Spoiler alert: You’re not as fragile as you might think! Use these exercises and guidelines to safely build strength and balance to decrease the risk of falls and fractures. Make no bones about it.

By Wayne Seeto • Edited by Amanda Altman

OSTEOPOROSIS IS HARD ON AGING BONES, MAKING THEM FRAGILE AND PRONE TO FRACTURE. According to the National Osteoporosis Foundation, one in two women and up to one in four men over the age of 50 will break a bone due to osteoporosis. The good news is that an osteoporosis diagnosis doesn’t mean your clients can’t stay strong and fit. You just need to adapt their workouts.

Your main goal when working with clients in this category is to help them avoid fractures. Since fractures are most often the result of falls, fall prevention is a top priority. I help my clients build strength and stability by introducing them to safe movement patterns, both during workouts and movements of daily life. When working with clients on the osteoporosis spectrum, I focus on the following elements:

- **Spine-Sparing Loads and Movements** to improve muscular strength and endurance, emphasizing the mid-back and hip extensors for improved stability. Since spinal fractures occur more easily in these clients, I avoid significant flexing or twisting of the spine.
- **Improving Balance**, including somatosensory, vestibular and visual input, while maximizing joint mobility.
- **Slowing the Rate of Bone Loss** using weight-bearing exercises and lifestyle counseling.
- **Improving Functional Movements**, such as squatting, hinging, lunging, pushing, pulling and carrying (i.e., gait patterns).

My approach is to always start slow to safely build balance and strength over time. I like using the Reformer/Tower, which allows movement in all planes and positions. The springs and pulleys let you customize tension and placement; you can manipulate lines of pull to challenge postural muscles and proprioception based on your client’s needs, while accommodating movement restriction like flexion and improving functional movement competency.

Clients who are discouraged by the limitations of their diagnosis will be surprised by how much they can do using this workout. Not to mention how fit they can get—and how great they will feel. PS
**GENERAL GUIDELINES**

**PROPS** Set of extension straps, sticky pad (if needed); Sitting Box

**REPS** Based on movement quality and the client’s capabilities, but generally around 8–10. Stop if fatigue is compromising.

**TIPS**
- More frequent exercise is more effective in reducing falls; two to three hours a week (including 15 to 20 minutes of balance training per session) is ideal.
- Design the programming based on age, baseline fitness level, T-Score and FRAX fracture risk score, balance, strength, endurance, motivation, posture, vision, prior fractures and any other medical conditions.
- Ensure clients have medical clearance before exercising.
- For these exercises, focus on maintaining a neutral spine and pelvis, unless otherwise indicated.

---

**TOWER**

**SUPPORTED EXTENSION**

**APPARATUS SETTING** Leg (heavy) springs attached above shoulder height, with extension strap attached to each spring to form a loop

**BONE-PROTECTING BENEFITS**
- Improves balance control in an easy two-leg stance.
- Reduces the risk of falling by promoting postural retraining and flexibility in the thoracic spine.

**START** Stand facing the Tower with your feet hip-width apart. Place your hands on top of the springs near the extension strap with your elbows bent to your sides and the extension strap just under your armpits (use a sticky pad to keep the strap in place if needed). Move away from the Tower to create enough spring tension to support your weight, allowing your torso to hinge backward.

**MOVE** Exhale as you extend your spine over the extension strap; inhale to return.

**TIPS** Keep the spinal articulation of your vertebrae at or above the level of the extension strap. Choose a breath pattern that facilitates full rib-cage expansion and segmental articulation. As flexibility improves, lower the extension strap down your spine to increase the range of motion. **ADVANCED** Once balance control is achieved, place your hands on your forehead or behind your head throughout. To progress further, add a squat before lifting your arms in a Y shape with the extension.

---

**FACILITATED HIP HINGE**

**APPARATUS SETTING** Heavy springs attached above shoulder height, with extension strap attached to each spring to form a loop

**BONE-PROTECTING BENEFITS**
- Provides a low/medium-level proprioceptive challenge to build balance.
- Teaches a spine-sparing hinge movement pattern.
- Strengthens the back extensors to maintain spinal posture.
- Prepares the body for healthy functional movement patterns.

**START** Stand facing away from the Tower with your feet hip-width apart. Place your hands on your forehead (or hips), with the extension strap around the front of your pelvis/hips. Hinge your torso slightly forward.

**MOVE** Inhale as you flex at your joints to hinge forward while maintaining your neutral alignment; exhale to return.

**TIPS** Choose a breath pattern that facilitates full rib-cage expansion and encourages hip joint articulation. Maintain a sense of length through your spine.

