical complications Questions about delivery type	
Is resistance training part of the current training program?				
Considerations	RT is safe to perform	Elite athletes have successfully continued training and competing during pregnancy	Early postpartum recovery often centers around pelvic floor muscle training, particularly after vaginal birth, and core strengthening	Physiological aging (i.e., loss of muscular strength and power, preferential loss of type II muscle fibers, bone loss, etc.)
	Educate about the importance of RT	Exercise (both aerobic and RT) is safe and highly recommended	Reversing pregnancy-related deconditioning is a rehabilitation goal	RT may help to reduce vasomotor symptom frequency and aerobic training may reduce intensity of vasomotor symptoms
		At least 150 min a week can improve the mental and physical health of the mother	Screen for readiness to return	Muscular and tendinous injuries to the hamstrings, plantar flexors, and Achilles tendon are more common
		Higher fitness levels via a fitness index going into pregnancy have lower severity of musculoskeletal pain during pregnancy	Gradual progression and load monitoring with return	Strength program be at least 6 mo in length and progress slowly for tendon adaptation and training stimulus
	Resistance training should be a part of any endurance training program			
Referral recommendations	Dependent on issue, however, a health care professional such as a strength coach may be the first person to identify an issue (i.e., low energy availability referral to sports medicine physician and/or dietician)			
	May need a multidisciplinary team including a pelvic floor physical therapist			

50's-80's

Leveling the Playing Field: Key Considerations for the Female Endurance Athlete Across the Lifespan.
Christopher, Shefali M. et al.
NSCA | www.nsca-scj.com | 2025

V. Pelvic Floor Dysfunction / Disorders

Pelvic Floor Dysfunction [PFD]

“Pelvic floor dysfunction (PFD) is a collection of signs, symptoms and conditions affecting the pelvic floor and urinary continence, and UI is the most COMMON type of PFD.”

Cuttleton-Quinn, et al. Int Urogynecol J. 2022;33(10):2681-2711.

- Affects different organ functions

Table 1
Types of pelvic floor dysfunction in females

Pelvic floor dysfunction	Definition
Urinary incontinence	The complaint of any involuntary leakage of urine
Stress urinary incontinence	Leakage during physical exertion (sneeze, cough, laugh, and lift weights).
Athletic incontinence	Leakage during exercise
Urgency urinary incontinence	Leakage that occurs with an urge to void
Mixed urinary incontinence	Includes stress and urgency urinary incontinence
Fecal incontinence	Accidental loss of solid or liquid stools
Pelvic organ prolapse	Descent of the anterior vaginal wall (cystocele), posterior vaginal wall (rectocele), or apex of the vagina (uterine or vaginal vault prolapse) from the normal anatomical position
Pelvic pain	Chronic or persistent pain perceived in structures related to the pelvis
Sexual dysfunction	Encompasses a spectrum of symptoms including lack of sexual desire, lack of sexual pleasure, failure of genital response, orgasmic dysfunction, and pain during intercourse (dyspareunia)

Pelvic Floor Dysfunction in Female Athletes. TR Rebullido et al. Strength & Cond J [NSCA]; Vol 42 (4): August 2020.

TWO Basic Categories

1. Overactive [Hypertonic] **TENSE**

(pain, strain, hemorrhoids, UTI's, not-empty feeling, +++)

- PF muscles do NOT relax; require a 'relaxation' approach

2. Underactive [Hypotonic] **WEAK** (Incontinence, prolapse)

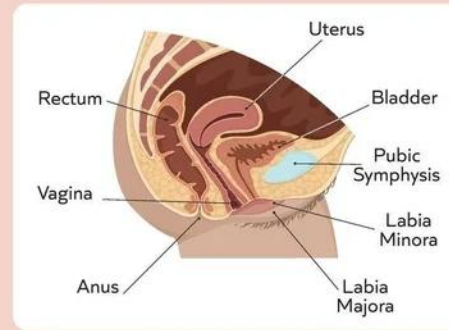
- PF muscles do NOT in/voluntarily contract; need a 'strengthening' approach

*Situational Blends



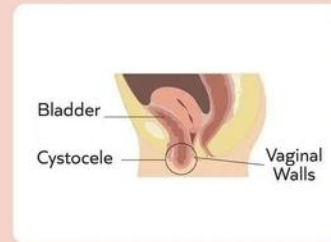
50% of Women are estimated to experience **Pelvic Organ Prolapse**

- Tissues bulging from the vagina
- Urinary incontinence
- Chronic constipation
- Vaginal or rectal pressure
- Painful intercourse
- Urine retention
- Back or pelvic pain
- Fecal incontinence
- Tampons pushing out
- Lack of sexual sensation

