Vol 2, 2012 POOL CHALLENGES

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My hat goes off to those instructors who teach in less than optimum pools. I consider an optimum pool to be a depth of 4 feet to 5 feet with plenty of room to travel. Those are the type of pools I have taught in for the past 20 years. It seems that in the last five to ten years in our area (St. Louis) nobody has consulted water fitness instructors before building their pools! Indoor water parks are very popular now but they are not designed for water aerobic classes. One pool I have visited in the last few years has a zero entry, for a wave pool, which finishes with one lane width and length of usable 4 feet depth before dropping off to 8 feet. Another pool I trained instructors at has a separate 25 x 25 foot pool which is all 3 feet deep. Amazingly the instructors teach effective, high intensity aerobic classes at these facilities through versatility and creativity! Once again I applaud these instructors because I know that I was severely challenged to do the same.

Since more and more instructors will be asked to teach in water park pools with this issue I felt there was a real need to address how to do so in a safe but effective manner. I hope this article will offer you some suggestions.Before we discuss how to deal with shallow water pools let's review the benefits of working out in the water and how they are compromised when the pool is too shallow.

Those benefits and disadvantages are:

1. **Less impact on joints**

   Chest depth which is usually 4' to 4 ½' **decreases impact by 75%**

   Waist depth which is usually 3' to 3 ½' substantially **increases the impact**

2. **Core strengthening**

   When traveling through **chest depth** water the core stabilizing muscles must isometrically contract to move in a straight line against the resistance and motion of the water

   In **waist depth** water there is no resistance above the waistline and consequently the core does not have to tighten. This can lead to improper body alignment or hyperextension of the lower back.

3. **Balance**

   Chest depth provides more support and makes it more difficult to fall.
   Waist depth water only provides support from the waist down making it easier to slip and fall, especially if proper body alignment is not being maintained.

4. **Upper body strengthening**

   Chest depth water allows the participant to use their arms without compromising their posture during aerobics.

   Waist depth water encourages poor posture by leaning forward when using the arms. This again puts stress on the lower back. It also can cause the participant to round their upper back and shoulders.

5. **Improves efficiency of cardiovascular and body coolant systems**

   In **chest depth** water the body is 30% more efficient at maintaining itself due to buoyancy and hydrostatic pressure pushing the blood from the lower body back to the heart.

   Water is a more effective coolant then air, consequently the more of your body that is in the water the better your body will evaporate heat.

   In **waist depth** water the body has to suddenly deal with gravity from the waist to the heart. Also more of the body is exposed to air.

6. **Strengthens the lungs**

   In **chest depth** water the lungs are submerged. As the participant breaths expanding their ribcage they must push against the hydrostatic pressure of the water which is pushing in on their bodies. This encourages deeper breathing utilizing the whole lung.
   In **waist depth** water the lungs are no longer submerged so the ribcage no longer has pressure to push against.

7. **Flexibility**

   In **chest depth** water the lower body is able to be stretched by utilizing the buoyancy of the water to lift the leg to the surface of the water.
   In **waist depth** water the leg will not lift as high encouraging the participant to lean forward to get an effective stretch.

As we have mentioned above there are many negatives to working out in waist depth water. However, there is at least one advantage. It simulates more accurately what participants experience outside of the pool during everyday life. As much as we wish to we can't haul a pool around with us everywhere we go. We do have to deal with gravity and the impact to our joints it causes. We also need strong muscles to lift our body weight and support our joints as we move.

If you teach in a shallow, waist depth pool you need to be aware of the following safety concerns. You also need to give the following cues and watch your participants closely.

1. The body has to work harder to circulate oxygenated blood to the muscle cells and dissipate body heat and by products (co2 and lactic acid).
   This can affect a vast variety of participants in your classes.

   People who:
   - have high blood pressure or heart conditions
   - are elderly who do not have efficient cardiovascular systems due to aging
   - have breathing issues
   - are pregnant who also need to provide oxygen for the fetus
   - are overweight who have more mass to cool and circulate blood to
   - are diabetic who can have a drop in blood sugar

Watch for red, sweaty faces, glassy eyes, uncoordinated movement and panting.

