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Objectives

- Participant will understand normal pelvic floor muscle function and importance in pelvic health.
- 2 The learner will understand normal pelvic floor muscle function with breathing and its roll in core stabilization.
- Clinician will properly identify the most common symptoms associated with pelvic floor muscle weakness and pelvic floor muscle hypertonicity.
- Clinician will understand how to assess the pelvic floor muscles both externally and internally with the modified pelvic examination.
- Clinician will understand treatment options utilized with pelvic health rehabilitation and how to properly progress through a plan of care.
- The learner will be able to properly educate women on return to general wellness and exercise considering their pelvic health presentation.
- Participant will identify proper assessment scales to utilize with this patient population to improve effectiveness of documentation and reimbursement.
- Participant will understand referral sources and marketing concepts associated with this population.

Physiology & Function of the Inner Core

Broad Functions of the Inner Core



Specific Function of the Inner Core

Prepares body for load and movement by increasing intra-abdominal pressure (IAP)

Postural control with movement

Functions primary with sub maximum movements and normal breathing

Importance of Inner Core



Muscles of the Inner Core

Inner Core

- Roof = Diaphragm
- Floor = Pelvic floor
- Front = Transverse Abdominis (TrA)
- Back = Multifidus
- Composed primary of slow twitch muscle fibers



Respiratory Diaphragm

Contraction is a downward movement to allow rib expansion



Transversus Abdominus

 Deepest of all abdominal muscles

 Contraction: gentle drawing in



Lumbosacral Multifidi

 Fibers run oblique and superiorly to attach 1-3 segments above

 Generate slight extension and rotation of segments



Pelvic Floor Muscles



Contraction lifts the muscles and closes the openings

Pelvic Floor Muscle Function



Pelvic Floor Muscles



Pelvic Floor Muscles



Inner Core & Breathing

Inspiration:

- Diaphragm moves downward
- Pelvic floor is quiet
- Exhalation:
 - Diaphragm moves
 - upward
 - Pelvic floor activates



Inner Core & Breathing



Categories of Pelvic Health Conditions

Categories of Pelvic Floor Muscle Dysfunction

Weakness/Disus

- Urinary incontinence
- Pelvic Organ Prolapse
- Pain & In-coordination • Dyspareunia

Pelvic pain

Weakness Conditions: Urinary Incontinence

Background Information

Urinary Incontinence (UI)

"...is the involuntary leakage of urine; in simple terms, it means a person urinates when they do not want to. Control over the urinary sphincter is either lost or weakened. Urinary incontinence is a much more common problem than most people realize." ~Harvard Health 2016

Types of UI:

- Stress
- Urge Mixed
- Overflow

Pelvic Floor Weakness/Disuse



Stress UI

 "Stress incontinence happens when physical movement or activity — such as coughing, sneezing, running or heavy lifting — puts pressure (stress) on your bladder. Stress incontinence is not related to psychological stress." May Clinic 2017



Urge UI

"...is a sudden and strong need to **urinate**. You may also hear it referred to as an unstable or overactive bladder, or detrusor instability. In a properly functioning bladder, the bladder muscle (detrusor) remains relaxed as the bladder gradually fills up." ~ Mayo Clinic





Mixed UI

 "Mixed incontinence also shares the causes of both stress incontinence and urge incontinence." ~ Mayo Clinic 2015



UI Associated Conditions



Subjective Examination: UI

- Unique questions to address:
 - Detail of what causes UI
 - Cough, sneeze, urgency, sounds/triggers?
 - Common triggers include sound of running water, key in door
 - Associated bladder irritants with UI
 - · Common triggers include coffee, citrus beverages, soda
 - Bladder habits:
 - Frequency of bladder voids
 - Stream description
 - Pad usage details
 - FI?

- Questions about associated prolapse
 - Vaginal bulge/heaviness

Weakness Conditions: Pelvic Organ Prolapse (POP)

Background Information

Pelvic Organ Prolapse

- "Occurs when a pelvic organ drops (prolapses) from its normal place in your lower belly and pushes against the walls of your vagina. This can happen when the muscles that hold the pelvic organs in place get weak or stretched" "Harvard Health
- Herniated tissue can impact one or more areas of the vaginal vault:
 - Anterior vaginal wall
 - Posterior wall
 - Apical

Urethral

Pelvic Organ Prolapse

POP Prevalence



Types of POP: Cystocele

 Cystocele: A bulge of the bladder into the vagina

 Impacted vaginal wall: anterior



Cystocele Example



Types of POP: Rectocele

 Rectocele: the tissue wall between the rectum and vagina weakens allowing the anterior wall of the rectum to herniate



 Impacted vaginal wall: posterior



Types of POP: Uterine Prolapse

- Uterine prolapse: the uterus descends toward or into the vagina
- In significant cases the uterus can extend out of the vagina (surgical intervention)



