awareness  education  advocacy  research
Participate in Osteoporosis Support Groups

NOF has support groups across the country to provide support and information for people affected by osteoporosis. NOF depends on volunteers like you to serve as support group leaders. To find out if there is a support group in your area or learn how you can start a support group, e-mail request@nof.org.
Mission Statement

The National Osteoporosis Foundation is the leading consumer and community-focused health organization dedicated to the prevention of osteoporosis and broken bones, the promotion of strong bones for life and the reduction of human suffering through programs of public and clinician awareness, education, advocacy and research.
GENERATIONS OF STRENGTH:
A MOTHERS AND DAUGHTERS CAMPAIGN

For the first time, we have an opportunity to work together to protect our mothers, fortify our daughters and guarantee a lifetime of strength, independence and happiness for ourselves. And it all starts with a conversation.

Visit nof.org/startaconversation to join the discussion and help spread the word to prevent osteoporosis for generations to come.
SAVE THE DATE

International Symposium on Osteoporosis 2012
Translating Research into Clinical Practice
April 25 – 28, 2012
Orlando, FL

For complete meeting details
visit www.nof-iso.org
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Safe Pilates and Yoga for Bone Health
October 20, 2011

National Osteoporosis Foundation
Today’s Presenters

Sherri Betz, PT, GCS, CEEAA, PMA

and

Matthew J. Taylor, PT, PhD, RYT
Safe Pilates for Bone Health

with Sherri Betz, PT, GCS, CEEAA
Today’s Presenter:

Sherri Betz, PT, GCS, CEEAA

• Chair, Bone Health SIG, Geriatric Section APTA
• Chair, Monterey Bay Chapter, American Bone Health
• Board Member, American Bone Health
• Professional Education Committee Foundation for Osteoporosis Research and Education
• Certified Pilates Teacher Pilates Method Alliance
• Polestar Pilates Educator
Baby Boomers are flocking to Yoga and Pilates Classes!
Risks

1 in 2 Women and 1 in 4 men over age 50 will break a bone due to osteoporosis...

Is Pilates safe for baby boomers?

She is 82!
Pilates is a method of precise exercise and physical movement coupled with breathing patterns designed to stretch, strengthen, and balance the body.
Joseph and Clara Pilates developed the method, originally called *Contrology* from 1926-1971.

www.pilatesmethodalliance.org
At least 60% of Pilates mat exercises from Joseph Pilates’ book, *Return to Life* involve Spine Flexion (20/34)

Joseph’s idea was to flatten the spine “like a newborn baby”

Older adults tend toward thoracic kyphosis even without the presence of osteoporosis

It is imperative that Pilates exercises be modified for older adults or those at risk for breaking a bone
Vertebral Positional Fragility

Spine Flexion:
Weakest and most fragile position
Vertebral Fractures
Spine Fractures and Exercise

Sinaki & Mikkelson, 1984:

Extension Group

Flexion Group

AVOID: Forward Bending

Fracture Risk?
Hip “Risky” Movements

- Forced rotation through the neck of the femur as in the “Pigeon Stretch”
- Planted foot twists
- Falls
Benefits of Pilates

Posture
Alignment
Breathing
Balance
Awareness
Flexibility
Strength
Core Control
Pilates Benefits

- **Posture, Awareness and Alignment** may help to prevent spinal fractures.

- Pilates exercises in standing are **weight bearing**, using body weight for resistance. These may strengthen bones of the hip.

- Pilates exercises in prone position strengthen the **back extensor muscles** aimed at improving erect posture, reducing forward bending loads on the spine and decreasing fracture risk.

Pilates Benefits

- **Balance** exercises may prevent hip fractures due to falls
- Reduction in **stress** may inhibit bone loss
- Exercise in **bare feet** stimulates proprioceptors to give better sensory feedback to our brain for balance reactions.

Pilates and Balance Study

8 subjects over age 65 performed Pilates-based exercise using the *Reformer* performed 1x week

**Results:**

- Significant improvements in static and dynamic balance
- Ankle range of motion
- Functional mobility
- Reduced fall risk in all 8 subjects who were at risk for falling
Wrist fractures occur due to falls.