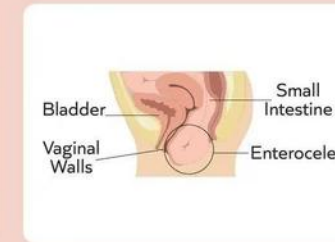


— Normal female pelvic cavity

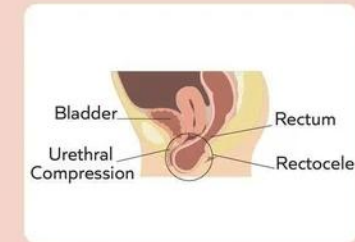
Types of Prolapse



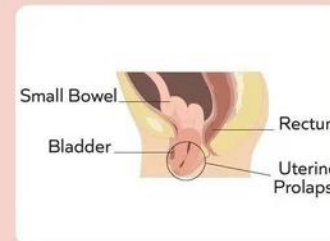
Cystocele



Enterocele



Rectocele



Uterine Prolapse

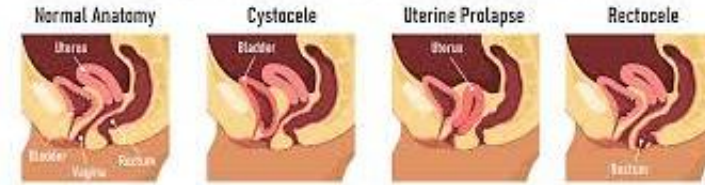


Vaginal Vault

Pelvic Organ Prolapse



TYPES OF PELVIC ORGAN PROLAPSE



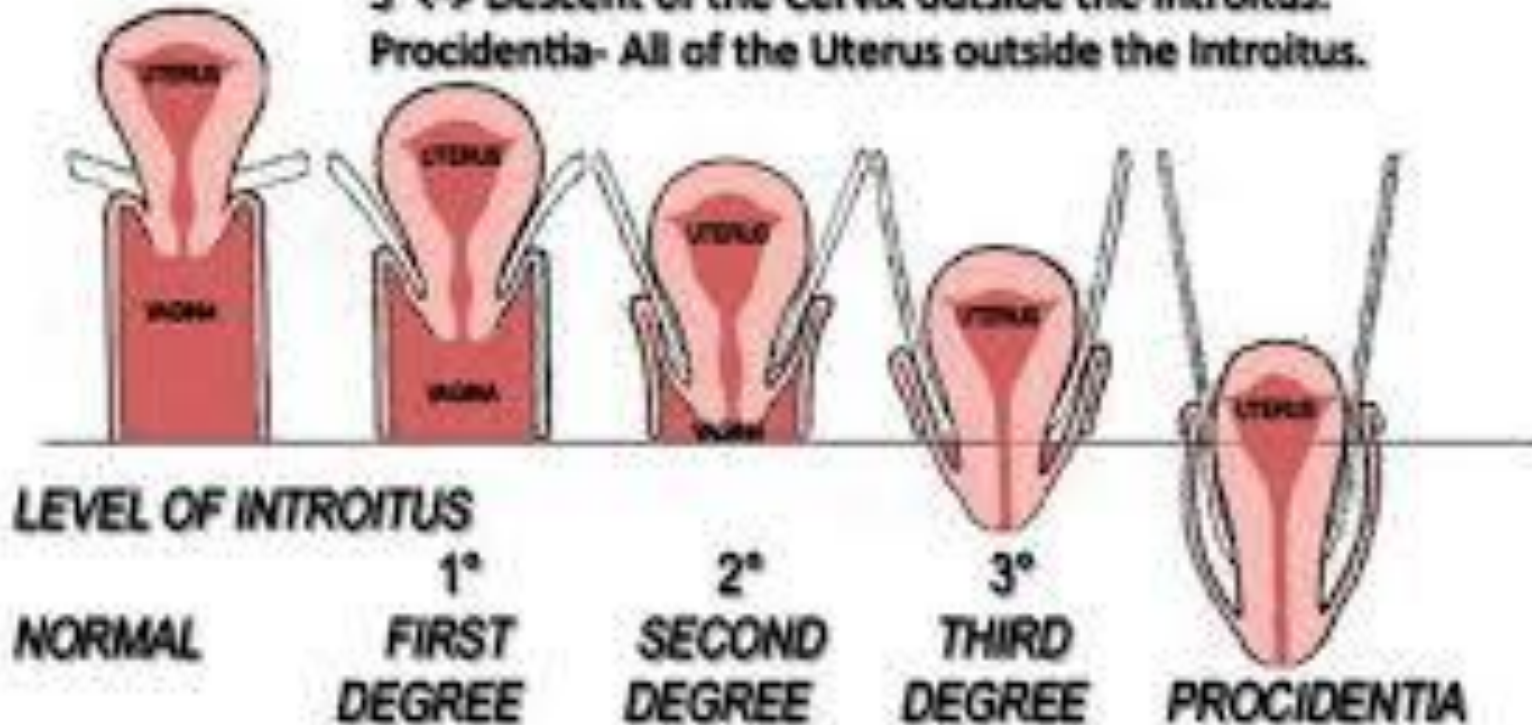
UTERINE DESCENT:

1° ↔ Descent of the Cervix in the Vagina.

2° ↔ Descent of the Cervix to the Introitus.

3° ↔ Descent of the Cervix outside the Introitus.

Procidentia- All of the Uterus outside the Introitus.



Modifiable Risk Factors for Pelvic Floor Disorders

Table 3. Modifiable and nonmodifiable risk factors for PFD.		
Risk Factor Type	Category	Risk Factor
Modifiable	General (39)	A body mass index over 25 kg·m ⁻² Smoking Low physical activity levels Constipation Diabetes
	Sport-related (43,50,51,68,69)	Impact sports Strenuous exercise Higher intensity activities RED-S

*RED-S Relative Energy Deficiency - Sport

Sports Medicine and the Pelvic Floor. GM Donnelly, Moore IS. Current Sports Medicine Rpts, 82 Volume 22 Number 3 March 2023. © 2023 by the American College of Sports Medicine



