



Pilates Mat for Frail Older Adults

Dr. Sherri Betz

PT, DPT, GCS, CEEAA, PMA-CPT

www.therapilates.com

TheraPilates® for the Frail Older Adult

Pilates-Based Mat Class






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

Copyright © 2019 TheraPilates®

Copyright © 2019 TheraPilates®

Did you know?

1 in 2 women....
1 in 4 men....
over age 50 have low bone density and is at risk for fracture

www.NOF.org



TheraPilates® Physical Therapy

What is the main reason that older adults are admitted for long-term care?



TheraPilates® Physical Therapy

Leg Strength

Walking speed and Leg Strength are the top predictors of nursing home placement!

Guralnick JM, et al 1994, Gill et al 1995, Studenski et al 2003, Guralnick et al 2000

1.4 m/s (3.1 miles/hour) is the setting for crosswalks



TheraPilates® Physical Therapy

Tiers of Care

- \$\$\$\$ Physical Therapy
- \$\$\$ Pilates Private
- \$\$ Small Group (w/without apparatus)
- \$ Large Group (Mat Class)

Care moves from highest skill at highest cost to lowest skill at lowest cost.



TheraPilates® Physical Therapy

Fit or Frail?

- Older Adults need low-cost, long-term group exercise programs targeted to their level of Fitness and Function.
- Triage of Older Adults into the Fit or Frail categories can be simplified by asking, "Can you get down to and up from the floor without assistance?"
- The frail older adult will need chairs, props and balance poles for their exercises.

Copyright© 2008 TheraPilates®



TheraPilates® Physical Therapy



Fracture Prevention Brochure

Fracture Prevention Brochure developed as a partnership with American Bone Health and the APTA Geriatric Section's Bone Health Special Interest Group

Download at www.therapilates.com or call American Bone Health for printed brochures

Exercise Intervention: General Concepts

- Teach Fracture Prevention FIRST!
 - Protect the vertebral bodies by avoiding flexion, endrange rotation/sidebending
 - Protect the ribcage with pillows
 - Avoid planted foot twists and forced rotation through the neck of the femur

Pigeon Pose

Exercise Class: General Concepts

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

Neutral Spine Training

Copyright © 2015 TheraPilates®

TheraPilates® Physical Therapy 13

Neutral or Optimal Alignment

Copyright © 2015 TheraPilates®

TheraPilates® Physical Therapy 14

Pilates for Frail Older Adults

The exercises should be focused on:

- Balance
- Leg Strength
- Hip Extension
- Thoracic Extension

*As few seated exercises as possible!

Copyright © 2015 TheraPilates®

TheraPilates® Physical Therapy 15

Massage 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

Copyright © 2015 TheraPilates®

TheraPilates® Physical Therapy 16

Pilates Mat: Why Not?

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

Copyright © 2015 TheraPilates®

TheraPilates® Physical Therapy 17

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.

Copyright © 2015 TheraPilates®

TheraPilates® Physical Therapy 18

Stop the Crunches!

- What older adult needs better thoracic flexion?
- How many of us will end up walking with the walker behind us?



