



Using the Pilates Apparatus for the Frail Older Adult

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www.therapilates.com

TheraPilates® for the Frail Older Adult
Using Pilates Apparatus



with Sherri Betz, PT, DPT, GCS, CEEAA, PMA®-CPT

Balance:
an integral part of Fitness!


- Osteogenesis through weightbearing
- Fall Prevention
- Proprioceptive Stimulation
- Leg Strengthening

"Falls are the leading cause of injury-related death and hospitalization in people age 75 years and older"

Lord, SR. (2003) "Vision, Balance and Falls in the Elderly." *Geriatric Times*. November/December 2003 Vol. IV Issue 6.

Balance

- Single leg standing balance is missing in Pilates
- Many Pilates exercises can be modified to incorporate Balance Training into a patient's program.




Madureira et al. 2007 "Balance Training program highly effective in improving functional status and reducing risk of falls"

Balance: Pilates Progression


Pilates progression in Balance Training

- Supine, Prone, Sidelying
- Quadruiped
- 1/2 Kneeling
- Full Kneeling
- Standing
- Single Leg Stance
- Standing on Unstable Surfaces




Exercise:
General Concepts

- Teach Hip Hinge and Spine Alignment
- Respect Painful Joints or Regions
- Teach Standing Posture & Balance
- Improve Overall Body Awareness



Strength Training: Muscle = Bone

- 1 Repetition Max
- Intensity of training: 70-80%
- 8-12 Reps to temporary muscle failure or fatigue
- 15-20 Reps is low intensity or more endurance training and not as effective for building strength or bone



Chahal, J., et al. (2014), Mosti, M. P., et al. (2014), Multanen, J., et al. (2014).

Neutral Spine Training

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Neutral or Optimal Alignment

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Pilates for Frail Older Adults

The exercises should be focused on:

- Balance
- Leg Strength
- Hip Extension
- Thoracic Extension

*As few seated exercises as possible!

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Pilates Mat: Why Not?

70% (24/34) of the Mat Exercises from *Return to Life* are **contraindicated** for osteoporosis...

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Pilates for Frail Older Adults

All of the exercises are performed on a mat and would not be accessible to a frail older adult unless they were performed in bed.

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Pilates Apparatus

- Trapeze Table
- Reformer
- Chair
- Ped-o-pul
- Ladder Barrel
- Spine Corrector

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Trapeze Table



Relaxation and enhancement of thoracic extension and chest opening

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Trapeze Table



Arm Springs from Above

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Trapeze Table




Leg Springs Springs from Above for more assistance and less resistance

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Trapeze Table



Bridging (with a pillow when client has excessive kyphosis)

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Trapeze Table



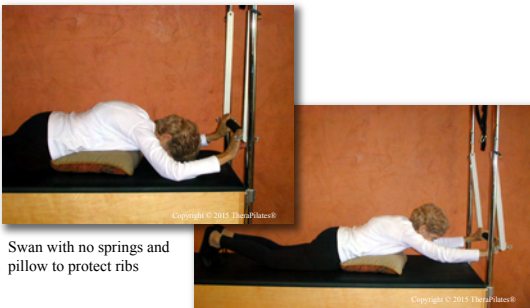
Marching while pressing head up into horizontal bar with padding

Climbing Stretch

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Trapeze Table




Swan with no springs and pillow to protect ribs

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Trapeze Table:

- Long Spring Leg Series
- Breathing
- Standing on Floor Arm work
 - Single Leg Stance
 - Unstable surface
 - Squats (sit to stand)
 - Lunges
- Chest Expansion
- Thigh Stretch
- Flying Eagle-Standing on Floor in hip hinge/no flexion



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All Exercises Found in PMA Study Guide
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Trapeze Table:

For more fit clients:

- Quadruped Hip Extension




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Trapeze Table:

- Thigh Stretch
- Arm Circles Prone



Found in PMA Study Guide
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Baby Arc



Using Baby Arc with Trapeze Table upright bars as support and pressing into hands to increase thoracic extension. Feet on a long box may be necessary.

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Thoracic Extension with Ball

- Thick air-filled massage balls can be used to provide direct pressure to the spinous process without excessive pressures on the ribcage
- Targets thoracic extension with self-PA glide technique
- Targets abdominal strength simultaneously



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Ladder Barrel
for more advanced older adults

Caution:
No Grasshopper due to excessive pressure on ribs
No horseback due to excessive stress through neck of femur

Ladder Barrel:
Bridging
Modified Supine Stretch
Ballet Stretches
(avoid flexion)





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Spine Corrector

Caution
*Avoid pressures on ribcage
Supine Stretch with Pillow

For Fit Older Adults:
Swan
Grasshopper
Swimming
Rocking: good for paraspinal strengthening, hip extensor strengthening and balance/core control.