Uretus

Prolapsed uretus

POP Grading



POP Symptoms

Descriptions:

- Vaginal heaviness
- Downward pressure
- Sitting on tennis ball/difficulty finding comfortable position
- Urinary incontinence
- Start stop stream or delayed start
- Difficulty emptying bowels
- Worse at end of day/with exercise
- Deep/internal pressure pain with intercourse

POP Associated Conditions



POP: Subjective Examination

- Detail of aggravating factors
- Targeted exercise habits inquiry
- Detail and timing of alleviating factors
- Attempt to support with tampon or OTC pessary?
- Questions about associated UI

Pain & In-coordination: Dyspareunia

Background Information

Dyspareunia

 "...is defined as persistent or recurrent genital pain that occurs just before, during or after intercourse." "Mayo Clinic

• Associated conditions:

- Vaginismus: "Vaginismus is vaginal tightness causing discomfort, burning, pain, penetration problems, or complete inability to have intercourse, tolerate pelvic exams or use a tampon."
- Vulvodynia: "Chronic, unexplained pain in the area around the opening of the vagina."

Normal Sexual Cycle





Dyspareunia Pain Cycle



Dyspareunia: Symptoms

Pain with any phase of intimacy
Vaginal dryness: "burning, sandpaper, rawness"
Bleeding/Spotting
Cramping with/without abdominal pain
Decreased desire and/or libido
Fear of insertion
Positional preferences

Dyspareunia Associated Conditions

Endometri		
Fibroids		
Pelvic Infla	mmatory Diseas	e
PTSD		
Depression	n	
Severe me	enses	
Crohn's Di	sease	
Irritable Bo	wel Syndrome	
Childbirth I	Injury	

Dyspareunia: Subjective Examination

- Unique questions to address:
 - Detail of dyspareunia
 - Phase of sexual cycle that is painful: arousal, during, orgasm, after
 - Able to obtain digital or penile penetration?
 - Natural lubrication with arousal?
 - Any positions that are comfortable? Which are most uncomfortable? • What is your sexual orientation?
 - Lubrication used? Name of product.

 - Do you use sex toys?
 - Birth control method of choice
 - Frequency of intimate interactions? Is this limited by discomfort?
 - Does your partner know you have discomfort?

Pain & In-coordination: Pelvic Pain

Background Information

Pelvic Pain

- Pain within the pelvis, lower abdomen and back.
- Often multi factorial with musculoskeletal and visceral components.
- Increased tension and muscle spasm throughout the pelvic floor muscles.



Pelvic Pain Symptoms

Pain descriptors: ache, pressure, sharp, shooting, throbbing, cramp
Genital pain that radiates around pelvis
Abdominal and low back pain
Intolerance to sitting, standing, walking
Visceral reactions to pain
Dyspareunia
Depression
Anxiety

Pelvic Pain Associated Conditions

Pelvic floor muscle hypertonicity
Endometriosis
Irritable bowel syndrome
Fibroids/cysts
Infection: Bladder, UTI etc
Chronic yeast infection
Trauma
Childbirth
Sexual Injury
Stress
Anxiety

Pelvic Pain: Subjective Examination

Unique questions to address:

- Detail of dyspareunia as noted previously
- Referral of pain outside of the pelvic region?
- Where, description, what triggers?
- Alleviating factors?

- Home management strategies?
- Is your social/work and or personal relationships hindered by this pain?

Pelvic Health Objective Examination

External Examination

Objective Examination: External Pelvic Exam

deal for therapists in the following situations:

- Patient declines pelvic examination but wants to start with some type of intervention
- No private space available for examination
- Time limitations with session

• Non-pelvic health clinicians wishing to improve treatment outcomes

Objective Examination: External Pelvic exam

Side Lying Assessment

- Pt in side lying with pillow between knee
- Clinician behind pt with eye contact
- Palpate the grater trochanter
- Move to the ischial tuberosity (IT)
- Curve fingers around the IT into the soft tissue of the levator ani



Objective Examination: External Pelvic exam

- Contract the pelvic floor
 - What do they do?

- How does it move?
- Relax the pelvic floor
 Does it relax quickly and smoothly?



