Integrating balance strategies into your sessions

Balance is that indefinable sixth sense that helps us navigate through the world. According to Dr Susan Whitney, a researcher at the University of Pittsburgh, the bottom line on poor balance is 'a sudden and unexpected change in position, usually resulting in landing on the floor.' Whether addressing static or dynamic balance, continual small movements are required. Some, occurring in the lower legs, ankles, and feet are almost imperceptible. Large movements such as walking or a sudden lateral movement require significant readjustment of the body in order to recover body alignment to remain erect. Walking can be described as a series of losses and recoveries of balance.

Key strategies addressing balance will examine core strength and physical condition as the foundation of all movement and balance. Adequate core strength (musculoskeletal system) enables correct body alignment. It also requires coordination of the visual, vestibular and somatasensory systems to guarantee safe interaction with our environment. Failure to integrate these systems place one at an increased risk to become out-of-balance. In addition, other considerations challenge balance: physical pain, increased reaction time, decreased strength throughout the lower kinetic chain, decreased range of motion, and/or the combination of certain multiple medications.

Balance strategies for aquatic interventions are broken into four broad categories: sitting drills, standing drills, walking drills, and quick directional changes. Explanation and selected examples of each category are listed. The key to success is to know the needs of your participants and choose the activities best suited to accomplishing their goals appropriate to their abilities.

Sitting drills include having the participant in a seated position against the pool wall, away from the wall in a squat position, or on a support such as a kickboard or flotation pillow. Movements will be static and limited dynamic.

- Sit with feet planted, legs approximately shoulder-width apart at knees. Hands assist with maintaining the seated position; then progress to arms folded across chest.
- Pick up one foot and place down, switching legs. Add pendulum leg swings, figure 8's, circles, clock touches, and alternate knee extensions.
- Sitting on a kickboard or other device, repeat the foot pick-up and add sideway stepping, adding a crossover step when ready.
- Squats are static and dynamic. Add squats with alternate leg lifts. Advance to one leg squats, slalom squats, squats with a spring up, land in a squat and hold.
- Pilates exercises in the water, such as The Hundred, Single Leg Stretches, Single Leg Circles and more difficult exercises, all develop core strength. (Mary Wykle, Fluid Yogalates)
- Add flotation or resistance equipment – cuffs, aqua ankle fins, resistance bands, or weights – to increase difficulty and improve control and strength.
- Deep water increases core stability while trying to maintain a seated balance. Popular exercises include flotation cuffs on ankles, varied arm movements progressing to arms out of the water, and abdominal exercises sitting on noodles (Terri Mitchell, Aqualogical Abdominals).

Standing drills are refined by changing water depths to alter balance strategies, to change center of buoyancy with floatation device, or to change base of support.

- Progression is to stand with a wide base of support, progress to narrow base of support, and finally to unilateral base of support (standing on one foot).

- Activities include heel raises, hip and knee flexion, and knee lifts with hold.
- Use a toe/heel stance and upgrade to resistive equipment such as standing lengthwise on a noodle, then to stepping the back leg in front and to the back.
- Stand on an uneven surface such as a noodle, weighted BOSU, or rocker board. Progress from bilateral stance, to squats, to unilateral stance and squats, to challenge by partner with resistance bands. (Marty Biondi, Balance and Gait Re-training)
- Yoga positions in the water such as Tree, Warrior I and II, and Chair. (Mary Wykle, Aqua Pi-Yo-Chi)
- Lunges.

Walking drills depend on whether your aim is to challenge the trunk for increased strength and stability, improved gait patterns, or improved range of motion for a specific joint(s).

- Walk forward, retro, side to side, diagonals, walk on toes only or heels only. Consider other walking variations (e.g., those described in Ruth Sova's BackHab I and II programs).
- Change stride lengths and water depths.
- Walk with various arm patterns – touch alternate knee or reaching up and across body with full arm extension.
- Stepping up and down on an aqua step or a weighted BOSU.
- Bilateral stance with ball pushes and a step forward.
- Unilateral stance with ball toss.
- Give unpredictable commands (David Ogden, PT). An example is to move with various step patterns with resistive bands at waist.

Quick directional changes are limited by one's imagination and the abilities of the participant. Activities selected should reflect goals such as increased ankle strength with resisted lunges, unilateral stance balance with unpredictable commands and attempting to improve cutting speed or accuracy.

- Quick moves without and with resistive equipment or floatation equipment.
- Cutting drills with movement patterns.
- Increase intensity with resistive equipment by doing a skill for time.
- Vertical flutter kicking in deep water with floatation belt.
- Jumping over a noodle or a hula hoop.

It is now up to you to decide how to integrate balance strategies into your sessions. Outcomes should include improved balance, coordination and agility. A word of caution – do not go 'overboard' by including too many activities in one session. Even if you do not tell them that the goal is to improve balance and core strength, they are quick to discover the purpose of these new activities. Satisfaction comes when you hear how they notice improvement in their daily activities. ◆

The online version of this article contains much more information.
This article was reprinted with permission from AKWA (www.aeawave.com)

Mary Wykle, Ph.D., ATRIC, AEA

Mary Wykle, PhD, ATRIC is an assistant professor at Northern VA Community College, and founder of MW Associates. She is director of aquatic rehab and fitness at Burke Racquet and Swim Club. She is also certified with AEA, ACE, and is an Instructor Trainer for the Red Cross. Mary offers workshops on Yoga, Pilates, Ai Chi and Balance Training in the water. She presents at many events for ATRI and AEA. Mary serves as Vice-chair of ICATRIC.

Marty Biondi, PT, ATRIC

Marty Biondi, PT, has been involved in all areas of aquatics for over 30 years. She is part owner of an Outpatient Physical Therapy practice in Chicago. Her specialty in aquatic therapy and rehab is in orthopedics and spinal cord injuries. Marty has been involved with APTA's Aquatic section for 12 years and has presented for ATRI since 1997.