Weight bearing exercises are not a risk for fractures.

All 4’s and Push Up positions are great for upper body, shoulder and wrist strengthening (Great for gardening and house cleaning activities).

Best to work on Balance to protect from wrist fractures.
Exercise Guidelines:

Safety First!
General Precautions

Avoid:
- All Forward Bends: Saw, Rollovers, Jackknife
- Deep spinal twists or deep side bends
- Minimize pressures on the ribcage (use pillows)
- Forced external rotation of the hip
Exercise Priorities

1. **Protect from Fracture First!**
2. **Learn Optimal Spine Posture** – up and down from floor to and from quadruped
3. Learn to **hip hinge** (Move at hip instead of bending at the waist)
4. **Avoid all flexion, deep rotation & sidebending**
5. **Learn to breathe with good rib movement and lower abdominal contraction**
6. **Practice Single Leg Balance**
Neutral or “Optimal” Spine Training
Safe Pilates Mat Exercises

- Hundred-with head down
- Single Leg Circles
- Single Leg Stretch-Head Down
- Double Leg Stretch-Head Down
- Single Leg Stretch With Straight Legs-Head Down
- Double Leg Stretch With Straight Legs/Lower Lift-Head Down
- Criss-cross-Head Down
- Swan-Dive (1 only)
- One/Single Leg Kick
Safe Pilates Mat Exercises

- Double Leg Kick
- Shoulder Bridge - Not too high
- Side Kick
- Hip Circle/Hip Twist w Stretched Arms - Maintain Neutral Spine
- Swimming
- Leg-Pull - Front
- Leg-Pull
- Side Kick Kneeling - Maintain Neutral Spine
- Side Support - Neutral Spine
- Push Up
Contraindicated Pilates Mat Exercises

- Roll Up
- Rollover - Both Ways
- Rolling Like A Ball
- Spine Stretch
- Open Leg Rocker
- Cork-screw
- Saw
- Neck Pull
- Scissors

- Bicycle
- Spine Twist
- Jack-Knife
- Teaser
- Boomerang
- Seal
- Crab
- Rocking
- Control Balance
1. Hundred

Pilates, JH. (1945) *Return to Life Through Contrology*. Pilates Method Alliance: Miami, FL
2. The Roll Up

Pilates, JH. (1945) *Return to Life Through Contrology*. Pilates Method Alliance: Miami, FL
3. The Roll Over

Pilates, JH. (1945) *Return to Life Through Contrology*. Pilates Method Alliance: Miami, FL
4. Single Leg Circle

Pilates, JH. (1945) *Return to Life Through Contrology*. Pilates Method Alliance: Miami, FL
5. Rolling Like a Ball

Pilates, JH. (1945) *Return to Life Through Contrology*. Pilates Method Alliance: Miami, FL
6. Single Leg Stretch

Pilates, JH. (1945) *Return to Life Through Contrology*. Pilates Method Alliance: Miami, FL
7. Double Leg Stretch

Pilates, JH. (1945) *Return to Life Through Contrology*. Pilates Method Alliance: Miami, FL
8. Spine Stretch

Pilates, JH. (1945) *Return to Life Through Contrology*. Pilates Method Alliance: Miami, FL
9. Open Leg Rocker

Pilates, JH. (1945) *Return to Life Through Contrology*. Pilates Method Alliance: Miami, FL
10. Corkscrew

Pilates, JH. (1945) *Return to Life Through Contrology*. Pilates Method Alliance: Miami, FL
11. Saw

Pilates, JH. (1945) *Return to Life Through Contrology*. Pilates Method Alliance: Miami, FL.
12. Swan Dive

Pilates, JH. (1945) *Return to Life Through Contrology*. Pilates Method Alliance: Miami, FL
13. Single Leg Kick

Pilates, JH. (1945) *Return to Life Through Contrology*. Pilates Method Alliance: Miami, FL
14. Double Leg Kick

Pilates, JH. (1945) *Return to Life Through Contrology*. Pilates Method Alliance: Miami, FL
15. Neck Pull