NON-modifiable Risk Factors for Pelvic Floor Disorders



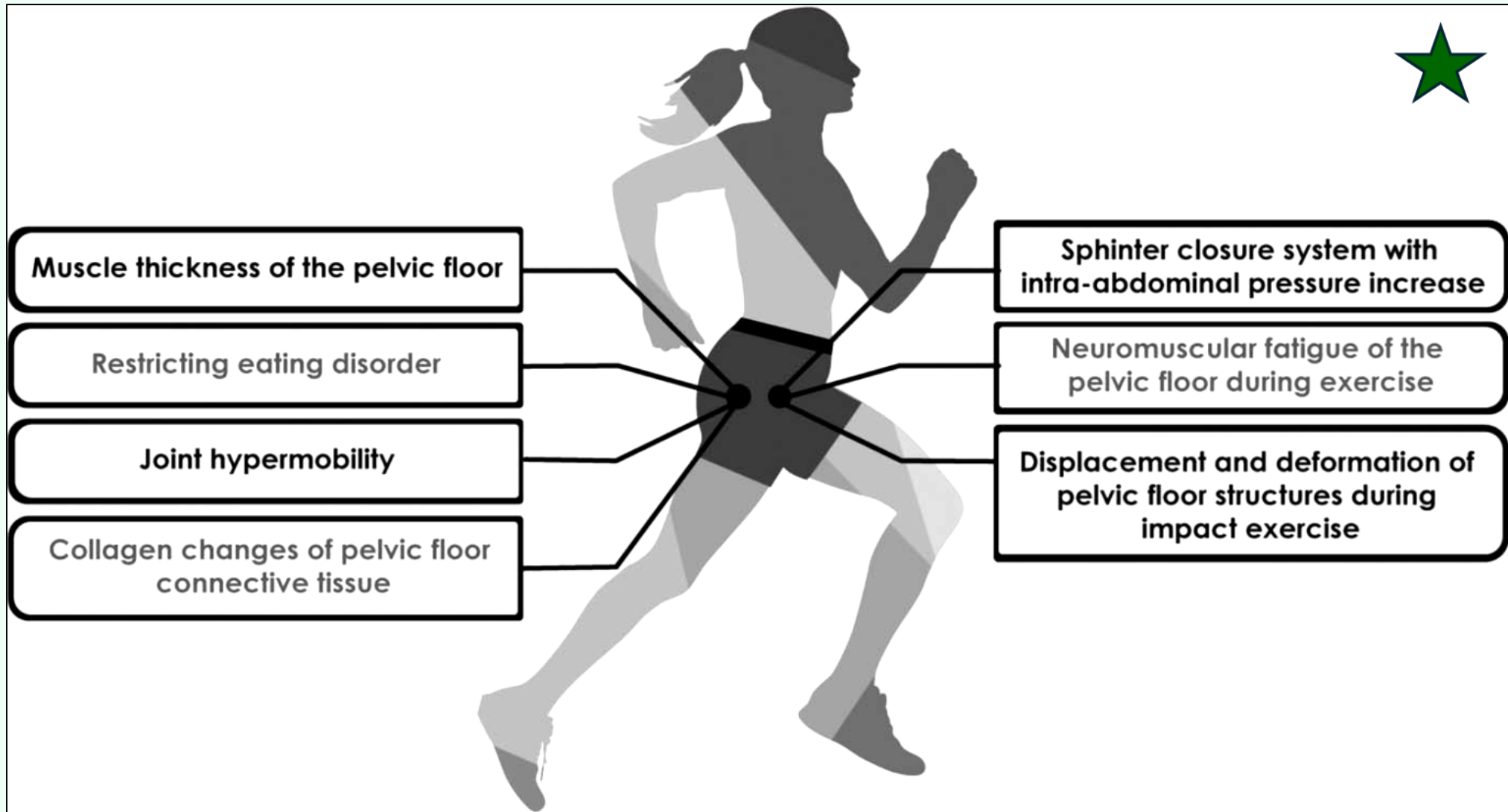
Table 3.

Modifiable and nonmodifiable risk factors for PFD.

Risk Factor Type	Category	Risk Factor
Nonmodifiable	General (39,44,51,68,70)	Age (risk increases with increasing age)
		Family history of urinary incontinence, overactive bladder, or fecal incontinence
		Female sex
		Gynecological cancer and associated treatments
		Gynecological surgery (such as a hysterectomy)
		Fibromyalgia
		Chronic respiratory disease and cough (chronic cough may increase the risk of fecal incontinence and flatus incontinence)
	Pregnancy (39)	Being over 30 yr when having a baby
		Having given birth before their current pregnancy
	Labor (39)	Assisted vaginal birth (forceps or vacuum)
		A vaginal birth when the baby is lying face up (occipitoposterior)
An active second stage of labor taking more than 1 h		
	Injury to the anal sphincter during birth	

Sports Medicine and the Pelvic Floor. GM Donnelly, Moore IS. Current Sports Medicine Rpts, 82 Volume 22 Number 3 March 2023. © 2023 by the American College of Sports Medicine

Figure 2. Risk factors associated with *urinary incontinence* in the female *athlete*.



Pelvic Floor Dysfunction in Female Athletes. TR Rebullido et al. Strength & Cond J [NSCA]; Vol 42 (4): August 2020.



Table 2.

Red flag signs and symptoms.

Red Flag	Signs and Symptoms
Potential serious pathology 	Pelvic masses Neurological signs and symptoms including, but not limited to, cauda equina: reduced saddle sensation, loss of urinary urge, loss of fecal control, widespread neurological signs and symptoms Suspected cancer (bladder, bowel, cervical, vulva) — screen for established cancer related signs including unremitting night pain, night sweats, unexplained mass/ growths, skin lesions, weight loss or gain, neurological signs. In addition, be aware of gynecological-related symptoms including excessive abdominal bloating, feeling of fullness early with eating, and unexplained vaginal bleeding Persisting vaginal bleeding Persisting urinary retention or any postpartum urinary retention
Indicating onward referral for specialist management	Psychosexual trauma Suspected endometriosis Fistula Suspected dermatological presentations, <i>e.g.</i> , lichen sclerosis Missed or poorly healing obstetric anal sphincter injury Heavy, painful, or clotting menstrual bleeding
Other potential medical sources of presenting symptoms of PFD	Urinary tract infection Thrush or bacterial vaginal infection Diabetes Sexually transmitted infection Inflammatory bowel or bladder issues

NB Red Flags refer to other sources of presenting symptoms that require further investigation and/or medical management.

VI. Prevention & Pre-Emption

A Woman's Guide to
Pelvic Floor Health at
Every Age and Stage

FLOORED



Dr. Sara Reardon
Creator of *The Vagina Whisperer*

09/14/2025

Overactive [Hypertonic] **TENSE** (pain, strain, hemorrhoids, UTI's, not-empty feeling, +++)

- PF muscles do NOT relax, therefore require a 'relaxation' approach
- Breathwork
- Massage and triggerpoint work
- Stretching
 - Happy Baby | Child's pose | Figure 4 supine + sitting | Hip flexor | Cat-Cow | T-spine | 90-90 +++++++

Underactive [Hypotonic] **WEAK** (Incontinence, prolapse)

- PF muscles do NOT in/voluntarily contract, therefore need a 'strengthening' approach



Pelvic Floor Muscle Training

PRACTICE:

- Isolated PFM activation –kegel
- Kegel for Endurance
- Quick flicks
- Positional preferences for optimum activation
- PFM synergistic activation, functional pelvic floor activation with core stabilization.