**MODIFICATION** Bend your knees as needed to isolate the movement in your hip joints.

**ADVANCED** Add a squat, flexing at your hip, knee and ankle joints while maintaining neutral alignment. Or try a back tap, stepping one leg back to tap your foot behind your body while you bend your front knee and lean forward into a lunge.

---

**GEAR GUIDE**

Merrithew™ V2 Max Plus Reformer, Reformer Extension Upgrade - V2 Max, and High-Precision Gearbar ($4,299, $515 and $260 respectively, merrithew.com)
PUNCHES

APPARATUS SETTING: Springs attached at shoulder height, starting with light arm springs and progressing to heavy leg

BONE-PROTECTING BENEFITS
• Challenges balance while integrating the upper and lower body to prevent falls.
• Strengthens the shoulder girdle and spinal flexors without flexing the spine.

START: Stand facing away from the Tower with your feet hip-width apart and hands in an overhand grip on the handles. Lean forward, bending your elbows by your sides with your hands slightly forward of your shoulders. Keep your elbows at shoulder height or higher while maintaining scapular and neck stability.

MOVE: Exhale as you extend your elbows and reach your arms forward to shoulder height in a punching motion; inhale to return.

TIPS: Maintain a sense of length in your spine throughout. Keep your body weight forward to maintain balance.

ADVANCED: Step one leg forward into a lunge during the punch, and then return; alternate legs.

SIDE LUNGES

APPARATUS SETTING: Light springs attached at shoulder height

BONE-PROTECTING BENEFITS
• Safely challenges balance while encouraging upper- and lower-body integration.
• Builds strength in the shoulder girdle and lateral spinal flexors without flexing the spine.
• Promotes balance-building weight transfer and step patterns.

START: Stand sideways next to the Tower with your feet hip-width apart. Hold the front handle with both hands in front on your sternum, bending your elbows to your sides.

MOVE: Exhale as you step your outer foot into a side lunge, keeping your other leg straight; inhale to return. After the set, repeat on your other side.

TIPS: Keep your body upright throughout, allowing your weight to shift to the side with your hands close to your chest.

ADVANCED: Step in a slightly different direction to challenge balance and weight transfer.

REFORMER

SECOND-POSITION WEIGHT TRANSFER

APPARATUS SETTING: 2–3 heavy springs (with carriage stopper positioned so pelvis remains neutral, if possible); can also be done using a jumpboard

BONE-PROTECTING BENEFITS
• Builds foundational proprioception.
• Enhances strength and endurance in the glutes, quads and calves.
• Helps with basic weight transfer and step patterns.
• Provides weight-bearing activity while allowing the upper torso to safely release.

START: Lie on the Reformer with your arches parallel and hip-width on the footbar. Push the carriage halfway out.

MOVE: Exhale as you lift one leg to tabletop while keeping the carriage still; inhale as you return your foot to the footbar. Repeat on your other side.

TIPS: To decrease the vertical compression load on the spine or compression into the shoulder rests, slide down to the bottom of the carriage and hold the bottom edge or the grip mats under your torso. To keep the carriage still, engage your glutes and quads, and then transfer the weight to your support leg before bringing your other leg to tabletop. To prevent lateral shifting of your pelvis and spine, brace your leg abductors and obliques.

ADVANCED: During the press-out, transfer to one leg, and then return the foot when the carriage is back on the stopper.
WAYNE SEETO is a Merrithew™ Master Instructor Trainer and an integral member of the internal programming, education and presenting team, specializing in STOTT PILATES®, STOTT PILATES® Rehab and Halo® Training. He provides instructor training for both fitness and clinical/rehabilitation certifications, both domestically and internationally. Originally from Brisbane, Australia, he has been based at the Merrithew Corporate Training Center in Toronto since 2003 and is a recognized leader in his field.

Wayne received his bachelor’s in occupational therapy from the University of Queensland, Australia, and his master’s in science (Physiotherapy) at McMaster University, Canada. He has presented on behalf of Merrithew at symposia and industry events all over the world, and is featured in Merrithew fitness and education videos. Wayne’s clients range from elite athletes to people focusing on general fitness, rehab and post-rehab work. He provides private clients at the Merrithew client studio and is on staff at Athletes’ Care, a private practice physiotherapy clinic in Toronto, working with patients who have acute, subacute and chronic orthopaedic, neurovascular and skeletal injuries and sports injuries. For more information, visit athletescare.com and stottpilates.com/studio/instructors.