TheraPilates® Physical Therapy Copyright © 2015 TheraPilates® 19

Pilates Apparatus

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

TheraPilates® Physical Therapy Copyright © 2015 TheraPilates® 20

Trapeze Table



TheraPilates® Physical Therapy Copyright © 2015 TheraPilates® 21

Trapeze Table



TheraPilates® Physical Therapy Copyright © 2015 TheraPilates® 22

Trapeze Table

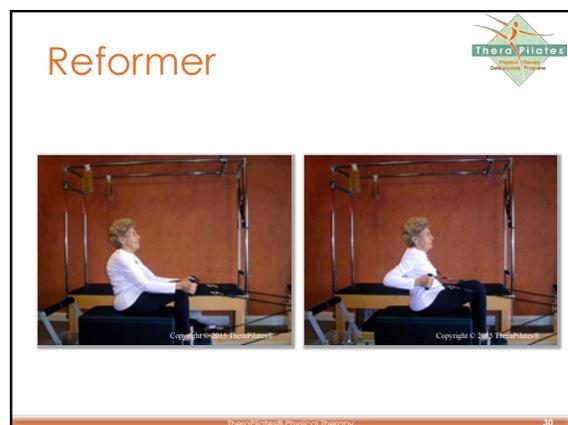
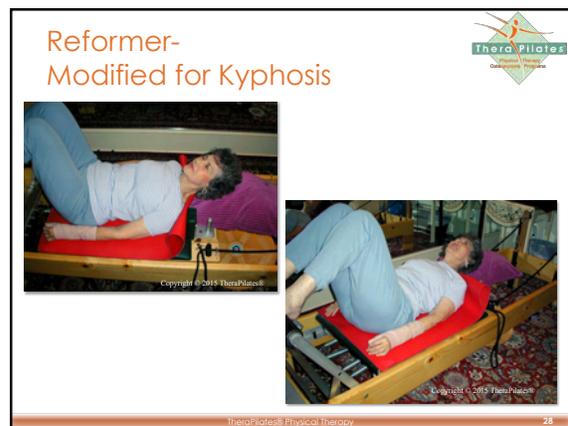
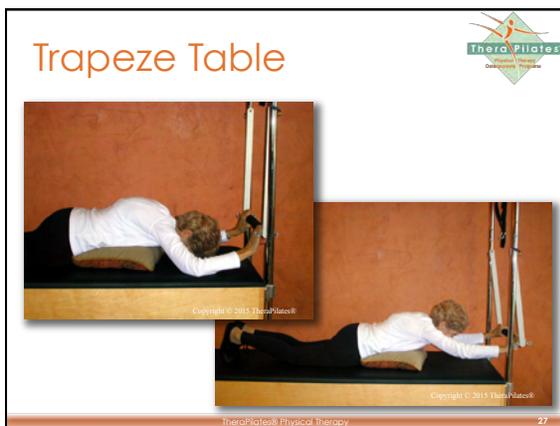


TheraPilates® Physical Therapy Copyright © 2015 TheraPilates® 23

Trapeze Table



TheraPilates® Physical Therapy Copyright © 2015 TheraPilates® 24



Combo Chair



Copyright © 2015 TheraPilates®

TheraPilates® Physical Therapy 31

Pilates Exercise Resources



Copyright © 2008-16 TheraPilates®

TheraPilates® Physical Therapy 32

The Fountain of Youth!



Copyright © 2015 TheraPilates®

TheraPilates® Physical Therapy 33

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

Copyright © 2008 TheraPilates®

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

TheraPilates® Physical Therapy 34



National Osteoporosis Foundation

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

TheraPilates® Physical Therapy 35

FORE: Foundation for Osteoporosis Research & Education



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

TheraPilates® Physical Therapy 36

Become an American Bone Health Speaker!




AMERICAN BONE HEALTH

Join the American Bone Health speakers Bureau. 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

TheraPilates® Physical Therapy 37

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

TheraPilates® Physical Therapy 38

Thank you!




Copyright © 2015 TheraPilates®

TheraPilates Physical Therapy Clinic
 920-A 41st Avenue Santa Cruz, CA 95062
www.therapilates.com 831-359-5184 sherri@therapilates.com

TheraPilates® Physical Therapy 39

Frail: Older Adult Pilates Based-Mat

with Sherri Betz, PT, DPT, GCS



- 1) Shoes off Foot Massage with Hands/Tennis Ball
- 2) Ball behind back Thoracic Extension
- 3) Costal Breathing
- 4) Hip Hinge with Dowel
- 5) Sit to Stand Practice leg and spine alignment
- 6) Fletcher 7 Standing and Centering Cues
- 7) Standing Balance: Feet Together, Tandem
- 8) Single Leg Standing Balance 3 sets of 10 sec
- 9) Up on toes with Ankles together
- 10) Single Leg Stance-Heel raise with proper ankle tracking
- 11) Sit Down to Rest Legs: Fletcher taut towel pulls in "serving" position with palms up, elbows at waist at 90° to prepare shoulder for upper body work.
- 12) Taut Towel Pulls
- 13) Fletcher Taut Towel Pulls at: Collarbones and Overhead
- 14) Back up to Standing: Single Leg Stance-Bend Knee, keep arch lifted, knee over 2nd toe
- 15) Bend or Straighten Standing Knee; hip flex, abd, ext with tubing
- 16) Seated Elastic Band Rowing, Bicep Curls, Shoulder Extension, Bow & Arrow Rows with Rotation
- 17) Abdominal Hinges and Pelvic Tilts
- 18) Chair Pose with Hip Hinge and Neutral Spine
- 19) Lunges (Marriage Proposal Position)
- 20) Shoulder Push Ups Against Wall or Counter
- 21) Dynamic Stepping behind chair: Side Steps, Grapevine, Towel Sequence with Small Sidebend
- 22) Seated Psoas Stretch

Review of Standing Posture, lifting activities, body mechanics, and precautions.

