TARGET MUSCLES - Get to the "CORE" of Stabilization

Helping patrons get the most out of the WaterART™ programs and doing it right is the primary responsibility of the fitness professional. Probably the greatest feature of water training is the constant abdominal and core stabilization training potential. Additionally, abdominals may be effectively targeted in the pain free environment of the water.

Part of exercise evaluation is an understanding of how a muscle facilitates joint action. Next, is to remember the properties of water. As water instructors, our main concern when strengthening muscles is buoyancy. Remember, buoyancy lifts the body up, and in order to overload the muscles, we need to encourage resisting against buoyancy.

One most frequently performed abdominal exercise, especially in deep water training, uses a position similar to that used on land, i.e. laying on the back to do the curls or crunches. Is this the best use of time to effectively target the abdominals? Definitely not! In this position, this exercise not only puts unnecessary stress on the neck but also, by performing the traditional land crunch, it is assisted with buoyancy and not stimulating the targeted muscles.

Let us review how the abdominal muscles stabilize and engage to effectively work. We will evaluate exercise design for its purpose and effectiveness taking into consideration the properties of water, especially buoyancy. Additionally, we can review how to utilize equipment (or not) to perform these exercises. This review will help you provide your participants with time efficient results to improve their function and posture which, in turn, will help to alleviate any back problems or other dysfunctions they may have.

Evaluating Exercise Design

1. What are the core muscles and what is core stabilization?
2. What are the biomechanical actions and what are the functional ranges of motion (ROM), in degrees, for each of these muscles?
3. What are some sample exercises and progressions for multi level programming?

What is Core Stabilization? The muscles involved with core stabilization are: the rectus abdominis, internal and external obliques, transversus abdominis, erector spinae, and the quadratus lumborum. While each of the abdominal muscles needs to be strengthened individually, it is more functional, because we live on land, that constant stabilization and regular Body Checks (or static posture checks) be trained. In the water this is made simple because, by constantly working against dynamic inertia currents, a person learns to stand tall with good posture in order to maintain a vertical position. Stabilization requires the use of all abdominal and back muscles to contract isometrically and act like a corset to support good posture. This is key to maintaining proper posture with an erect spine. Most people never use it – so they lose their height to gravity and slouched posture.

The **rectus abdominis** may be affectionately referred to as the "six-pack" (and some people seem to have more). The muscle is located on the front of the body, with the muscle fiber alignment running from the bottom of the rib cage to the pelvis (longitudinally or lengthwise). Typically, this is a weak muscle group and therefore needs strengthening. Because of the tight and strong muscles known as the iliopsoas or hip flexor muscles, most people initiate the action from the hips (which tend to take over during crunches).

One of the biggest mistakes made in water training is putting land-like exercises into the water, such as crunches and curls Lying on the water performing buoyancy assisted curls will not effectively overload or stimulate this muscle group. Additionally, when adding buoyant equipment under the legs or feet, or anchoring the feet to the pool edge, participants are most definitely working their hip flexors when the intended target is the rectus abdominis. Instead, try using the "Suntan and Superman" move. This is a front and back controlled pendulum movement, which crunches the spine into the resistance of the water and will better target and engage the rectus abdominis muscle group.

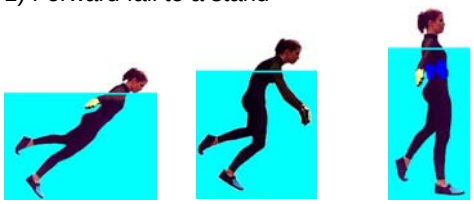
Functional ROM & Biomechanical Action: Spinal Forward Flexion is folding the spine in a "C" shape NOT hip flexion or folding at the hip and bringing the knees in and out. Functional ROM is 70^{o} spinal flexion.

The exercise design: Beginner Level is:
1) Pelvic Tilt; 2) Forward rock and crunch, and
3) Pelvic Tilt and Walk (rock your pelvis like Elvis)
For the intermediate and advanced exercises, the arms are sculling to balance the feet lifting off the bottom. Avoid arching the back. The closer the feet are to the surface of the water the more the participant must work against buoyancy to engage the tilt.

Preferably, exercises should first be performed with a noodle or barbells to assist balance and comfort level. Then, progress to sculling: (i.e., NO equipment other than mitts). Finally, use a noodle or foam barbells to add oppositional resistance against the curl. Cue participants to try to touch their ribs to their hipbones, or imagine that they are taking a punch in the stomach:(i.e. suck and tuck).

These exercises need to be done slowly to control body alignment and technique - which may mean that most of your class will not have their body tilted to more than a 30 degree angle forward or backward. This is to minimize hip flexor usage, which will take over if the abdominal muscles are too weak.

1) Forward fall to a stand



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