Pilates and the evidence for post-natal, low back pain and active aging

Presented by
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Objective

Participants will be able to demonstrate the basic movement principles of Pilates and list general movement guidelines for common musculoskeletal issues including low back pain, balance, osteoporosis, pelvic floor dysfunction, and diastasis recti.
Let’s move!
• Joseph Pilates
• Works with the anatomical principles of body
• Created repertoire from studying human anatomy & animal movements
• Original exercises still practiced with modern knowledge of the body
• Mat or with equipment that Pilates designed including the reformer, cadillac, chair and barrels
Pilates Principles
Pilates Principles

Traditional

• Centering
• Concentration
• Control
• Precision
• Breathing
• Flowing Movement

Anatomical

• Breath
• Pelvic Placement
• Rib cage stabilization
• Shoulder mobilization and stabilization
• Cranial-vertebral alignment
Traditional Principles

- Centering
- Concentration
- Control
- Precision
- Breathing
- Flowing Movement

Mindfulness, focus and quality of movement relates to performance
Anatomical Principles

- Breath
- Pelvic Placement
- Rib cage stabilization
- Shoulder mobilization and stabilization
- Cranial-vertebral alignment

Alignment, posture, muscle balance to optimize strength and avoid injury.
Pilates can be used as a lens that informs and organizes all human movement, making it versatile and applicable to general fitness, athletic performance, physical therapy, and rehabilitation.
Applying Anatomical Principles

• Layer each principle and maintain throughout training

• Alignment from the anatomical position

• Challenge in relationship to gravity
Applying Anatomical Principles

- Movement complexity and weight adds challenge
- Use a variety of cues, images, visual and tactile to address individual learning styles
Pilates Warm up and Exercises

- Breathing
- Arm Circles
- Pelvic rocking
- Single leg lifts
- Cat stretch
- Opposite arm and leg reach
- Thoracic rotation
- Scapular movement
- Articulating Bridge
- Bridge marches

- Spinal Rotation
- Side leg lifts
- Plank
- Elephant to standing
Additional Health Impact of Pilates

- Promotes spinal health
- Mitigates impact of sitting
- Builds mindfulness
- Supports behavior change science for creating exercise habits
Examining Evidence for Pilates
Evidence

Mindfulness linked to

- Improved neurofeedback and interoceptive awareness
- Increase cognitive functioning and attention
- Decreased worry symptoms and stress
- Moderate improvement in depression and anxiety

(Bühlmayer et al., 2017) (Ford et al., 2016) (Scott-Hamilton et al., 2016) (Lenze et al., 2014) (Young et al., 2017)
Evidence

General findings

• Improved muscular strength
• Improved flexibility
• Delayed onset of fatigue
• Postural improvements
• Injury rehabilitation

(Bhadauria & Gurudut, 2017) (Chinnavan et al., 2015),
(Romani, 2017)
Evidence

Study-specific

- **Chronic low back pain**: Reduction of pain, improvement in range of motion, functional ability, greater reduction of disability in the Pilates group than the dynamic strengthening (Bhadauria & Gurudut, 2017).
Evidence

Study-specific

- **Balance and strength:** Participants saw significant improvement in dynamic balance and strength after 12 month period of Pilates training compared to control group who ceased Pilates after 5 weeks (Bird & Fell, 2017).

- **Injury and pain reduction:** Case study of elite runner with lower extremity injuries and malalignment that prevented her running for 3 years. After Pilates for 1 year, disabled movement resolved and she returned to running. (Lugo-Larcheveque, et al., 2006).
Movement Heals

Applying the Pilates Principles to Common Musculoskeletal Issues
Low Back Pain
Low Back Pain Best Practices

*LBP is the fifth most reason for all physician visits in the US*

1. Rule out red flags for other serious conditions
2. Manage pain and **debilitating mindset**
3. Engage in individualized exercise therapy program with emphasis on core and spinal stability
   - Strengthening of the lumbar and cervical extensors
   - Recruit deep anterolateral abdominals with coactivation of pelvic floor, lumbar multifidus, and activation of gluteal muscles

Low Back Pain Movements

Use Pilates warm up then:

1. Side leg series
2. Opposite arm and leg
3. Hip release
4. Heel squeeze prone
Osteoporosis
Osteoporosis Best Practices

1. Weight-bearing aerobic exercises and muscle strengthening to improve agility, strength, posture, balance and maintain bone strength and reduce fall risk
   a. Avoid twisting, dynamic ab movement (ex: sit ups), bending or compressing spine, ballistic (ex: jumping) and excessive trunk flexion
   b. Have a minimum of one foot planted on ground
Osteoporosis Best Practices

2. Focus on extension movements to strengthen back extensor muscles and abdominals to improve posture and body control to reduce risk of fall

3. Begin exercise program at low level, comfortable for client, and progressively load weight

(Cosman, et al., 2014), (Petit, et al., 2008)
Osteoporosis Movements
Use Pilates warm up without spinal flexion

1. Extension prone or sitting
2. Extension over toning ball
3. Overhead reaches
4. Marching
Balance
Balance Best Practices

1. Moderate-to-high challenge to balance, 2+ hours/week
2. Movement interventions should target balance, coordination, and functional exercise
3. Strength training may be added, but not in place of balance training (focus on core)
4. Walking can be included, but high risk individuals should not be prescribed brisk walking

Balance Exercises
Use Pilates warm up

1. Single leg lifts supine or sitting
2. Opposite arm and leg quadruped or standing
3. Standing on one foot progressions
4. Squats (adding leg lifts and balance)

Photo Source: Exercises for Seniors the Complete Guide, Evelo.
Pelvic Floor Dysfunction
300,000 and 400,000 American women annually

1 in 4 women have urinary incontinence
Pelvic Floor Dysfunction Best Practices

1. Aside from diet and lifestyle factors, pelvic floor muscle training beneficial
   a. Strengthen muscles that surround urethra, vagina, and rectum
   b. Kegel exercises
   c. Studies emerging demonstrating importance of transversus abdominis training
2. Surgery to repair pelvic floor

(American College of Obstetricians and Gynecologists, 2017), (Colligan, et al., 2010)
Pelvic Floor Movements

Use Pilates warm up

3. Pelvic clock

4. Single leg lifts

5. Hip release/stretches

6. Pelvic floor activation
Diastasis Recti
DR Best Practices

Need for better quality studies but in general, non-surgical guidelines include a focus on unique posture and alignment of client.

Diastasis Recti Movements

Use Pilates warm up
without spinal flexion (no bulging)

1. Breathing
2. Pelvic clocks
3. Transversus Abdominis Theraband exercise
4. Self myofascial release
5. Single leg lifts, toe taps
Thank you.


References


References