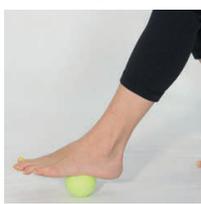
*Adjust your rear-view mirror to your taller sitting posture!
Stay positive, stay active, stay independent!*



TheraPilates® Mat Class for Frail Older Adults

Designed for a recreation center. Supplies needed for each participant: Chairs, 4 foot dowels with stoppers on each end, 2 tennis balls (get these free from a tennis coach!), 8" Air Filled Balls, 5 foot Medium Weight Therabands, Elastic loop.

Tennis Ball Massage



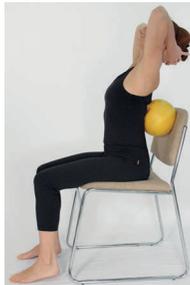
Rolling Massage

Parakeet: MTP Flexion

Inch Worm

1. Roll tennis ball longitudinally between metatarsals slowly from heel to MTPs.
2. Place heel in front of ball, wrap toes over top of ball to expose the 5 metatarsal heads.
3. Play "inchworm" with the feet.

Ball Behind Back: Thoracic Extension



Place the ball as high as possible behind the back. Place hands behind the neck and slide them up to the base of the skull providing traction to the cervical spine. Keep elbows forward to avoid chest stretch and focus on mobilizing the spine. Inhale to extend the spine over the ball, exhale to return to vertical posture. Repeat 3-5x at each position of the thoracic spine. Progressively work down the spine. Do not place the ball at the lumbar spine for this exercise.

Slight Lumbar Flexion/Posterior Pelvic Tilt

Keeping a vertical and lengthened spine, roll the pelvis back and press the lumbar spine into the ball without losing the position of the ribcage and head. Feel the deep abdominals contract. Try this also with the legs in a wide position to facilitate pelvic floor contraction.

TheraPilates® Mat for Frail Older Adults

BREATHING:

Diaphragmatic
(Abdominal/Belly)



Upper Thoracic
(Pump Handle)



Lower Thoracic
(Costal)



Teach Breathing Styles asking for 3 breaths of each type. Progress by asking students to perform Diaphragmatic Breath, then an Upper Thoracic Breath and then a Lower Thoracic Breath alternating between the 3 types for 3 sets. (You don't have to teach all 3 styles in one session)

Diaphragmatic Breath with expansion of low abdomen without perturbation of pelvis/spine

Upper Thoracic (Pump Handle) breath with sagittal expansion of sternum and upper thoracic spine without upper trapezius over recruitment

Lower Thoracic (Costal) breath with expansion of lower ribs bilaterally in the frontal plane without upper trapezius over recruitment.

SIT TO STAND/Hip Hinge

Start Position

Hip Hinge

Fingers on TOP & Thumb UNDER



If unable to use the dowel behind back due to excessive kyphosis, dowel may be used as a cane.

Sit to Stand (Use 18" / 46cm Standard Chair Seat Height)

Be Sure Legs Are Touching Chair at 90° Hip Flexion Hold 10 sec



FAULTY:

Sidebending

UE for Assist

Extended

Flexed

Valgus

Correct



FAULTY:

Slumped, Flexed Sit to Stand

Weak Leg Forward



TheraPilates® Mat for Frail Older Adults

Hip Hinge: Must keep neutral spine, hinge at hips 3 5x maintaining spine position with dowel against head, midback and sacrum. Use fingers/hand on top of dowel and place thumb between the dowel and the lumbar spine to monitor the space as hinging occurs.

Sit to Stand:

Scoot to front of chair, perform hip hinge (think of leading or initiating with tailbone) and stand up. Step back until backs of thighs are touching the chair. Repeat **Sit to Stands** barely touching thighs/buttocks to the chair 10x very slowly. Students can use the dowel as a cane if necessary. Watch for:

1. Ability to stand up maintaining spine position and balance (avoiding flexion or pelvic tuck).
2. Ability to stand up with good knee and foot organization (avoids valgus, pronation or placing 1 foot behind the other if one leg is weak).
3. Ability to stand up without upper extremity assistance.
4. Ability to hold half squat in 90 degrees of hip flexion above the chair surface for 10-30 seconds.