Cue: Take long, deep breaths
Slow down or make move smaller if you are panting or feeling light headed
Take frequent water breaks

2. As mentioned earlier proper body alignment is essential. From the waist down the body is pushing against a substance, water, that has 12-14x's more resistance then air. From the waist up there is no resistance or support. The core muscles must do all the work. This can be a major issue for the following people.

   People who:
   - have lower back issues like sway back, disk compression, or past back surgery
   - have upper back (hunch back), neck or shoulder issues
   - are pregnant because they already have slight sway back because of the weight of the baby tilting the pelvis forward. In chest depth water the abdomen and baby are supported. This is not the case in waist depth water.

Watch participants posture at all times.

Cue: Chest up, chin in
Abs in, tailbone points down
Stand tall
Ears over shoulders, shoulders over hips, hips over knees
Shoulder blades down and squeeze together
Shoulders blades in your back pockets

No leaning while traveling

The impact on the joints is substantially increased in shallow, waist depth water. This can cause major discomfort to the following people.

People who:

have arthritis, especially in the lower back, hips, knees, and feet
have knee or hip issues
are overweight **

**For every pound a person weighs it puts 3 pounds of pressure on the back, 6 pounds of pressure on the knees and 9 pounds of pressure on the ankles!

Watch participants' faces for signs of pain. Also watch for them to distribute their weight unevenly,

Cue: Take the bounce out, or anchor the move down
Slow down or make the move smaller

3. Incorporating equipment into the workout is more difficult in waist depth water. The challenge is submerging the equipment under the water safely while maintaining proper body alignment. Work either at the surface or below the surface.

Watch for participants letting the equipment bounce out of the water or leaning forward to submerge the equipment. Also watch for elevated shoulders. This cuts off the blood flow to the rotator cuff muscles and should be discouraged.

Cue: Do NOT let the equipment bounce out of the water.
Keep shoulders over hips
Press shoulders down away from ears
Front lunge (switching legs often) or squat
Abs in, tailbone pointing down
Loose grip (tight grip raises the blood pressure)

Methods to intensify the aerobics that we commonly use may not work or be your best choice in the shallow, waist depth pool.
Some of those are:

Rebounding or jumping

Lifting their body weight and the impact on the spine and joints is just too great for our general population.

Level 2 &/or 3

This can compromised the participant who is taller than 5'5" because they can't maintain proper alignment with hips under shoulders.

Using the arms

Again proper alignment is compromised by leaning forward to get the arms into the water.

Opposing forces

To use opposing forces you must travel, the arms are pulling the body in one direction while the legs are taking the body in the opposite direction. Ex. Jog backward with breaststroke arms

As stated under using the arms the alignment is compromised to get the arms into the water.

Increasing the speed while keeping range of motion

The participant may not be able to keep the full range of motion and increase the speed because of the increase in their body weight and impact to their joints.

Intensifying methods for aerobics that can be used with caution are:

Traveling

Traveling can be used as long as the participant is able to maintain proper body alignment as they move across the pool.

Directional Force

This is applying force in one direction. Ex. Side leg lift focusing on pushing out to side and up for one set, than focusing on pulling in and down for one set.

Level 2 or 3

This can be used if you change the body position from an upright chair to a recliner or V-sit position. Caution must be used to keep the abdominals engaged and the back straight. This position can also irritate some participants' necks.

Increasing the speed while keeping the range of motion

This method can be used in the supine, prone, side, and V-sit positions because there is not impact and the body weight has been greatly reduced because you are using the buoyancy of the water. These positions are described in greater detail later in this article.

About now you are probably wondering how do you teach an effective aerobics class in this shallow depth pool. The answer is with a great deal of careful creativity, versatility, trial and error and patience.

Try to get past always working in a vertical position. The positions mentioned below are discussed in more detail in our Deep At Any Depth workshop and home study.

SUPINE or floating face up on the surface of the water

Advantages: Can do long lever moves to the sides

Can do short lever moves to the back and sides

Disadvantages:

Participants need to put their heads into water and may not be able to hear you.

Participants may travel blindly backward with some moves running into each other or the wall.