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Bladder Re-training



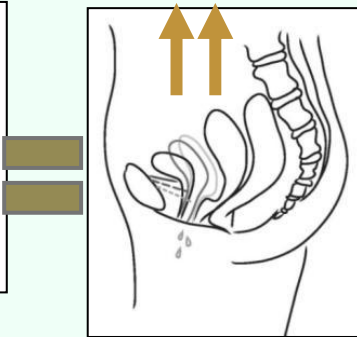
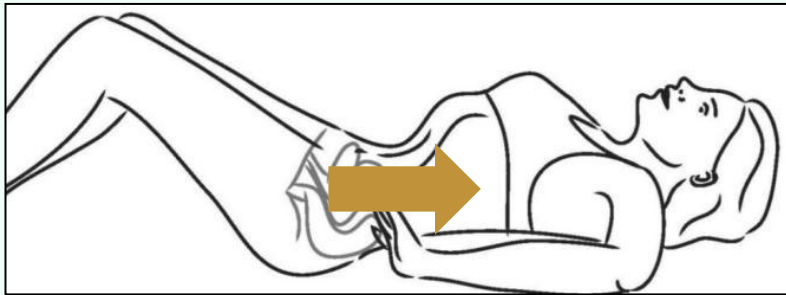
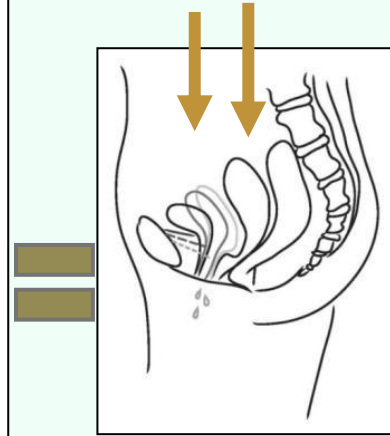
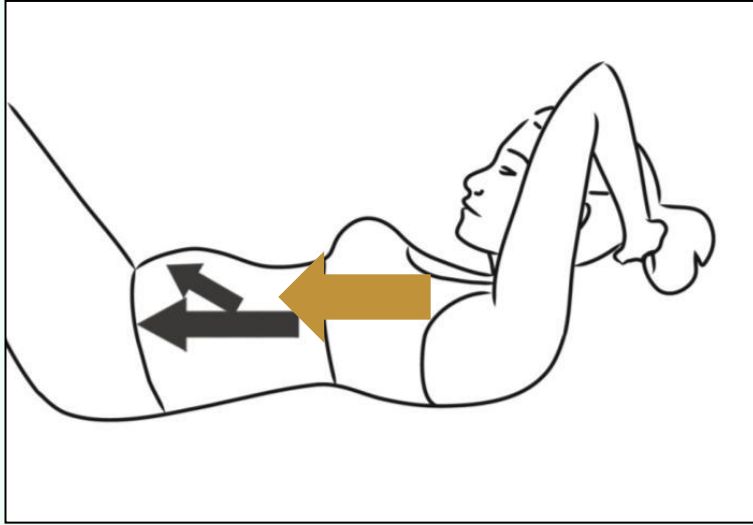
Urgency Urinary Incontinence

- Normal urinary voiding? 1 x nocturnal voiding (>65yr), 4-8x per day, every 2-5 hours, length of urination 8-10 seconds; allow full bladder emptying; *no straining*.
- Water consumption
- Lifestyle modification, diet/exercise, bladder irritants.

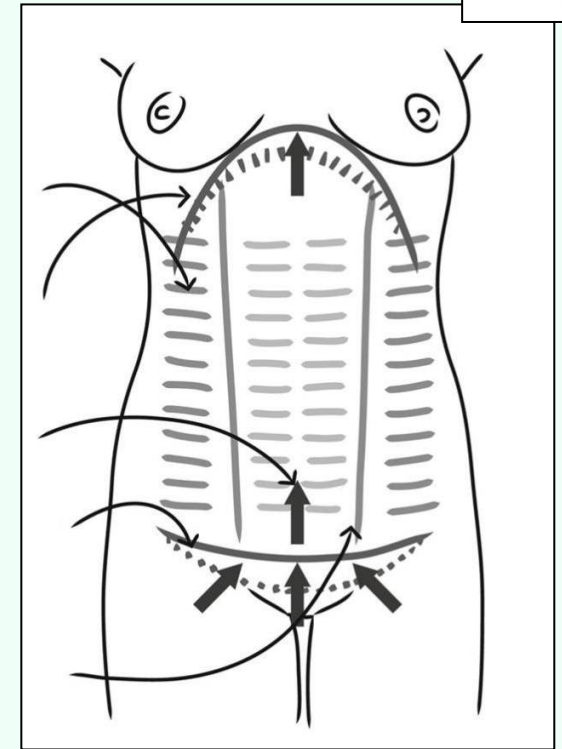
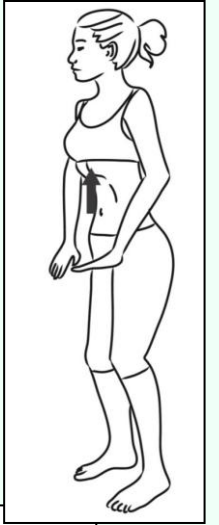
Urge Suppression Techniques:

- Quick flicks, hypopressive breathing, physiological quieting (practice)
- Behavioral re-training, avoid preventative voiding – BLADDER DIARY
- Deep tibial nerve stimulation a/k/a Percutaneous Tibial Nerve Stimulation [PTNS]
- Medications