Fletcher 7 Standing & Centering Cues:

1. Tripod Foot

Foot Centers
Encourage



Avoid



Avoid



2. Magnets

Magnets
Encourage



Avoid



3. Bolts

Bolts
Encourage



Encourage



Avoid



Avoid



Neutral Correct

Anterior

Posterior

4. Girdle of Strength

Girdle of Strength

Encourage



Avoid



Avoid



5. Shoulder Girdle Placement

Shoulder Girdle Placement

Encourage



Avoid



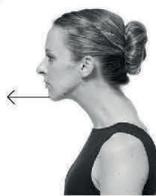
6. Head and Neck Placement

Head and Neck Placement

Encourage



Avoid



Avoid



7. Breathing

Fletcher Percussive Breath™

Encourage



Encourage



HEEL RAISE

Begin with tennis ball between ankles to practice subtalar neutral alignment.

Bilateral Correct Alignment with Tennis Ball Heel Lift



Unilateral Correct Alignment



FAULTY: Knee Bent



Pelvis Forward



Pelvis Elevated



Pelvis Shift



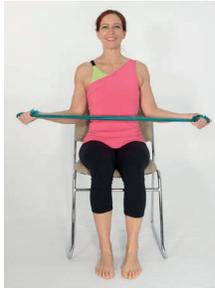
Torso Lean



Remember:

1. Keep Ankle Subtalar Neutral Alignment
2. Keep Knee Straight
3. Keep Pelvis Level: avoid anterior translation, hiking, or shifting laterally
4. Maintain Rib to Pelvis Alignment: avoid rib shift anteriorly, laterally or posteriorly and torso lean
5. Maintain Shoulder Girdle Organization: avoid elevation, ab/adduction and keeps arms crossed
6. Maintain Head Alignment: avoid forward head or jutting of chin
7. Repeat 10x with good balance: avoid touching legs together, touching lifted foot to floor, excessive torso movement, hopping or flailing arms
8. May use chair back rest and or cane for balance assistance. Strongly encourage students to attempt exercise without assistive devices (float hand 2" off of chair back rest or hold dowel/can 2" off floor for safety)

Elastic Band Serving: Preparation for all upper body work



Hold elastic band without slack about 12” apart palms up. Imagine that you are holding a serving tray. Sit tall in optimal postural alignment. Inhale to widen collarbones and roll humeral heads back and down in the sockets. Exhale and pull elastic band apart as far as possible while maintaining the humeral head and scapular position. Avoid “squeezing” or adducting scapula. Repeat 10 times and increase band tension to progress.

Elastic Band Rowing: Bilateral, Unilateral & Rotation



Bilateral:

Sitting Tall, Knee Straight (as long as no sciatic pain, tingling or numbness). Inhale to pull elbows back to the side seams. Exhale, pull humeral heads and arms back farther. Inhale, return to side seams. Exhale straighten elbows.

Unilateral:

Sitting Tall, Knee Straight (as long as no sciatic pain, tingling or numbness). Inhale to lengthen the spine. Exhale to pull elbows back to the side seams. Inhale to release the right arm slowly to start position. Repeat 4-5x on each side.

Rotation:

Sitting Tall, Knee Straight (as long as no sciatic pain, tingling or numbness). Inhale to lengthen the spine. Exhale to pull the right elbow back as the sternum rotates to the right. Inhale to release the right arm and sternum slowly to start position. Imagine drawing a bow and arrow. Repeat 4- 5x to right with elastic band on right foot and then 4-5x to left with elastic band on left foot.

Remember:

1. Keep Knee Straight
2. Keep Pelvis Level: Avoid anterior translation, hiking, or shifting laterally
3. Maintain Rib to Pelvis Alignment: Avoid rib shift anteriorly, laterally or posteriorly and torso lean
4. Keep Shoulder Girdle Organization: Avoid elevation, ab/adduction and keeps arms crossed
5. Keep Head Alignment: Avoid forward head or jutting of chin
6. Perform 4-5 repetitions with band on right leg. Repeat on left leg.

