

CEC ARTICLE

BALANCE, WE ALL NEED IT

By B. JACOBSMEYER

Have you ever watched how children play a game of tag? First they run in one direction then suddenly off they go in another direction, starting and stopping with ease. They are working on their balance. Unfortunately, as we enter adulthood we quit playing games like tag. Except for a few of us who play tennis or other sports with those quick changes of direction and start stop movements. We spend more and more time sitting at work and at home. Consequently our balance suffers due to lack of practice, so when we have to stop suddenly or change a direction abruptly we fall.

Another component that enters into the equation as we age is the loss of muscle mass due to reduced activity. Studies indicate that by age 70, there is a 40% loss of muscle mass compared to early adulthood, women are more susceptible to loss of muscle mass than men, due to the fact that they carry notably less muscle mass (30% less). (Kondub p.10) The elderly who make no effort to stay active show the following traits.

- *Atrophy and weakness appears in the gluteus and abdominal muscles.
- *The ability to move quickly or respond to a balance challenge is diminished, as is the confidence to take such challenges
- *The ability to integrate upper and lower extremity movement via the trunk is reduced, negatively effecting agility, the ability to reach and maintain balance, and natural responses to correct loss of balance before falling.
- *Reaction time, in general, is slowed. (Chez p.33)

The above explains why 1/3 of people age 65-79 fall each year and why 1/2 the people age 80 and older fall. These statistics are from a Yale research published in USA Today 12/18/00. This does not have to continue. Research shows that we are never too old to build muscle or improve our balance, especially when incorporating water. The following two studies were published in the AKWA Oct./Nov. 2003 issue. The first done by Simmons and Hansen found that a group of 39 healthy older adults, 75-85 years old, who participated in a water exercise program for 5 weeks improved significantly in the functional reach test in which they had to reach as far away as possible from their body while maintaining their balance. The second study by Sanders and colleagues included 61 sedentary women, (mean age 75 years) who performed shallow water exercises specifically targeting functional activities of daily living, including specific balance drills, 3 days per week for 16 weeks, improved significantly in both static and dynamic skills measured on land. Additionally, speed walking and gait size significantly improved. The researchers assumed that the improvement shown by the water exercisers was due to their ability to make and correct movement errors in a viscous, safe environment that provided proprioceptive feedback to movement. (Sova p.43)

Now that we know we need to focus on balance with the seniors in our classes, how do we go about doing it? Before balance comes proper body alignment, which can

be difficult if you are dealing with participants with bad posture due to muscle imbalance or spine and joint conditions. Muscle imbalance we can do something about. Spine and joint conditions may or may not be able to be corrected and are out of our field of expertise. Those participants need to be referred to a physician in that field. Muscle imbalance can be corrected by stretching the tight, overworked muscles, and strengthening the weak, under used muscles. The tight muscles are usually the pectorals and lower back and / or hip flexors. The weak muscles are usually all of the back and shoulder muscles and the abdominal.

Proper body alignment will need to be taught and reinforced continually. Remember ears over shoulders, shoulders over hips, hips over knees, and knees over ankles. This may be impossible for participants with spine and joint conditions, but strive for as close as possible. Cues that will help your participants learn what proper body alignment feels like are as follows. Feel your big toe, little toe, inside and outside of your heel; center your weight in the middle of your foot, soft knees. Now tilt your hip bones forward and backward, gradually making smaller until you're verily moving, now hold. Pull your navel in and up, feeling your abdominal below your navel tighten, feel your ribcage rise. Lift your chest towards the ceiling, feeling your shoulder blades fall down into your back pockets. Pull your chin in slightly, like you are trying to give yourself a double chin, hold and breath. Feel the different muscles you are using. Try to hold this posture as you take long, deep breaths.

After proper body alignment has been learned, the following static balance drills can be taught:

Around the Clock, standing in proper body alignment, picture a clock, facing forward is 12 o'clock, straight behind you is 6 o'clock, to your right is 3 o'clock and to your left is 9 o'clock. Right leg will move around the clock from 12 to 6 o'clock and left leg will move around the clock from 6 to 12 o'clock. Standing on left leg, take right leg out in front of you and tap heel on floor (heel touches), bring back underneath you, and then take out to 1 o'clock, then 2 and 3 o'clock. On 4 through 6 o'clock, point your toe. At 6 o'clock switch legs and use your left leg continuing around the clock.

*Variation; standing in proper body alignment sweep right leg from 12 to 6 o'clock, then bring back to center, repeat with left leg sweeping to other side. Remember to keep toe on floor. In both variations remember to keep the standing leg soft, knee slightly bent at all times.

Keep reinforcing posture cues. Sit Down, Stand Up; Start if necessary with hands resting on side of pool, pretend you are sitting down in a chair, then push up and towards the wall, tightening the abdominal, lifting the chest and going into proper body alignment. Have them progress to doing without using the side of pool.