Hypopressives PRACTICE

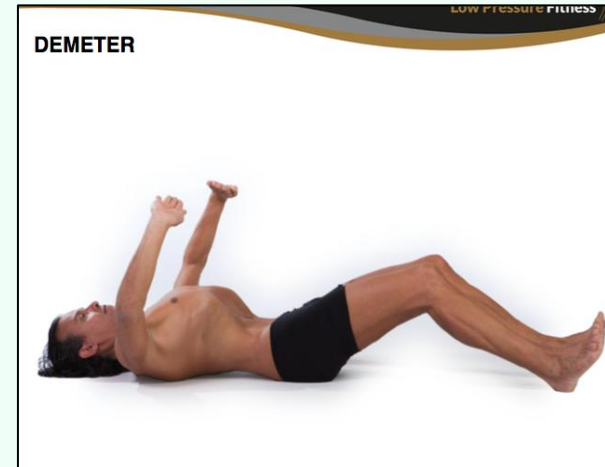
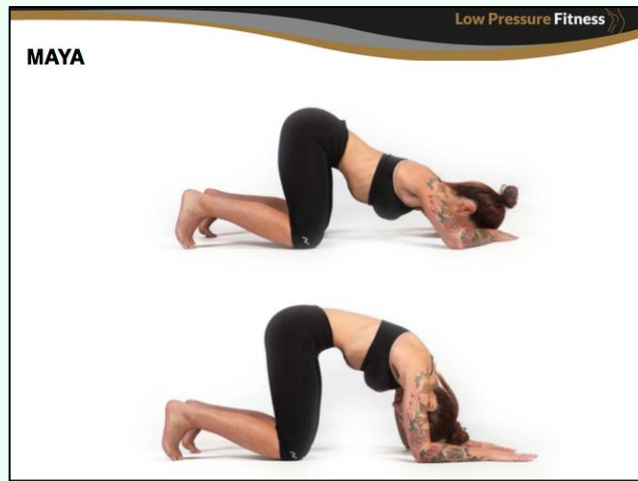
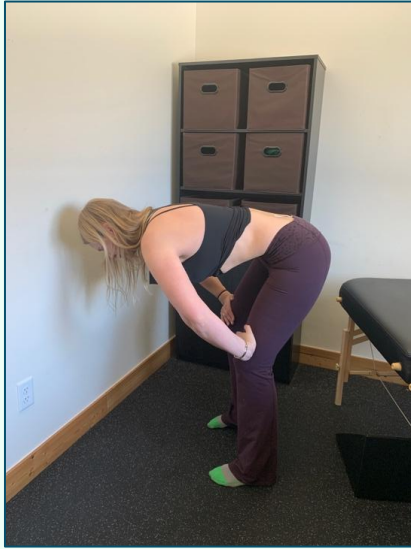


1. The diaphragm rises
2. Decreased intra – Abdominal pressure and downward pressure on pelvic floor and pelvic organs
3. Improved circulation to pelvic organs
4. Improved respiratory function and rib cage mobility
5. Decreased compression of spine and activation of the spinal stabilizers and pelvic floor.



Hypopressive Flow:

Unloading pelvic floor and training core to be *long and strong* in varying positions.



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Table 3

Sample: Pelvic floor Muscle Training Programs for *Female Athletes*

Pelvic Floor Dysfunction in Female Athletes.

Tamara Rial Rebullido et al.
Strength and Conditioning
Journal(42)4, Aug 2020.
www.nsca-scj.com

Table 3 Sample pelvic floor muscle training program for female athletes			
Exercise	Position	Coaching Cues	Sets × Reps × Rest Interval (RI)
Phase 1			
Endurance PFM contractions	Lying, sitting	Tighten and lift the muscles in the vagina as if you were trying to hold urine, and then let go and relax while breathing normally.	3 sets × 5 reps of 3- to 5-second gentle PFM activation with 20-second RI between reps and 1-min RI between sets.
Lateral costal breathing	Lying, sitting	Place your hands on your rib cage. Breathe in as you feel your rib cage widening, and then breathe out gently returning the rib cage to the initial position.	3 sets × 10 reps with 10-second RI between sets.
Phase 2			
Endurance PFM contractions	Lying, sitting; kneeling, standing	Tighten and lift the muscles in the vagina as if you were trying to hold urine, and then let go and relax while lateral costal breathing.	3 sets × 10 reps of 3- to 5-second PFM hold with 20-sec RI between reps and 1-min RI between sets.
Deep exhalation added to PFM contractions	Lying, sitting	During the exhalation phase of lateral costal breathing, tighten and lift the muscles around the vagina. Place your hands on your lower abdomen and feel the tension while contracting your PFM.	3 sets × 10 reps of 6-second deep exhalation and 3- to 5-second PFM hold; 20-second RI between reps and 90-second RI between sets.
Phase 3			
Maximum PFM contractions	Lying, sitting, kneeling, standing	Perform a fast and strong contraction of the muscles surrounding the vagina while exhaling, and then let go and relax while lateral costal breathing.	3 sets × 10 reps of a fast PFM hold of 1–3 seconds with 10-second RI between reps and 60-second RI between sets.
Deep abdominal muscle draw-in added to PFM contractions	Lying, sitting, standing	During the exhalation phase of lateral costal breathing, draw-in your belly button while maintaining proper posture and tighten the PFM muscles as if you were trying not to urinate. Then relax and let go while lateral costal breathing.	3 sets × 10 reps of 3- to 5-second PFM hold with 20-second RI between reps and 90–120 seconds between sets.
Phase 4			
Hypopressive exercise added to PFM contractions	Lying, sitting, kneeling, standing	Perform 3 lateral costal breathes with slow deep exhalations. After the third exhalation, hold your breath and expand your rib cage laterally. When the rib cage is completely expanded, tighten the PFM around your vagina. Then let go and relax the PFM while lateral costal breathing.	3 sets × 3 reps of 10-second breathe-hold with 3- to 5-second 1 PFM hold with 30-second RI between reps and 90-second RI between sets.
Body weight squat added to PFM contractions	Standing	Inhale during the descent phase of the squat, then tighten the PFM around your vagina during the ascent phase of the squat. Feel the tension in your lower abdomen.	3 sets × 10 reps with 1- to 3-second PFM hold with a 90-second RI between sets.
PFM, pelvic floor muscle.			