Single Leg Knee Bend



Standing Tall in optimal posture with feet together, allow the weight to shift to the left leg. Keeping the pelvis level, lift the right foot off the ground and lift the leg until the knee is even with the hip (Imagine balancing a cup of tea on your knee). Allow the hip, knee and ankle of the standing leg to fold equally and bend as far as ankle range of motion will allow. Hold for 10 progressing to 60 seconds. When able to hold for 60 seconds, begin going up and down as if you are sliding up and down a wall. Repeat 10x each leg.

Remember:

1. Maintain tripod foot, subtalar neutral ankle alignment. Avoid pronation or collapsing arch.
2. Keep knee aligned over 2nd toe. Avoid valgus motion of the knee.
3. Keep Pelvis Level: Avoid anterior translation, hiking, or shifting laterally .
4. Maintain Rib to Pelvis Alignment: Avoid rib shift anteriorly, laterally or posteriorly and torso lean
5. Keep Shoulder Girdle Organization: Avoid elevation, ab/adduction and keeps arms crossed
6. Keep Head Alignment: Avoid forward head or jutting of chin
7. Perform 4-5 repetitions with band on right leg. Repeat with band on left leg.

3 Way Hip: Flexion, Abduction and Extension (of course!)



3 Way Hip Without Band:

Standing Tall in optimal posture with feet together, allow the weight to shift to the left leg. Keeping the pelvis level, lift the right foot off the ground and lift the leg until the knee is even with the hip (Imagine balancing a cup of tea on your knee). Inhale to lengthen the spine. Exhale to send the right foot forward to about 2" off the floor until the knee is straight. Inhale to return to the "stork" position. Exhale to send the right foot out to the side to about 2" off the floor until the knee is straight. Inhale to return to the "stork" position. Exhale to send the right foot back to about 2" off the floor until the knee is straight. Pay special attention to the pelvis position avoiding anterior pelvic motion or lumbar spine extension. Imagine connecting the pubic bone to the sternum to maintain pelvic alignment. Inhale to return to the "stork" position. Repeat 10x each leg. Add pulses if desired.

3 Way Hip WITH Band:

Standing Tall in optimal posture with feet together, allow the weight to shift to the left leg. Keeping the pelvis level, lift the right foot off the ground about 2" with the knee straight and ankle dorsiflexed. Inhale to lengthen the spine. Exhale to lift the right leg about 12". Inhale to barely touch the skin of the heel to the floor. Repeat 10x forward. 10x to the side and 10x to the back. Add pulses for a challenge. Pay special attention to the pelvis position when the hip extends, avoiding anterior pelvic motion or lumbar spine extension. Imagine connecting the pubic bone to the sternum to maintain pelvic alignment.

3 Way Hip with Standing Leg Bent:

Perform either of the above variations with the standing leg bent for an increased challenge.

Remember:

1. Maintain tripod foot, subtalar neutral ankle alignment of the standing leg. Avoid pronation or collapsing arch.
2. Keep knee aligned over 2nd toe. Avoid valgus motion of the knee.
3. Keep Pelvis Level: Avoid anterior translation, hiking, or shifting laterally .
4. Maintain Rib-Pelvis Alignment: Avoid rib shift anteriorly, laterally or posteriorly and torso lean
5. Keep Shoulder Girdle Organization: Avoid elevation, ab/adduction and keeps arms crossed
6. Keep Head Alignment: Avoid forward head or jutting of chin

Elastic Band Chest Expansion, Tricep Press, Bicep Curls

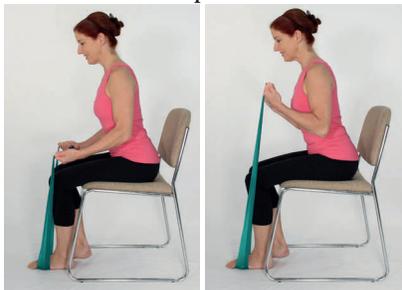
Chest Expansion



Tricep Press



Bicep Curl



Chest Expansion:

Sitting Tall, Knee Straight (as long as no sciatic pain, tingling or numbness). Inhale to widen collarbones and pull arms and humeral head back to the side seams. Exhale, pull humeral heads and arms back farther. Inhale, return to side seams. Exhale to return to start position.