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Reformer-Modified for Kyphosis




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Reformer

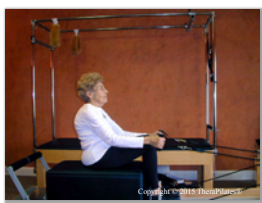
Eve's Lunge and Scooter unmodified

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Reformer

Seated Rows: Bent Arm, Biceps, Chest Expansion, W




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Combo Chair for Frail Older Adult





- Standing Leg Pumps
- Standing Leg & Foot Press
- Seated Footwork
- Achilles Stretch with pad

**Needs Handles for Safety*
**May need to wear supportive shoes*


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Wunda Chair:

ADVANCED EXERCISES FOR FIT OLDER ADULT:

- Frog Facing Out or Lying Flat
- Single Leg Pump Lying Supine
- Standing Leg Pumps on Moon Box
- Side Arm Twist with Extension Variation
- Lateral Flexion (decrease the ROM)
- Press Up with Handles Facing Forward and Outward
- Single Arm Push Ups

All Exercises Found in PMA Study Guide



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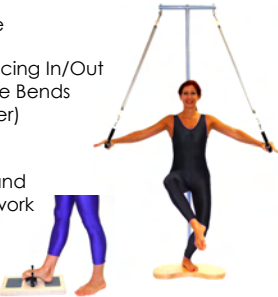
Small Prop Exercises...

Ped-i-pul:

- Arm Lowers Front and Side
- Tricep Press
- Plies/Deep Knee Bends Facing In/Out
- Single Leg Plies/Deep Knee Bends
- Seated Arm Series (Fletcher)

Foot Corrector:

- Or Tennis Ball to prepare and stimulate feet for balance work
- Doming
- Curl Toes (Prehensile)



All Exercises Found in PMA Study Guide

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Clinical Pearls:

- Incorporate standing posture and single leg balance as often as possible
- Incorporate step ups, plies, squats and lunges with perfect form and then add weight (weighted vest or free weights) when tolerated
- Add thoracic extension exercises passively at first (spine corrector, baby arc, Pilates arc, ladder barrel, foam roller or massage ball)
- Progress to thoracic extension strengthening prone
- Use heavy springs (all on 2nd gear) as tolerated for footwork on the reformer. Add single leg footwork as tolerated as heavy as possible.

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RESOURCES

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Pilates Exercise Resources



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International Osteoporosis Foundation

- For more information and continued updates on research and developments for the treatment and prevention of osteoporosis go to the internet:
- To search for the Osteoporosis Societies in ANY country go to:

www.osteofound.org


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Osteoporosis Australia

Osteoporosis Australia aims to improve awareness about the disease in the Australian community and reduce bone fractures.

<https://www.osteoporosis.org.au/>


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ONERO Academy 

An Evidence-based exercise program developed by Professor Belinda Beck, based on findings from the LIFTMOR Trials at Griffith University.

<https://onero.academy/osteoporosis-exercises/>

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ESSA Position Statement 

- Beck, B. R., et al. (2016). "Exercise and Sports Science Australia (ESSA) position statement on exercise prescription for the prevention and management of osteoporosis." *J Sci Med Sport*.

<https://onero.academy/wp-content/uploads/2019/02/Essa-Positional-Statement.pdf>


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Australia & New Zealand Bone & Mineral Society 

ANZBMS is a professional medical / scientific society established in 1988 to bring together clinical and experimental scientists and physicians actively involved in the study of bone and mineral metabolism in Australia and New Zealand.

<https://www.anzbms.org.au/>

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Australian Physiotherapy Association 

(APA) is the peak body representing the interests of Australian physiotherapists and their patients.

<https://australian.physio/>

Special webpage devoted to consumer education about osteoporosis

<https://choose.physio/your-condition/osteoporosis>

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 **National Osteoporosis Foundation (USA)** 


For more information and continued updates on research and developments for the treatment and prevention of osteoporosis go to the internet:

www.nof.org


1-202-231-4222

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FORE: Foundation for Osteoporosis Research & Education (USA) 

 FORE has a public outreach program called American Bone Health.

American Bone Health was developed as a community outreach and awareness program

www.americanbonehealth.org  **AMERICAN BONE HEALTH**

www.FORE.org

888-266-3015

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**American Bone Health
Speaker's Bureau! (USA)**






**AMERICAN
BONE HEALTH**


Become an American Bone Health Peer Educator. Contact Kathleen Cody, Executive Director, or Shelley Powers if you are interested in the training program to become a speaker.
888-266-3015
kathleen@americanbonehealth.org

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Pilates Method Alliance



- The Pilates community at large has joined together in an effort to identify and preserve the comprehensive work of Joseph and Clara Pilates.
- The PMA believes that Pilates should evolve along with the advances in movement research and modern science.
- The PMA developed a 3rd party accredited certification program in 2005 to establish national entry-level standards in an effort to protect the public and ensure quality of instruction.



www.pilatesmethodalliance.org


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**American Physical
Therapy Association**


The Bone Health Special Interest Group is a group of "boneheads" with a passion for bone health!

Join us at: www.geriaticspt.org
or email sherri@therapilates.com




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**Academy of Geriatric
Physical Therapy**





Clinical Practice Guidelines for the Management of Osteoporosis

Under the direction of Greg Hartley and Keith Avin, Bone Health SIG members, Sherri Betz and Carleen Lindsey are participating in the CPG Workgroup to publish a Clinical Guidance Statement with a special focus on exercise and manual therapy intervention recommendations.



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**The Fountain
of Youth!**






"Hip Extension,
Thoracic Spine
Extension
Leg Strength,
&
Balance!"

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Thank you!

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