Physiotherapy in urinary incontinence

Hoda niknam
Physical therapy

• WCPT:
• Providing services to people and populations to
• Develop
• maintain
• restore maximum movements
• Functional ability throughout the lifespan
Main area

• Musculoskeletal pain
• Dysfunction
• Cardiorespiratory field
• Neurology
• Coronary disease
• Maintain- increase physical activity level
• Pelvic floor dysfunction:
• Movement
• Restrictions
• Urinary incontinence: movement pattern
continence

- Supportive structures
- Anterior vaginal wall
- Endopelvic fascia
- Arcus tendinous
- Levator ani muscles
- Stiffness of supportive layer
- Pubic bone
- Ischial spine
- Urogenital hiatus closed
• Delancy
• Whole pelvis
• Supportive system
• Pelvic floor muscles
• Ligaments
• Fascia
• Boat in the dock theory
• Pelvic floor muscles function normally:
  • Normal tension
  • Constant tone of PFM: relieve tension
• PFM: damage or relax
• Connective tissue: stretch- damage
• Paravaginal defect
• Damage the Continuity PFM: incontinency
  • Longer muscle contraction
  • Decrease strength: decreased stiffness
  • Connection between muscle and fascia
• If damage of nerve (child birth)
  • Denervation
  • Atrophy
  • Load on ligament
  • Gradually: stretch- viscoelastic
  • Prolapse
Pelvic floor dysfunction

- Urinary incontinence
- Pelvic organ prolapse
- Fecal incontinence
- Sexual disorders
- Chronic pelvic pain
Etiology of pelvic floor dysfunctions

- Pelvic floor dysfunctions are due to:
  - Underactivity of PFM
  - Over activity of PFM
  - Impaired motor control - dyssynergia
  - Fascia and connective tissue disorders
Types of pelvic floor muscle dysfunctions

• Underactivity of PFM
  • Weakness
  • Laxity
  • Lack of neural control

• Over activity of PFM
  • Muscle spasm
  • Tightness
  • Pain
  • Pelvic pain syndromes
  • Neural entrapment/irritation
  • Trigger point formation
  • Somatic pain and dysfunctions
  • dyssynergia
Type of pelvic dysfunctions

**PFM muscular weakness, laxity. Under activity**

- **Etiology:**
  - Pelvic malalignment
  - Disuse
  - Structural laxity
    - Ligaments - connective tissues
  - Breathing (diaphragm)
- **Signs**
  - POP
  - SUI
  - Fecal dysfunction
  - Instability
  - Lower extremity dysfunction
  - Sexual dysfunction

**PFM tightness, inflexibility, muscular over activity**

- **Etiology**
  - Pelvic malalignment
  - Overuse/habits
  - Holding abdominal contraction/increased intra abdominal pressure
  - Diaphragm and breathing
  - Pelvic organ irritations/ Cystitis
- **Signs:**
  - Pain
    - Somatic
    - Sexual
  - Incontinence
    - Urge
    - Overflow
  - Constipation
Type of pelvic dysfunctions

Impaired motor control dyssynergia

• **Etiology:**
  • Dyssynergy between urethral sphincter and detrusor muscle contraction

• **Signs:**
  • Constipation
  • Urinary hesitation
  • Incontinence

Fascia or connective tissue disorders

• **Etiology:**
  • Overstretched/increased IAP
  • Structural damages

• **Signs:**
  • Pain
  • Somatic
  • Sexual
  • Incontinence
  • POP
  • Infertility
  • Sexual disorders
Clinical presentations

- Underactivity of PFM
  - Pelvic organ prolapse (POP)
  - Stress incontinence
  - Constipation

- Over activity of PFM
  - Incontinence
  - Urge
  - Overflow

- Pain
  - Somatic
  - Sexual
• Impaired motor control - dyssynergia
  • Constipation
  • Urge incontinence (detrusor and urethral sphincter)

• Fascia and connective tissue disorders
  • Pain
  • Infertility
  • Organ dysfunction
  • Incontinence
  • Sexual disorders
Normal PFM function

- Support of pelvic organs
- Sphincter closure
- Contraction and relaxation
- Sexual response
- Stability of pelvic joints
- Manage intra abdominal pressure

Dysfunctional PFM -effect

- Loss of support (POP)
- Loss of sphincteric function
- Incontinence
- Loss of sexual function
- Loss of stabilization
Symptoms associated with PFM dysfunction

• Urinary dysfunction
• Constipation
• Sexual dysfunction
• Pain
  • Pelvic pain
  • Lumbar pain
  • SIJ pain
  • Coccyx pain
  • Pubic pain
• Other
  • Endometriosis
  • Diastasis recti
Causes of dysfunction

• Muscular
• Neural and reflex control
• fascial and connective tissue
Physical therapy process

• Assessment
• Diagnosis
• Planning
• Intervention
• evaluation
Assessment

• Musculoskeletal
• Mechanical
  • Local
  • Global
• Visceral
• Neural
  • Reflex
  • Entrapment
• Vascular
• Systemic disorders
Assessment

- Impairment
- Functional limitation
- Disabilities
- History taking
- Screening
- Specific tests
- visual observation
- Palpation
- Muscle activity
The role of posture and pelvic alignment

- Mechanical factors affecting on function of pelvic floor muscles:
  - Diaphragm
  - Lumbar
  - Pelvis
    - Inlet
    - Outlet
  - Sacrum
    - Coccyx
  - Hip
    - Internal rotation/external rotation
    - Abduction, adduction
  - Pelvic organs
  - Pelvic fascia and ligaments
The role of posture and pelvic alignment (cont)