Tricep Press:

Hinge forward in a neutral spine position. Place elastic band under right foot. Adjust tension to ability. Keep foot firmly planted to hold elastic band. Hold elastic band steady with left hand and reach right elbow back to begin. Inhale to lengthen the spine and “set” the scapula on the back. Exhale to straighten elbow. Maintain spine, shoulder and wrist alignment. Repeat 10x on each side.

Bicep Curl:

Hinge forward in a neutral spine position. Place elastic band under right foot. Adjust tension to ability. Keep foot firmly planted to hold elastic band. Hold elastic band with both hands palm up and wrist straight. Inhale to lengthen the spine and “set” the scapula on the back. Exhale to bend the elbows. Maintain the elbow beside the waist throughout the movement. Repeat 10x on each side.

Remember:

1. Keep Knee Straight
2. Keep Pelvis Level: Avoid anterior translation, hiking, or shifting laterally
3. Maintain Rib to Pelvis Alignment: Avoid rib shift anteriorly, laterally or posteriorly and torso lean
4. Keep Shoulder Girdle Organization: Avoid elevation, ab/adduction and keeps arms crossed
5. Keep Head Alignment: Avoid forward head or jutting of chin
6. Perform 4-5 repetitions with band on right leg. Repeat with band on left leg.

MARRIAGE PROPOSAL LUNGE:

Start Position

Both Knees Bend

½ Way Down

Touch Knee to Floor
Front Tibia/Back Femur Vertical



FAULTY:

Ankle Sagging

Posterior Tilt

Anterior Tilt

Pelvis Dropping

Pelvis Dropping



Keeping torso vertical, and parallel lower extremity alignment, step right foot at least 36" forward if subject is between 5-6' tall and at least 40" forward if student is over 6' tall. (measure from toes of right foot to toes of left foot). Imagine standing on a set of railroad tracks with feet 3-4" apart. Bend both knees and begin to descend toward the floor without torso moving forward. Front tibia and back femur should be vertical at bottom of lunge. Maintain neutral pelvis and vertical torso throughout the movement and if alignment is lost, stop the descent.

Students may wear shoes for the Lunge Test if great toe dorsiflexion is limited/painful or ball of foot is sensitive on the floor.

RIGHT Foot Forward:

1. Maintain lower extremity alignment with equal knee flexion bilaterally, keeping front tibia vertical and avoiding collapse of ankle and knee valgus
2. Keep pelvis neutral avoiding anterior or posterior tilt (tucking)
3. Keep ribcage centered over pelvis, avoiding lower ribs shifting or shearing forward.
4. Keep torso vertical
5. Keep head in alignment avoiding forward head or jutting chin.
6. Keep shoulder girdle organized avoiding protraction or elevation
7. Descend ½ way to the floor, if in good alignment of all of the above.
8. Bend knees so that back knee touches the floor and rise up again maintaining pelvis level, neutral spine and torso vertical.
9. May use chair back rest, dowel or cane for additional support (Use any assistance to achieve good alignment)

LEFT Foot Forward: REPEAT as above

Seated Abdominals

Slight Post Tilt



Lift One Leg



Lift 2nd Leg



Extend One Leg



Start



Roll Back



Seated Teaser:

With hands on the chair seat for additional support. Inhale, keeping a vertical and lengthened spine. Exhale, roll the pelvis back and lengthen the lumbar spine without losing the position of the ribcage and head. Feel the deep abdominals gently contract. Maintain the position of the pelvis and avoid abdominal bulge and lift one leg at a time. If well-controlled, lift both legs and add extension of the leg for a challenge. Repeat 4-5x each leg.

Seated Rollback:

Inhale to find a vertical lengthened spine posture. Exhale to roll back initiating with a pelvic curl. Avoid collapsing chest and ribcage. Keep sternum lifted and eyes looking forward. Inhale to return to vertical sitting tall. Repeat 4-5x.

Seated Chest Stretch



Hold the backrest of the chair. Roll your shoulders down and back. Draw your shoulder blades together. Lean forward, open the collar bones and stretch the front of your chest. Breathe deeply 5-6 times! Enjoy!