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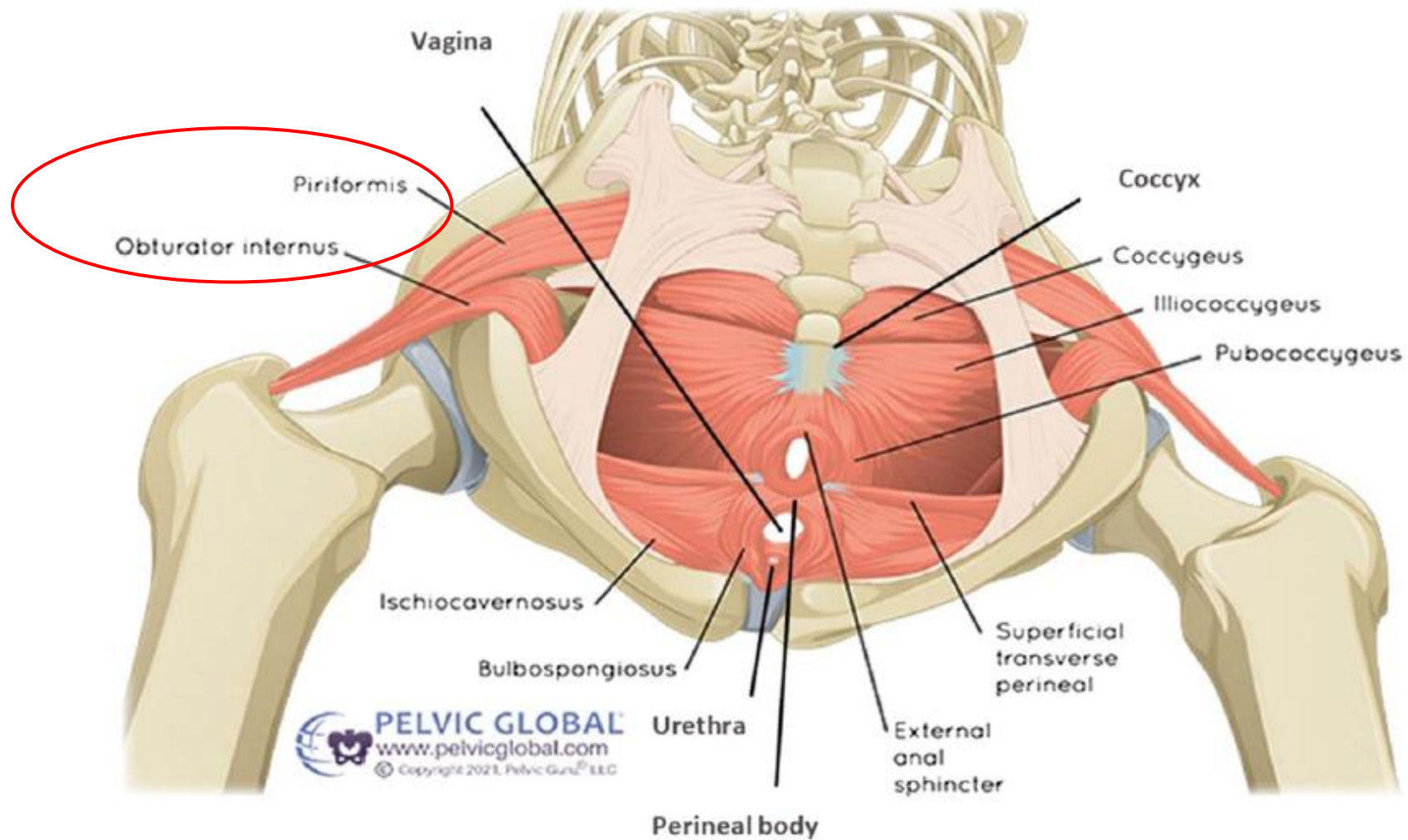


Figure: Pelvic floor anatomy. Reprinted with permission from Pelvic Guru®, LLC/Pelvic Global.

VII. Role of Uro-Gyno Physical Therapist / Physiotherapist

Proper Diagnosis

What can PT pelvic floor rehab address?

- Pelvic Pain Syndromes
- Pelvic Prolapse; uterine, rectal, bladder
- Urinary Incontinence; stress, urge, overactive bladder, mixed, functional
- Pelvic Ring Dysfunction; sciatica, pubic symphysis pain, sacroiliac pain/dysfunction, sacral torsions.
- PREGNANCY; stabilization belts ,diastasis recti
- LOW BACK PAIN
- POST SURGERY



Table 2. Evidence for conditions treated with PF physical therapy

<u>Conditions treated with pelvic floor physical therapy</u>	<u>Supporting evidence</u>
--	----------------------------

HYPOTONIC [weak] pelvic floor disorders

<i>Stress urinary incontinence</i>	<i>Strong</i>
------------------------------------	---------------

<i>Overactive bladder</i>	<i>Moderate</i>
---------------------------	-----------------

<i>Pelvic organ prolapse</i>	<i>Strong</i>
------------------------------	---------------

Pelvic organ prolapse surgery	Weak
-------------------------------	------

Stress urinary incontinence surgery	Weak
-------------------------------------	------

<i>Anal and fecal incontinence</i>	<i>Moderate</i>
------------------------------------	-----------------

<i>Postpartum urinary incontinence</i>	<i>Moderate</i>
--	-----------------

<i>Postpartum pelvic organ prolapse</i>	<i>Moderate</i>
---	-----------------

Pelvic floor physical therapy in the treatment of pelvic floor dysfunction in women. Shannon L. Wallace, Lucia D. Miller, and Kavita Mishra, Div of Urogynecology, Dept Obstetrics and Gynecology, Stanford U Hospital / Stanford Pelvic Health Center, CA. *Curr Opin Obstet Gynecol* 2019, 31:000–000