Pilates, JH. (1945) *Return to Life Through Contrology*. Pilates Method Alliance: Miami, FL
16. Scissors

Pilates, JH. (1945) *Return to Life Through Contrology*. Pilates Method Alliance: Miami, FL.
17. Bicycle

Pilates, JH. (1945) *Return to Life Through Contrology*. Pilates Method Alliance: Miami, FL
18. Shoulder Bridge

Pilates, JH. (1945) *Return to Life Through Contrology*. Pilates Method Alliance: Miami, FL
19. Spine Twist

Pilates, JH. (1945) *Return to Life Through Contrology*. Pilates Method Alliance: Miami, FL
20. Jack Knife

Pilates, JH. (1945) *Return to Life Through Contrology*. Pilates Method Alliance: Miami, FL
21. Sidekick

Pilates, JH. (1945) *Return to Life Through Contrology*. Pilates Method Alliance: Miami, FL
Pilates, JH. (1945) *Return to Life Through Contrology*. Pilates Method Alliance: Miami, FL
23. Hip Twist

Pilates, JH. (1945) *Return to Life Through Contrology*. Pilates Method Alliance: Miami, FL
24. Swimming

Pilates, JH. (1945) *Return to Life Through Contrology*. Pilates Method Alliance: Miami, FL
25. Leg Pull Front

Pilates, JH. (1945) *Return to Life Through Contrology*. Pilates Method Alliance: Miami, FL
26. Leg Pull Back

Pilates, JH. (1945) *Return to Life Through Contrology*. Pilates Method Alliance: Miami, FL
27. Sidekick-Kneeling

Pilates, JH. (1945) *Return to Life Through Contrology*. Pilates Method Alliance: Miami, FL
28. Sidebend

Pilates, JH. (1945) *Return to Life Through Contrology*. Pilates Method Alliance: Miami, FL
29. Boomerang

Pilates, JH. (1945) *Return to Life Through Contrology*. Pilates Method Alliance: Miami, FL.
30. Seal

Pilates, JH. (1945) *Return to Life Through Contrology*. Pilates Method Alliance: Miami, FL
31. Crab

Pilates, JH. (1945) *Return to Life Through Contrology*. Pilates Method Alliance: Miami, FL
32. Rocking

Pilates, JH. (1945) *Return to Life Through Contrology*. Pilates Method Alliance: Miami, FL
33. Control Balance

Pilates, JH. (1945) *Return to Life Through Contrology*. Pilates Method Alliance: Miami, FL
34. Push Up

Push Up “Hold”

Pilates, JH. (1945) *Return to Life Through Contrology*. Pilates Method Alliance: Miami, FL
Trapeze Table
Trapeze Table
Trapeze Table
Reformer
Reformer
Wunda Chair
Small Prop Exercises

Ped-i-pul:
Great for posture and alignment of the spine!

Foot Corrector:
(or Tennis Ball to prepare and stimulate feet for balance work)
Fletcher Pilates Towelwork®

Taut Towel Pulls at:

Hips

Collarbones

Overhead
Foam Roller

Snow Angels

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Thoracic Extension – Careful with Fragile Ribs
Thick air-filled massage balls can be used to provide direct pressure to the spinal bones without excessive pressures on the ribcage

- Improves rounded back posture
- Increases abdominal strength

Great for increasing abdominal strength and improving thoracic extension simultaneously!

Avoid forward bending or pulling on the head!
What to ask your teacher?

1. **For Pilates Teachers**…. are you PMA Certified through the Pilates Method Alliance?

2. **Are you certified in CPR** – Cardiopulmonary Resuscitation?

3. Have you had **special training** in working with people who have osteoporosis or low bone density?
The Fountain of Youth

“Hip Extension, Thoracic Spine Extension and Balance!”

Copyright © 2008 TheraPilates®
Join a Class!

Practice Strength & Balance with your Friends!
Thank you!
Safe Yoga for Bone Health

By

Dr. Matthew J. Taylor, PT, PhD, RYT
Who is this guy?