Teeter Totter

Extend Hip



Rock Forward



Hinge Forward to a "T"



Add Shoulder Flexion/Hip Extension



Quadruped



Add Hip Extension



Add Shoulder Flexion/Hip Extension



Teeter Totter: Start with the left leg extended back with a neutral pelvis and straight knee. Place hands on back rest for additional support. Inhale, keeping a vertical and lengthened spine. Exhale, hinge forward, flexing the right hip. As long as neutral spine and pelvis are maintained, continue to hinge forward until body forms a "T" position. Imagine that you are one long plank from the head to the left foot. Inhale to return to starting position. Repeat 5-10 times on each side.

Teeter Totter-Quadruped: Start with the left leg extended back with a neutral pelvis and straight knee. Hinge forward and place both hands on the chair seat for additional support. Inhale, keeping a vertical and lengthened spine. Exhale, extending the left hip and add shoulder flexion with the hip extension. Inhale to return to starting position. Repeat 5-10 times on each side.

Elastic Band Horizontal Abduction and Diagonals

Horizontal Abduction



Diagonals



Horizontal Abduction:

Sitting Tall. Inhale to widen collarbones and pull humeral head back. Hold elastic band without slack about 12" apart palms up and elbows softly straight. Imagine that you are holding a serving tray way out in front of you. Sit tall in optimal postural alignment. Inhale to widen collarbones and roll humeral heads back and down in the sockets. Exhale and pull elastic band apart as far as possible while maintaining the humeral head and scapular position. Avoid "squeezing" or adducting scapula. Repeat 10 times and increase band tension to progress.

Diagonals:

Sitting Tall. Inhale to widen collarbones and pull humeral head back. Hold elastic band without slack about 12" apart palms up and elbows softly straight. Imagine that you are holding a serving tray way out in front of you. Sit tall in optimal postural alignment. Inhale to widen collarbones and roll humeral heads back and down in the sockets. Exhale and pull the right thumb up toward the ceiling and the left thumb down and back toward the floor. Stretch the elastic band as far as possible while maintaining the humeral head and scapular position. Avoid "squeezing" or adducting scapula. Repeat 10 times and increase band tension to progress.

Remember:

1. Keep Knee Straight
2. Keep Pelvis Level: Avoid anterior translation, hiking, or shifting laterally
3. Maintain Rib to Pelvis Alignment: Avoid rib shift anteriorly, laterally or posteriorly and torso lean
4. Keep Shoulder Girdle Organization: Avoid elevation, ab/adduction and keeps arms crossed
5. Keep Head Alignment: Avoid forward head or jutting of chin
6. Perform 10 repetitions or 4-5 repetitions with right arm up. Repeat with left arm up.

VERTICAL SQUAT (Plie' Parallel and Externally Rotated):



FAULTY: Excessively Flexed Spine



Posterior Tilt



Anterior Tilt



Begin with hips in either parallel or externally rotated position. Keeping torso vertical, flex hips, knees and ankles as far as possible. Pause, and if alignment is good and no pain occurs, continue to descend allowing heels to rise until ischium is 1-2" above the heels. Maintain neutral spine and vertical torso throughout the movement.

Remember:

1. Bend knees to at least 90 degrees with heels down, torso vertical and neutral pelvis/spine
2. Keep lower extremity alignment with knee over 2nd toe, avoiding pronation and valgus
3. Keep pelvis neutral avoiding anterior or posterior tilt (tucking)
4. Keep ribcage aligned over pelvis avoiding shearing or shifting of ribs forward
5. Keep torso vertical
6. Keep head in alignment avoiding jutting chin or head forward
7. Keeps shoulder girdle organized avoiding elevation or protraction
8. No PAIN!

Dynamic Weight Shifts

Start



Step to Right



Step to Left



Step Behind



Be sure that the area around you is clear of exercise items and detritus. Stand in your optimal posture with hips turned out to about 45°. Step to the right. Stop and take inventory of your alignment: Tripod Foot? Knee aligned over 2nd Toe? Pelvis neutral and facing forward? Torso Vertical? Neutral Spine? Repeat to the left. Then inhale to lengthen the spine. Exhale step out to the right, Inhale step to center, Exhale step to the left, Exhale to center and so on.... Add a step to the back. This one is a little more tricky so be careful that no objects are behind you and keep your focus forward! Enjoy and feel free to put on some music!