Table 2. Evidence for conditions treated with PF physical therapy

Conditions treated with pelvic floor physical therapy	Supporting evidence
---	---------------------

HYPER tonic [tense] pelvic floor disorders

<i>Pelvic floor myofascial pain</i>	<i>Strong</i>
-------------------------------------	---------------

<i>Dyspareunia</i> (painful intercourse)	<i>Moderate</i>
--	-----------------

<i>Vaginismus</i> (spasm – tampon/sex/exams)	<i>Moderate</i>
--	-----------------

<i>Vulvodynia</i> (pain / burning)	<i>Moderate</i>
------------------------------------	-----------------

<i>Postpartum sexual dysfunction</i>	<i>Moderate</i>
--------------------------------------	-----------------

Pelvic floor physical therapy in the treatment of pelvic floor dysfunction in women. Shannon L. Wallace, Lucia D. Miller, and Kavita Mishra, Div of Urogynecology, Dept Obstetrics and Gynecology, Stanford U Hospital / Stanford Pelvic Health Center, CA. *Curr Opin Obstet Gynecol* 2019, 31:000–000



Musculo-skeletal Alignment

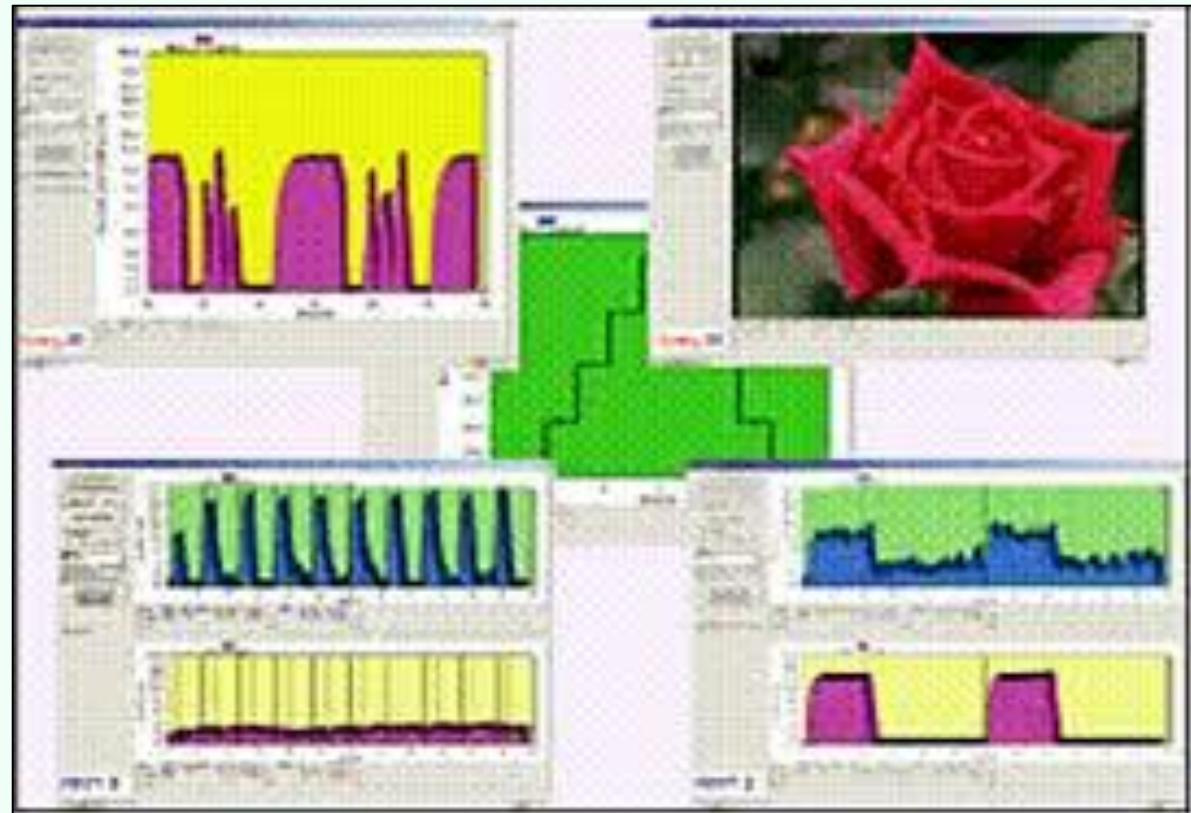
- Muscle energy techniques
- Muscle length/strength relationships
- Hip/lumbar ROM
- Lumbo-pelvic stability
- Pelvic Ring Dysfunction
- Joint and soft tissue mobilization



Pelvic Muscle Re-training Biofeedback



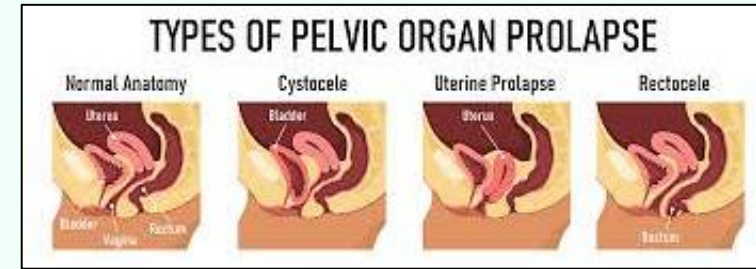
- Internal/external electrodes
- Assists with muscle identification and isolation, strengthening and functional incorporation



Pelvic Organ Prolapse

- Hypopressives and pelvic floor
- Pessary/mechanical support
- Surgical options
- Hormone/lifespan/age considerations

Hormones?