• Yoga-based Rehabilitation Clinic
• Author, researcher and clinician
• Past-president of the International Association of Yoga Therapists
• National Expert Witness for Yoga Injuries
• PhD in Integral Yoga Philosophy with an emphasis on back pain.
• Not satisfied with options available to keep bone health throughout a lifetime and understand it to be far more complex than typically presented to the public.
What is Yoga?

• A 5000 year-old philosophy and technology for optimal human performance.

• yogash chitta vritti nirodhah Sutra I:2 “Yoga is the stabilization of the mind”

• Asana or postures only mentioned 4 times in the Yoga Sutras.

• As a practical science of mind it has far more than exercise to maintain bone health.

• It can be fun, fascinating and a lifetime practice, cradle to grave.
What Yoga Isn’t…

- Stretching, bouncing and contorting.
- A competition.
- Asana or Postures only.
- A religion or religious.
- About doing “Ab-work” or “Core Strengthening”…those that can occur.
- A quick one-minute relaxation at the end of class.
- About being flexible (literally).
- Suppose to make you sore (sweetness & calm).
How Do You Keep Yoga Safe?

• The school you select should have you fill out a health history that includes questions about your bone health.
• Your health history should be reviewed by your teacher prior to your first class.
• Postures should be taught with detailed instruction, the use of props (blocks, blankets, chairs etc.) and the precautions for each pose should be made clear to you.
How Do You Keep Yoga Safe?

• The teacher should be circulating the classroom giving instructions and not doing their own yoga at the front of the class. Corrections should be verbal with agreed upon light touch, but no sudden of forceful movements.

• Students should be encouraged to ask questions, and comfort and control should be emphasized above looking just right or performing some perfect pose.

• If any of these guidelines are not followed, shop elsewhere for your yoga instruction.
How Do You Keep Yoga Safe?

- Students with osteoporosis or related broken bones should work individually with an instructor with specialized training until cleared to safely participate in an appropriate group class. Novices without osteoporosis should take basics classes with the following guidelines:

- **Postures to Avoid**: Headstand, plow, shoulderstand, improper (loss of neutral spine position and length) forward bends, downdog and twists, jumping, and balance poses that exceed safe execution. Abdominal crunches aren’t asana, but are frequently taught and should be avoided.
Some examples of safe Yoga...

- The movement principles Sherri shared with you.
- Knowing what is your base of support (what is holding you up), where it is, sensing balance and creating ease around that alignment and balance.
- Keep the breath moving, using it for awareness and stability....and minding that it stay smooth and under control: Your safety meter!
- Use props for balance and alignment.
- Transfer learning to everyday life activities.
More examples…

• Savasana (corpse pose), pranayama (breathing exercises) and meditation as just as important as postures, especially for optimizing your endocrine function through the autonomic (automatic) nervous system.

• Working the other limbs of Yoga regarding fear, fear of falling and fear of death can facilitate balance to reduce fall risk.

• 10 minutes a day beats 90 minutes once a week.

• Yoga decreases depression for better posture.
Future Trends…

- Yoga offers technologies for every factor of the complexity of bone health.
- Numerous studies underway to demonstrate and understand the roles of each factor.
- Safety is the highest value…the Modern Postural Yoga will fade as these factors are understood.
- How are you sitting and breathing right now? That creates your bone health future!
Resources


Questions?

matt@matthewjtaylor.com
We will now answer questions submitted by the audience during this webinar.

**Please note**: NOF is unable to provide you with medical advice. For questions about your specific condition, please talk to your healthcare provider.

We are only able to answer questions related to exercise and the topics covered in today’s presentation.
Contact NOF for More Information

National Osteoporosis Foundation

Phone: (800) 223-9994

Web: www.nof.org

E-mail: Request@nof.org
Upcoming Webinar

December 6

Balancing the Benefits and Risks of Osteoporosis Treatment

E. Michael Lewiecki, MD, FACP, FACE

Register at www.nof.org or call (866) 702-3278
Webinar Evaluation

Please take a few minutes to complete the evaluation for this webinar.