Objective Examination: External Pelvic exam

Endurance Activation:

- Contract and holdStop when client unable to
- maintain

 Repeat to determine reps
- ability Quick Contractions Activ
- Quick Contractions Activation:
 - Contract and relax at the pace client is comfortable with
 - Time # contractions in 10 sec
 - Normal: 8-10 reps in 10 sec



Pelvic Health **Objective Examination**

- Modified Internal Examination
 - · *Requires in person training

Objective Examination: Modified Pelvic Examination

- Vulvar tissue:
 - Color

- Hydration
- Sores/STD presentation
- Perineal assessment:
 - Scar: Color/Mobility



Objective Examination: Modified Pelvic Examination



Objective Examination: Modified Pelvic Examination

Voluntary contraction

- Contraction of the pelvic floor with cuing
 - Upward/inward lift of muscles



A Pelvic Floor Contraction

Squeeze & Lift It Up

Objective Examination: Modified Pelvic Examination

Common Mistakes:

Holding breath

- Muscle overflow
- Gluteals, abdominals, adductors
- Pushing down
- Poor relaxation between contractions



Objective Examination: Modified Pelvic Examination



Objective Examination: Internal Modified Pelvic Examination



Objective Examination: Internal Modified Pelvic Examination

 Voluntary contraction muscle testing at internal PFM layer

MMT/Laycock Scale :

- 0/5: neurological injury
- 1/5: "flicker"
- 2/5: weak contraction without lift
- 3/5: moderate contraction and lift
- 4/5: good contraction and lift moderately drawing digit inward and upward
- 5/5: strong contraction and lift drawing digit inward and upward

Objective Examination: Internal Modified Pelvic Examination

- PERFECT Scale: Used to describe PF muscle function overall
 - Power: MMT
 - Endurance
 - Duration of contraction (seconds)
 - Repetitions
 - Number of consistent endurance contractions
 - Fast twitch contractions/quick contractions
 - Number of quick activations performed correctly in 10 seconds: normal is 10 in 10 seconds
 - Elevation
 - · Position of PF muscles overall at test: Elevated/relaxed/normal
 - Co-contraction
 - Accessory muscles used with PF contraction
 - Timing/coordination

Objective Examination: Internal Modified Pelvic Examination

- Coordination = Pelvic floor muscle reactions:
 - Assess mobility and speed of muscle contraction, relaxation
- Elevation = Muscle Health:
 - Tone
 - Trigger points
 - Reproduction of concordant pain

Objective Examination: Referral Patterns

Obturator Internus



Objective Examination: Referral Patterns

Levator ani and Coccygeous



Objective Examination: Referral Patterns



Objective Examination: Referral Patterns





Objective Examination: Referral Patterns

Gluteus maximus



Objective Examination: Modified Pelvic Examination

Organ position

- Feel for bulge and pressure with the PF bulge
 - Anterior bulge: cystocele
 - Posterior bulge: rectocele
 - Central bulge: uterine

Common Findings

Common Objective Findings: UI

External assessment:	 Absent PF involuntary contraction Delayed or no clitoral movement with PF contraction
Internal assessment:	 Weak, poorly coordinated PF muscles Poor endurance Muscle tone: atrophy Typically, endurance most difficult to perform

Common Objective Findings: Prolapse

External assessment:	 Absent PF involuntary contraction Visible prolapse at introitus
Internal assessment:	Weak, poorly coordinated PF muscles Poor endurance Muscle tone: atrophy Palpable bulge of prolapsed organ with PF bulge movement

Common Objective Findings: Dyspareunia & Pelvic Pain

External assessment:	 Delayed or unable to perform PF contraction Absent PF involuntary relaxation Vulvar-vaginal dryness Pale or bright red color, raw texture to vulva Post childbirth: scar present
Internal assessment:	 Aversion to digital insertion, breath holding Weak, poorly coordinated PF muscles Poor endurance Muscle tone: hypertonus/spasm Palpable trigger points

Treatment Interventions

Pelvic floor and inner core weakness

Research foundations: (Price et al., 2010) (li, 2004)

 Inner core strengthening and coordination of transverse abdominal muscle and the synergistic activation of the pelvic floor muscle [is the foundation of UI treatment]

Target the Inner Core!

- Prepares body for load and movement by increasing intra-abdominal pressure (IAP)
 - Creates center of gravity and stability for limb movement
- Postural control with movement
 - Where movement begins
- Functions primary with sub maximum movements and normal breathing

Intervention: Exercise

- Pelvic floor muscle contraction
 - Proper contraction involves an upward and inward lift of the muscles





Isolating the PFM

- Draw the vaginal area upward and inward
- Close the anus as if holding back gas
- Use imagery " like elevator"
- Wink anus

- Bring sit bones together
- Pull the muscle from the pubic bone to the tail bone
- Squeeze as if you are stopping gasSqueeze as if you are stopping urine flow

Intervention: Exercise

 Normal breathing pattern is essential

- Inhale with preparation for exercise
- Exhale with contraction and activation of exercise



Intervention: Exercise





Optimal **initial** training for PF is with abdominal wall relaxed (supine or supine with pillows)

Intervention: Exercise



Intervention: Exercise

Training Phase:

- Length of endurance for seconds of hold
- Focus on quality of PFM contraction
- Quick contraction performance sets

Endurance ideas

- Example: 3 sec hold, 10 sec rest x 5+ reps
- Progress hold time and number of reps • Goal: 10 sec hold, 10 sec rest x 10 reps

- Begin with proper cadence based on performance
- Example: 1: 3 cadence x 10 reps
- Progress to goal of 1:1/ 1:2 cadence
 Goal: 8-10 contractions in 10 sec
 Vary exercise challenge:

- 5 quick, 5 sec rest, 5 quick, 10 sec rest x 3-5 reps

Interventions: Biofeedback

 EMG Biofeedback benefits:

- Visual input of muscle . performance
- Increased sensory awareness
- Sensors used:
 - External electrodes: placed along side EAS and ground on hip
 - Internal vaginal sensor





Interventions: Biofeedback

Endurance training

3 work/10 rest x 10







Interventions: Biofeedback

 Quick contraction activation
 5 QC (1:3 cadence/10 rest x 4 10QC (1:2 cadence)/10 rest x 3

Interventions: Biofeedback



Interventions: Electrical Stimulation

 Internal vaginal sensor or external electrodes

 Normal stim contraindications apply





Interventions: Electrical Stimulation



Interventions: Inner Core Exercise

Transverse Abdominus

- Proper activation is critical
- Learning to activate with ALL movement is essential



- Place fingers on the inside of your pelvic bones.
- As you exhale, **gently** pull in on your lower abdominal muscles, like trying to
- zip a tight pair of pants. Hold contraction for 5 seconds while

counting out loud.

Interventions: Inner Core Exercise

Transverse Abdominus







Interventions: Inner Core Exercise



Interventions: Inner Core Exercise

- Integrate increased abdominal pressure challenge!
- Integrate resistance!



Specialty Interventions

POP

Intervention: Techniques & Tools

Pessary

- Provides external support to POP tissues with goal of reducing symptoms and progression with activities
- Medical grade
- Temporary



Intervention: Techniques & Tools

Pessary

- Temporary
 - Ideal for active client or those with POP and/or UI symptoms that will likely improve with PFPT



- Ideal for cystocele



Treatment Interventions

Dyspareunia

Interventions: Breathing

Diaphragmatic breathing

- Alter response to pain: breath holding





Interventions: Manual Therapy

- Abdominal
 - Iliopsoas
 - Iliacus

Abdominals





Interventions: Manual Therapy

- Posterior trunk
 - Piriformis
 - Hip rotators
 - Gluteals



Interventions: Manual Therapy

Pelvic floor muscles

- Focus on tissue and muscle lengthening and desensitization training
- **Requires in person training



Interventions: PF Muscle Relaxation



Interventions: PF Muscle Relaxation



Interventions: PF Muscle Relaxation



Interventions: Stretching

- Pelvic floor relaxation stretches
 - Target opening, breathing
 - Long duration hold
 No straining





Specialty Interventions: Vaginal Dryness

Recommendations:

- Daily hydration
 - Coconut oil
 - Blossom organics
- Avoid:
 - Perfumed soap/body wash
 - Non-breathable undergarment
 - Harsh soap: Dove sensitive ski...
 recommended
 - Vaginal douche



Specialty Interventions: Lubricant

Lubrication education:

- Avoid parabens, propolen glycol and glycerin
- Example products: blossom organics, YES, coconut oil

POC & Documentation

Weakness conditions

Prognosis and POC:

Prognosis: Excellent

Typical POC: ~3-4 months overall

- 1x week for 2-4 weeks with significant weakness
- Transition to 2x month

Prognosis and POC:

Muscle weakness: M62.58
Muscle incoordination: R27.8
Stress UI: N39.3
Urge UI: N39.41
Mixed UI: N39.46
Diastasis recti: M62 0

Assessment Scales



Higher score = increased QOL impairment
Validated in female only

POC & Documentation

Dysparunia and pelvic pain

Prognosis & POC:

Prognosis: Moderate to excellent

• Very presentation specific, strong mental health component that will impact outcomes

POC: ~3-6 months overall

- 1x week x 4 weeks; initially for those with significant muscle tension/spasm
- Transition to 2 x month for 1-2 months
- Then 1 x month for 1-2 months

Pelvic Floor Hypertonus Prognosis & POC:

ICD-10 Muscle spasm: M62.83

codes Muscle incoordination: R27.8

Myalgia: M79.1

Sacral disorders/coccygodynia: M53.3

Pelvic Floor Hypertonus: Assessment Scales

Marinoff Dyspareunia Scale

• 0-3 rating scale

Symptom Index For Women (NIH-CPSI)

- Female specific versionAssesses pain, QOL,
- psychological outlookHigher score = increased
- QOL impairment