VIII. Medical Treatments & Surgical Options

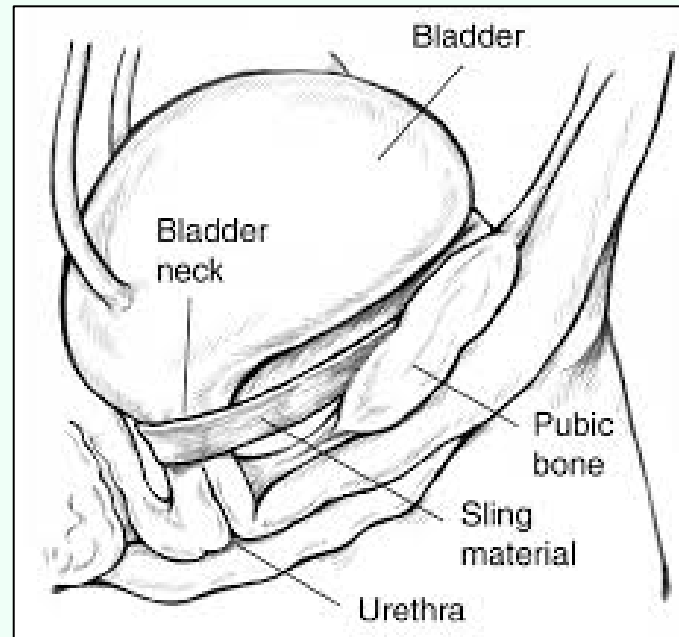
Hormones - In multiple forms
+
non-hormonal meds



Medical Treatments and Surgical Options

PELVIC ORGAN PROLAPSE Female reconstruction

- POP surgery; hysterectomy / MESH - migration and erosion?
- Uterine sparing
- Sling surgery
- Urethral bulking



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Local Resources

- Urogyn PT, DPTs
 - UroGynecologists Teams
 - GenitoUrinary Teams
 - Women's Health Teams
 - Primary Care | Internal Medicine
-
- Vonda Wright, Stacy Sims, Mary Claire Haver +++

Resources

International Urogynecological Association (IUGA)

<https://www.yourpelvicfloor.org/>

Low Pressure Fitness

<https://www.lpf-usa.com/>

Pfilates

www.pfilates.com

Herman & Wallace Pelvic Rehabilitation Institute

<https://hermanwallace.com>

Pelvic Floor Therapy

<https://glutescorepelvicfloor.com/herman-wallace/>

Pelvic Sanity

www.pelvicsanity.com

Association for Pelvic Organ Prolapse Support | APOPS

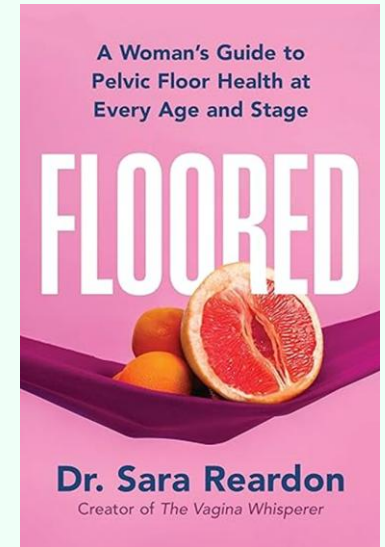
www.pelvicorganprolapsesupport.com

Roll for Control

IX. Summary

As a woman...

1. Know your anatomy.
2. Know 'normal' function.
3. BRING 'robustness' to each transition;
 - maintain it between and during transitions, throughout the lifespan.
4. Monitor your pelvic floor health, and train it to 'function' for life.
 - DAILY Habits, like toileting, eating & drinking
 - Yoga, Tai chi, Pilates and mind-body Practices
 - Get and Stay ... Supple+Stable, Speedy, Strong+Powerful, and Skilled with Stamina ... for ALAP!
5. Discuss medical-clinical options with your provider. Procedures and hormones may serve you better NOW, vs. later in a frail, fragile state.



Summary (cont.)

As a Coach, Trainer, MedFit professional

1. Sarco+dyna+power penias impact PF integrity and vice versa; add in menopause and aging Fight PRE-frailty and frailty with a vengeance.
2. Study up on the pelvic floor anatomy and function.
3. Screen
4. Network
5. Optimize pelvic floor health in one-on-one, small group and large group settings. Educate, educate, educate.

*“Start by doing what is necessary,
Then do what is possible,
Suddenly, you are doing the
impossible!”*

St. Francis of Assisi



“If we want to change the ‘way’ and the pace at which we age, we need to change the way we live, and how we think about aging...

*and
that takes place in our
Purpose Pillar
and our
Spirit Bucket.”*

Thank You

Lisa Dougherty

and

The MedFit Team

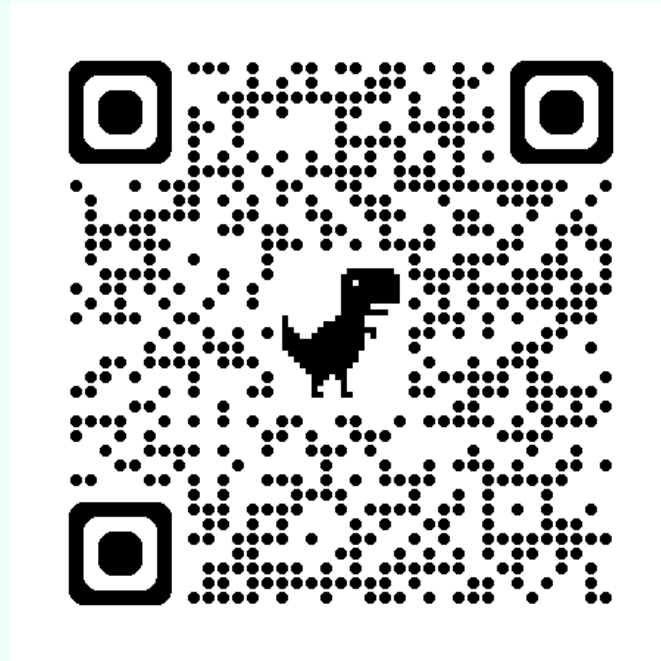
and

ALL of YOU!!

09/14/2025



LinkedIn: Pat VanGalen





MedFit Cardiac R.E.H.A.B. Fitness Specialist Course [20 hours Online]

Restore-Energy-Hardiness-Aspirations+Benchmarks

Instagram:

activeandagile

E-mail:

pavgk@aol.com



09/14/2025