Psoas Stretch (Mermaid)

Marriage Proposal



Extend Hip



Extend knee



Reach Arm Up



Lift Ribs off Pelvis



Start with the right buttock off the chair seat and left buttock on and use hands on back rest or seat if necessary for additional support. A dowel or cane can be used also for support. Inhale, keeping a vertical and lengthened spine. Exhale, extend the left hip. Keep pubic bone lifted and feel the deep abdominals gently contract to maintain position of pelvis. If possible and well-controlled, extend knee of the back leg to deepen the hip flexor stretch. Then, reach left arm up to the ceiling and reach left ribcage off pelvis. Take 4-5 deep breaths and repeat on opposite side.

VERTICAL SQUAT (Plie' Parallel and Externally Rotated):



FAULTY: Excessively Flexed Spine



Posterior Tilt



Anterior Tilt



Begin with hips in either parallel or externally rotated position. Keeping torso vertical, flex hips, knees and ankles as far as possible. Pause, and if alignment is good and no pain occurs, continue to descend allowing heels to rise until ischium is 1-2" above the heels. Maintain neutral spine and vertical torso throughout the movement.

Remember:

1. Bend knees to at least 90 degrees with heels down, torso vertical and neutral pelvis/spine
2. Keep lower extremity alignment with knee over 2nd toe, avoiding pronation and valgus
3. Keep pelvis neutral avoiding anterior or posterior tilt (tucking)
4. Keep ribcage aligned over pelvis avoiding shearing or shifting of ribs forward
5. Keep torso vertical
6. Keep head in alignment avoiding jutting chin or head forward
7. Keeps shoulder girdle organized avoiding elevation or protraction
8. No PAIN!

Page Left Intentionally Blank

Pre and Post Test Questions for TheraPilates for Osteoporosis

1. Bone loss that results in a T. score of 1.8 would fall into which of these categories?
 - a. osteoporosis
 - b. osteopenia
 - c. osteoporotic
 - d. skeletal fragility
2. What ratio of women over age 50 are at risk for an osteoporotic fracture?
 - a. 1 in 5
 - b. 3 in 4
 - c. 1 in 2
 - d. 1 in 4
3. What ratio of men over age 50 are at risk for an osteoporotic fracture?
 - a. 1 in 3
 - b. 1 in 4
 - c. 1 in 5
 - d. 1 in 6
4. If a person has one osteoporotic fracture of the spine, that individual's risk of having another spine fracture in one year increases by how much?
 - a. 30%
 - b. 50%
 - c. 100%
 - d. 500%
5. What are the most common fracture sites in the spine?
 - a. T4, T5, T6
 - b. T6, T7, T8
 - c. T10, T11, T12
 - d. T7, T12, L5
6. In the 1984 Sinaki & Mikkleson study, subsequent fractures occurred in what percentage of those who performed only extension exercises?
 - a. 53%
 - b. 67%
 - c. 16%
 - d. 89%
7. What movements are contraindicated for clients/patients with osteoporosis or osteopenia of the spine?
 - a. flexion, extension, sidebending
 - b. flexion, sidebending, rotation

- c. extension, sidebending, rotation
 - d. flexion, sidebending, rotation, extension
8. Which of the following exercises are safe for the osteoporotic or osteopenic client to perform?
- a. Swan Dive
 - b. Spine Stretch
 - c. Rollup
 - d. Hundred
9. When an instructor begins to work with a client, the first goal (after obtaining a referral and evaluating the client) is to teach:
- a. bone building exercises
 - b. hip hinge
 - c. fracture prevention techniques
 - d. neutral or optimal spine
10. What are the ways to identify osteoporosis?
- a. thoracic kyphosis or occiput to wall distance
 - b. height loss
 - c. family history
 - d. rib to pelvis distance
 - e. all of the above
11. Which of the following Pilates exercises is contraindicated for a person with low bone density?
- a. Open leg rocker
 - b. Leg Circles
 - c. Side Kick
 - d. Leg Pull
12. Osteoporosis is a systemic skeletal disease characterized by:
- a. decreased cortical bone
 - b. increased trabecular bone
 - c. decreased bone fragility
 - d. increased bone fragility
13. What is the best type of exercise for osteoporosis?
- a. Weight training
 - b. Jumping, Plyometrics, Volleyball, Football, Soccer)
 - c. Endurance exercise (Running, Cycling, swimming)
 - d. Yoga, Pilates, or Tai Chi