Move Examples: Jumping Jacks, hamstring curls, swinging gates, tuck jacks, frogs

PRONE or floating face down
Advantages: Can do short lever moves to front and back
Disadvantages: Participants must keep back straight by maintaining a strong core.
Participants may hyperextend neck in this position so you need to use it for very short periods of time.
Participants need to be careful not to jam their toes into pool floor.
Move Examples: hamstring curls, mountain climbing, tucks

SIDE or floating on side
Advantages: Can do long levers to front, back & side
Can do short levers to front & back.
Disadvantages: Participant must keep hips stacked and not lean backwards.
This position can aggravate some people's necks if they do not put ear in water.
Move Examples: bicycle, X-country skis, jacks, side karate kicks, tuck moguls

V-SIT or recliner
Advantages: Can use long levers to the front and sides
Can use short levers to the front, back and sides
Disadvantages: Can bother some people's necks. Encourage to relax neck and focus on where the wall and ceiling meet, keeping neck in alignment with the shoulders.
Participants may travel blindly backward with some moves.
Move Examples: bicycle, front Russian kick, Russian kick, straight leg kicks, jacks, Irish jig, tucks, frogs, tuck jacks, leg circles, scissors
The shallow water pool is very adaptable for strength training. You can use equipment or just your own body. The following standard equipment can be used; noodle, buoys, gyros, paddles or kickboard. You can use a variety of positions to strengthen the upper body. The lower body can be trained with equipment or without in a standing upright position as long as the water is waist depth and the equipment is not bouncing in and out of the water.

The different positions you can use to strength train the upper body are:

PLANK or men's push up position
Safety cues: keep back straight
can float as long as they keep back straight
ears in line with shoulders
keep equipment under water
Exercises examples: push-downs, spread eagles, bicep curls
FRONT LUNGE
Safety cues: keep knee over foot
switch the legs often
keep shoulders down and over hips

keep equipment under water
do not allow equipment to pass hip to back

Exercise examples: X-country ski arms, bicep/tricep curls, criss-cross arms

SQUAT

Safety cues: keep knees over feet
keep back straight, abs engaged
keep equipment under water
do not allow equipment to pass shoulder to back

Exercise examples: horizontal bicep curl, jack arms front/back, breaststroke arms

The core can be worked in a couple different positions. A noodle is recommended for all of the positions. The positions are the V-sit, the seated (level 2) and the side lying. In the seated or level 2 position the ears, shoulders and hips are in alignment, the hips and knees are bent to a right angle and the ankles are under the knees. See above for the safety cues, advantages, and disadvantages for these positions.

Exercise examples for the V-sit:

Alternating noodle to heel touch; arms opened out to sides with noodle behind shoulders, hands holding ends of noodle, legs in a jack stance, keep navel pulled in and up (hold recliner position throughout move), exhale and pull right noodle and left heel towards each other bending that knee, go back to jack stance and repeat with other sides. Can alternate or do one side for a set then the other.

Stacked feet straight legs lift; in recliner position, noodle behind shoulders, keep navel pulled in and up, legs straight, feet stacked on top of each other at surface, exhale and lift out of water. Do a set then switch legs.

***Caution those with lower back issues should only lift one leg at a time**.

Double leg circles; noodle behind shoulders, keep navel in and up, legs straight in front, circle both legs trying to lift out of the water clockwise 1 set, then counterclockwise 1 set.

***Caution those with lower back issues should only circle one leg at a time**.

Diamond leg heel pulses; noodle behind shoulders in the recliner position, keep navel in and up, legs straight in front, toes turned out, heels together. Exhale in short, forceful exhalations as you bend knees (forming a diamond shape) and pull heels towards you. Do 8 heel pulses/exhalations. Return to start position. Repeat 3 times.

Exercise examples for the seated position:

Small straight leg lifts; (keep the lift small, just an inch or two; don't alternate, do right side for a set, then left side)

Small straight leg circle; (keep circle about tennis ball size), circling the whole leg clockwise for a set, counterclockwise for a set, then switch legs.

Hip circles; clockwise/counter-clockwise (keep circle small using core)

The first two exercises done in the seated position work one side at a time. One leg stays in the chair position (knee and hip are held at right angles with the hips under shoulders and the ankle under knee). The working (moving) side has the leg straight and just above the pool bottom. The movements are kept very small. You should feel the core on the moving side working, while the core on the other side is stabilizing or holding the rest of the body still.

