

## Creating Currents

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### Water's Natural Equipment - Resistance & Buoyancy

A water's current can be described as water that is flowing or the rapid part of the water. It can also be said that a current is a large area of water moving in a specific direction. Water surrounds the body and resistance is provided equally in all directions. The 3-D freedom of movement in the aquatic environment allows the joints to move in a manner which is most natural for them.

It is a comfortable environment because of its buoyancy and cooling capabilities. Movements one may find difficult to execute on land can now be accomplished in the water which creates a feeling of success and fun.

- Multi-directional = improves in neuromuscular adaptations

### Accommodating resistance

The harder or faster an individual pushes the greater the resistance, which can improve power. Small modifications in speed create significant changes in overload. This means that water is not only non-injurious to the joints but when used properly, water exercise can potentially be therapeutic to the joints.

### To Create Currents

Creating currents in the aquatic environment can be accomplished several ways however in order to do so one must first understand how to utilize the water, its properties and principles.

Let's take a look at drag. Drag is the force that resists the body's movement in the water.

Components of drag include:

- **Eddys** or small waves resulting when the current of a fluid doubles back on itself. The faster the movement, the larger the eddy will be and the greater the resistance.
- **Friction** or adherence of water to the skin, intensified with increased movement.
- **Tail suction** or inability of the water to fill in behind the body parts that are not aqua-dynamic, forcing the body to "pull along" a certain amount of water as it moves, adding resistance (Durak).
  - Face your client and have them walk towards you so they fall in the "tail suction" reducing intensity

### Intensity

In the water, the following components can affect the intensity levels of cardiorespiratory training formats:

- The length of the limb/lever will play a role in force development.
- The velocity or speed of movement is a primary consideration.
- Acceleration
- Inertia

- Action / reaction

Moving a longer lever / limb under water creates more resistance which in turn will increase the intensity of the workout. This allows our participants to choose to move with a short lever if a decrease in intensity level is needed or they can move with the longer lever. To challenge the workout using acceleration means that an individual can apply *more force* to the move being performed. The force applied is either off the pool's bottom or against the water itself.

For inertia keep in mind that one word *change*. So for those advanced participants adding travel and frequent changes in the choreography will challenge their workouts instead of remaining stationary. Remember inertia can be of the limbs the body and the water. So when designing the workout, be sure to provide options for various ability levels.

Using the arms and legs to assist or resist the direction of travel incorporates the law of action and reaction. Encourage participants to select which option is suitable for his/her ability level.

## Core Strength & Stability

To create currents correctly the body needs to have a strong core. The core can be divided into two parts: core stabilize and core movement muscles.

<b>Core Stabilizer Muscles-</b> <i>Work to stabilize us during all movement</i>	<b>Core Movement Muscles –</b> <i>Responsible for initiating all movements</i>
Transversus abdominis Internal obliques Pelvic floor Diaphragm Deep erector spinae	Abdominal muscles  Hip flexors  Obliques

By moving in the pool one encounters the resistance of the water which challenges the muscles in all directions of movement. The core muscles are in constant use when traveling in all directions of the water as well as when stopping to perform stationary exercises. Core stability can help to minimize low back pain, improve activities of daily living. Core stability should come before core strength exercises otherwise one could be set up for injury down the road.

- Research has demonstrated greater core muscle activity when exercises are performed on an increasingly **unstable surface** or **unilaterally** rather than **bilaterally**. Behm, D.G., Leonard A.M., Young, W.B., et al (2005)

## Muscle Balance

Creating a class that supports muscle balance takes knowledge, experience and preparation. There should be a purpose behind every movement pattern you create. Knowing what muscles is being worked on each move is a must for instructors. The workout should incorporate all the

major muscle groups in the body, being careful not to constantly work the muscles already over-worked in our activities of daily living.

Over-utilized muscles	Under-utilized muscles
Hip flexors Quads Biceps Pectorals, Anterior deltoid Upper trapezius	Middle and lower trapezius Hamstrings Gluteals Posterior deltoid Latissimus Inner and outer thighs

## Movement

Being knowledgeable of the planes of movement and making sure our workout programs incorporate movement in those planes is very important. By doing so, our exercise programs will then target all the major muscles when including moves from these planes. The sagittal plane exercises would include movements such as flexion, extension and hyperextension. The frontal plane exercises would include movements such as abduction, adduction and lateral flexion. The transverse plane exercises would include movements such as horizontal abduction, horizontal adduction and rotation. These three planes of movement exercises will be beneficial in developing good muscle balance.

How can we develop new moves since there really are no new moves? A simple way to come up with new ideas for choreography is to take our moves and expand upon them with creativity. You simply begin with the base move say jumping jacks with the traditional jack arms (arms and legs abduction / adduction). Next you change something about this traditional move. Any move can be altered by using the following techniques:

- Rhythm
- Range of motion
- Travel
- Directional orientation
- Impact levels
- Arm variations

Before using your cardio combinations in your class always try it out yourself and keep the following thoughts in mind:

- Can this combination be safely used with my participants (with modification) and would they like this?
- Based on the layout of your pool - depth and slope – does it allow for safe and effective performance of the pattern or exercise?
- Do you feel confident teaching this pattern/exercise, or is additional practice needed to make it more effective?
- Does it fit your personality? If not, can you take away some individual steps in a different manner or adjust the exercise/equipment choice?

## Conclusion

The practical patterns listed in this workshop have no new or unusual steps or moves, how you put them together is what makes them unique, rhythm changes, travel, etc. Combine your favorite moves into new combinations by honing in on your creative skills. This will allow you to take your class beyond one way to execute basic steps, leaving them feeling excited about creating currents!

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## Creating Currents Pool Practical

### Warm Up

#### I. Hand to opposite knee

Skate 8

Irish jig

3 twists, bounce center

#### II. Reverse lunge to a knee lift

Single leg: kick back, front kick

3 repeater front kicks

Step/lean cross kick

#### III. Jack-knee-front kick-knee

Rock 3& up

Pendulum in 3's

Side step 4 R, 4L

#### IV. Reverse mamba

Jog

Can-can Left leg ( $\frac{1}{4}$  **turn L**)

Switch legs: Leg curls in 3's L,R,L,L ( $\frac{1}{4}$  **turn:front**)

Can-can Right leg ( $\frac{1}{4}$  **turn R**)

Switch legs: leg curls in 3's R,L,R,R ( $\frac{1}{4}$  **turn: front**)

Jumping jack -reach arms to me, then pull back w/ bent elbows

Log hops (front, center) – triceps press back

### Cool Down