External Rotation; Start in proper body alignment. Hold arms against body with elbows bent to 90 degrees, palms facing each other. Bring shoulders down and together, keeping navel pulled in and up. Keep elbows against sides and press back of hands out to the sides, return by slicing hands back to center. Nothing moves but forearms. Start first standing on both feet, and then try standing on right leg only, then left leg only. (Archer p.3)

The next two exercises are core-strengthening exercises. A strong core is important in maintaining balance as we move, sit down, stand up, lift objects, etc.

Baseball Swing; start in proper body alignment, then go into a slight squat (pelvic tilt) position. Clasp your hands with arms straight out in front of you, swing the arms as though swinging a baseball bat to right shoulder and then to left shoulder. Push against the resistance of the water. Don't let the hips move! Feel your abdominal and obliques working.

Noodle press downs; hold one noodle horizontally in both hands floating at surface of water. You need to be in just below chest level water. Step into a lunge position with right foot forward, weight evenly distributed between both feet. Hands are open, palms down on noodle and shoulder width apart, press noodle down just below surface of water three times, on the fourth time hold just below the surface for 15 seconds. Feel your abdominal and internal abdominal isometrically tighten to keep your feet on floor. Repeat 3 times, and then switch to left foot forward.

*Variation--Move noodle just to the right of the right foot, which is in the above lunge position. Repeat the press down 3 times and then hold for 15 seconds. Feel your obliques and internal abdominals isometrically tighten.

Now that we have assessed our participant's static (non-traveling) balance it is time to work on dynamic (traveling) balance. Remember we must be able to stand in proper body alignment before we can walk in proper body alignment! Always cue for proper body alignment before beginning to travel. Try to incorporate as many of their senses as possible.

Here are some different dynamic balance drills you can implement into your classes. They focus on fall prevention and strengthening the core stabilizers and muscles in the hips and legs.

Freeze frame-- (Sanders and Maloney-Hills p.2)

Walk, march, or jog forward, cue to stop and hold. Water currents will challenge balance, so participants must use stabilizers to hold their position. Try while traveling backward, sideways at a diagonal and in a circle.

*Progression; participants hold hands out of water and stop standing on one leg. Remind them to alternate leg they stand on.

Power or Speed Walk; begin and stay in proper body alignment! Walk pressing through the water, natural stride (Do NOT enlarge into giant steps), heel to toe, swing arms by side as though you have to get there as fast as you can without running. Feel your abdominal, obliques and lower back tighten. This is an excellent waist whittler!

Blind Walk, March or Jog; find a spot on wall straight in front of you, close eyes and try to travel straight to that spot. Use your other senses, abs tight, equal amount of weight on each foot. After 8-10 counts open eyes and see how you did. Repeat traveling backwards.

Blind X-Country Ski--(Kondub p.10)

Find a spot on the wall straight in front of you, close eyes and try to ski forward in a straight line to that spot. Again use your other senses. After 8-10 counts open eyes and see how you did. Try it skiing backwards.

*Variations Blind Tuck Skis--(Kondub p.10)

Start in level 2 position, keep ears, shoulders and hips in alignment, find spot straight ahead close eyes and do 12-16. Open eyes, did you stay in alignment? Are you still facing same spot? Suspend or go to level 3, and repeat 12-16. Open eyes, did you stay in alignment? Are you still facing same spot? Repeat level 2 and level 3 traveling forward. Again did you stay in alignment and travel in a straight line. Now try level 2 and 3 with 1/4 turns. Did you end up facing the same spot?

These are just a few ways that you can incorporate balance and core strengthening into your classes. The importance of doing so for our senior population cannot be over emphasized. It is never too early or too late to work on your balance, so start today!

Citations:

Kondub, Boost Your Balance, AKWA, Oct./Nov. 2001

Sova, Balance Control, AKWA, Oct./Nov. 2003

Archer, Aquatic Functional Fitness Special Populations, Personal Training on the Net, 3/20/02

Chez, Programming for the Elderly, Personal Fitness Professional, May 2003

CEC ARTICLE TEST QUESTIONS
VOL 2, 2004: Balance, We All Need It

1. T or F Studies indicate by age 70 there is a 30% loss of muscle mass.
2. T or F 1/2 of the people age 65-79 fall each year.

3. List the 4 traits that affect the elderly who make no effort to stay active.

4. What were the results of the research by Simmons and Hansen on a group of healthy older adults who participated in water exercise for 5 weeks?

5. What were the results of Sanders and colleagues who performed exercises for daily living activities and balance 3 times a week for 16 weeks?

6. T or F You need to stretch the tight muscles and strengthen the weak muscles.

7. T or F The usual weak muscles in seniors are the pectorals, and lower back and/or hip flexors.

8. What are the common tight muscles in seniors?

9. List 3 Static Balance Drills

10. List 2 Core Strengthening Exercises.

11. Why do we want a strong CORE?

12. Why master static (non-traveling) balance work before dynamic (Traveling) Balance Work?

13. List 4 Traveling Balance Exercises.

14. T or F Balance work is only good for seniors?

15. T or F 1/3 of the people age 80 and older fall.

16. Describe 3 cues for posture.