Exercises for the side lying position:

Side leg lift; laying on side, keeping hips stacked, looking straight ahead, lift top leg out of water.

Leg circle; laying on side, hips stacked, circle top leg clockwise 1 set, then reverse.

Mermaids; laying on side, hips stacked, legs together, quickly bend and straighten legs like a mermaid's tail.

Swish N Sway; laying on side, exhale, pull knees to chest, inhale, extend legs to opposite side, keep alternating sides.

The lower body can be strength trained with equipment or with no equipment using the anchored position (see the appendix 3 in the A-PAI Senior Fitness/ Aquatic Arthritis workshop/certification for a list of moves). Equipment that can be used is the noodle, ankle weights or ankle cuffs.

Safety cues for equipment:

Never let the equipment bounce out of the water.
Keep ankle under knee, back straight, abs in
Hold onto wall if need help with balance

Exercise example: **straight leg pull down, one leg stomp, horizontal hamstring curl one leg bicycle, side leg sweep

**Noodle under foot for all of the above exercises.

Safety cues for anchored moves:

Maintain proper alignment
Do not let knee pass foot
Engage abs, especially when pulling leg forward from a lunge position
Hold onto wall if need help with balance.

Exercise examples for anchored moves: **swing straight leg front to back, leg circle, skateboard, side leg sweep front/back, hamstring curl

**The above exercises will also challenge the balance.

Exercise examples for anchored moves that can be used for low intensity aerobics during a senior's class: swing step, waltz step, chorus line, tip toe, triplet, side lunge with sweep across leg

If I was teaching a 60 minute aerobics class in a shallow, waist depth pool this is the lesson plan I would use:

Thermal warm-up: March until water feels warm

Warm-up & active stretches: **Front hopscotch, Fish tail, Lunge step travel forward, Toe Touch travel back, Giant side steps travel right/left, Heel press downs

**All of the above moves are done without a bounce.
Aerobics:

10 min. of moves with a bounce; such as rocking horse, hopscotch front/back, wide jog, jacks, skis, etc. (focus on posture)

Jog and transition to noodle; do 30-35 min. of moves done in the prone, supine, side, and V-sit positions. 10 min. of anchored moves that travel and/or more intense like the lunge to straight leg kick to front or the squat to a sweep across. Finish with a few anchored moves in place like skateboard, front/back leg swing, and static stretches. Check out Choreography Corner in this issue for a detail routine.

Teaching in a shallow water pool is definitely challenging but it can be done. We owe it to our participants to deliver a safe but effective class. This can be done by thinking outside of the box and moving away from vertical.

This article has been in the planning stages for almost a year when I first realized that we as an organization needed to address this shallow water issue. I put a lot of thought and personal research time (trying ideas out on myself and my classes in the shallow portion of the pool I work at) into this project before writing this article. I hope this article has provided some helpful information and useful suggestions. As always I would love to hear from my fellow instructors who are dealing with pool challenges. Together we can come up with even more solutions and ideas to share with each other.

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1. What is an optimum pool for shallow water aerobics?

2. How are these benefits of water aerobics compromised in a shallow pool

Less impact on joints
Core strengthening
Balance
Upper Body Strengthening

Efficiency of Cardiovascular and body coolant systems
Strengthening of Lungs
Flexibility

3. What is the advantage of waist deep water?

4. What are the safety concerns of waist deep water?

   1.

   2.

   3.

   4.

5. Why isn't rebounding or jumping a good way to increase intensity in waist deep water?

6. Why isn't Level 2 or 3 a good way to increase intensity in waist deep water?

7. Why isn't using the arms a good way to increase intensity in waist deep water?

8. Why isn't opposing forces a good way to increase intensity in waist deep water?

9. Why isn't rebounding or jumping a good way to increase intensity in waist deep water?

10. Why isn't increasing speed with out reducing ROM a good way to increase intensity in waist deep water?

11. How can level 2 or 3 be modified to work in waist deep water?

12. How can increasing speed with out reducing ROM be modified to work in waist deep water?

13. What are the positions besides vertical you can use in waist deep water?

14. Give an exercise example for each of the above positions.

1.
2.
3.
4.
5.