• Rib cage
• Thoracic mobility
• Lumbar lordosis
• Pelvic floor flexibility
• Sacral mobility
• Coccyx movement
  • Fascia restriction
  • Movement with pelvic floor contraction
Assessment of vaginal wall

- Inspection
- Skin, skar, prolapse
- Muscular function
- Degree of descent
- Contract- relax
- Pf muscle tone
- Pf muscle strength
- Lengthening
- Relaxation
- Bulbocavernosus reflex
- Anal wink reflex
- Timing
Relationship between Diaphragm and pelvic floor muscle function

- Inspiration
- Exhalation
- Discoordination
(a) Parietal pleura, visceral pleura, and pleural cavity.
visceral

• Visceral assessment
• Mobility
• Motility
Diagnosis

• Pathophysiology
Planning

• Improvement of daily living
• Pre contraction
• Sport
• Build up muscle volume
• Stiffness
• Automatic PFM action
• Reduce leakage: social activities (QOL)
• Improve timing
• Alter length- stiffness (anatomy)
Common treatment approaches for PFM rehabilitation

- Facilitation
- Mobilization
- Strengthening
- Normalization of tone
- Pain modification
- Exercise
- Postural training/functional
- Diaphragmatic breathing
- Proprioception
PRT
Electrotherapy

- E-stim
  - Neurostimulation
  - Neuromodulation
  - Pain
  - Reeducation
  - Facilitation

- Ultrasound
Biofeedback

• Sensory biofeedback
• Pressure biofeedback
• Improved muscle contraction
• Decreased resting tension, instability and pain
General treatment options

• Underactivity of PFM
• Strengthening/ endurance exercise
• Postural and global exercise
• PRI,MFR, postural training exercises, breathing exercises
• Biofeedback
• E-stim
General treatment options (cont)

• PFM over-activity
• MFR
• Dry needling
• Inhibitory exercises
• PRI
• Breathing exercises
• Dyssynergia and PFM motor control impairment:
  • Education- motor control training
• Fascia and connective tissue disorders
• Visceral manipulation
• Electrotherapy
Treatment

• Improving PFM strength
  • Vaginal closure
  • Inward-lift
  • slow and fast fiber

• Preventing pelvic organ descent:
  • Neuromuscular facilitation- coordination exercises
  • Knack exercise: motor control

• Manual treatment

• Improve pelvic alignment
Treatment (cont)

• Visceral manipulation
Chronic pelvic pain

• Ligament injuries
• Trauma
• Musculoskeletal disorders
Infertility

• Blood circulation
• Manipulation
• exercises
Assessment

• Visually inspect the perineum at rest
• Observe PFM contraction, relaxation
• Check sensation/neurological integrity
• Palpate
  • quality, sensation, temperature and tenderness.
• sensitivity to light touch in women with urogenital pain
• Palpate the internal vagina/rectum
  ▪ Presence of pain. Identify and localized or diffuse.
  ▪ Pelvic floor muscle tone: compliance and springy
  ▪ Muscle contractile activity
  ▪ Digital palpation: PFM contractility, symmetry and coordination
• obturator internus, abdominal and piriformis muscle abnormality and pain
• Surface electromyography
• Hip alignment
Evaluation

• Pelvic floor pain syndrome

• dyspareunia
Pelvic pain

Occurrence of persistent or recurrent episodic pelvic pain associated with symptoms suggestive of:

- lower urinary tract:
- sexual: vaginismus (Masters & Johnson 1970) and dyspareunia
- bowel
- gynecological dysfunction

Pain:
- in the anterior abdominal wall
- below the level of the umbilicus

Sexual dysfunction and pain are two symptoms of PFM dysfunction (Messelink et al 2005)
Dysfunction may be:

- *primarily* from the **PFM** (superfascial & deep)
- *secondary* to **visceral changes**
  - (lower urinary tract, reproductive tract or anorectum)
- **referred** from other
  - pelvic somatic (cutaneous and muscular) structures
Pelvic pain

Visceral dysfunction:
- bladder
- anorectum

Somatic referral:
- pelvic muscles
- pelvic joints
- pelvic soft tissues

Visceral dysfunction:
- dyspareunia
- vaginismus

Altered tension
- deep PFM
- superficial PFM

Higher centres:
- learning
- environmental adaption
- limbic system

PFM pain syndrome

Perineal pain syndrome

Gynaecological disorder
Factors contributing to female sexual dysfunction

• muscular
• Neural
• Hyperactivity of the pelvic floor may reduce the introital opening causing dyspareunia.
Physical therapy treatments:

- **MANUAL THERAPY:** reducing muscle tension
  - Trigger point release
  - Myofascial release
  - Visceral manipulation

- **Exercise:** reinforce normal muscle contraction and relaxation
  - Pelvic floor muscle exercises
  - Relaxation exercises + de-sensitization.
  - Stabilizing or strengthening exercises: normal function of muscle

- **sensory awareness**
  - change body attitude

- **movement synergy**
  - dysfunctional respiration patterns.

- **Cognitive behavioral stress management**
ADJUNCTIVE THERAPIES

• Biofeedback modalities
• re-education of the contractile element of muscle tone
• Electrotherapy:
  • pain treatment
  • Muscle re-education
Conclusion:

- Pain relief during sexual activity
- Reduction of abdominal pain and spasm
- Trigger points released
- Myofascial released
- Improvement of frequency & urgency
- Times of constipation reduced
- Pain relief during defecation
- Relaxation of Pelvic floor muscles