

- Ski with turns – ¼ turns, ½ turns
- Arms in transverse plane, legs in sagittal plane

### Intensity Variations

Once the exercise is learned and the technique is good, we add the exercise variations. Then we can also change the intensity of the deep-water cross-country ski. Increasing intensity should only be offered once the exercise technique is established. These intensity variables are popular with a deep-water cross-country ski:

- Range of Motion – Long levers moved through full range of motion is harder than short levers and less range of motion.
- Speed Over Distance – Skiing from A to B in less time (we do not speed up the actual movement cadence because you will lose range of motion).
- Elevation – Directing force downwards will send the body upward. Use the bent leg ski for this so that you don't put extra pressure on the back of the knee joint.
- Power – Cue "long & strong" front to back motion. Combines well with elevation.
- Travel – Simply traveling the ski is an option to increase intensity.

The cross-country ski is a very popular deep-water exercise and has many levels and variations. Your actions should result in participant learning to achieve the intended outcome. Self-check your teaching skills next week – do you address the how and the why of each exercise included in your aquatic class? ●

### Author



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## Aquatic Conditioning for Sports Performance

By Rick McAvoy, PT, DPT, CSCS

There are certain muscle imbalances and movement pattern dysfunctions common to athletes, which often interfere with optimal sports performance. Incorporating aquatic training into an athlete's program can help to overcome these imbalances and dysfunction, and improve motor patterning/planning.

When one group of muscles becomes tight, the opposing muscle group becomes weak and inhibited. Over time, as this cycle continues, the imbalance progresses and can impede quality of movement and sports performance. For example, both power output and stride length are affected by limited core strength and/or tight, weak hip joints.

A very common dysfunction experienced by athletes is Lower Cross Syndrome. This is a muscular syndrome characterized by weak abdominals and gluteals, as well as tight, overactive hip flexors and low back extensors. This pattern of imbalances creates joint dysfunction at specific points within the spine, the L4-5 (fourth and fifth lumbar vertebrae) and the L5-S1 (fifth lumbar vertebrae and the fused sacrum below) segments; at the sacroiliac, or SI, joint, which connects the sacrum with the right and left iliac bones; and/or at the hip joint.

Athletes with Lower Cross Syndrome will typically have the appearance of:

- Protruding Abdomen
- Increased Flexion of the Hips
- Increased Lumbar Lordosis
- Weak Gluteal Musculature

Several factors are involved in the development of Lower Cross Syndrome, such as repetitive movements, previous injuries, poor posture and limited core strength. These factors can reduce support at the low back and pelvis, making the individual more susceptible to muscular imbalance. Using aquatic training to combat Lower Cross Syndrome is ideal.

The water's three-dimensional resistance and enhanced proprioceptive feedback allow the trainer to work with the athlete much more effectively and functionally. The water is one of the few places that both mobility and stability can be trained simultaneously. Using drag equipment can enhance dynamic flexibility of the tight hip flexors and strengthen the weak gluteals. For example, the Power Swing (shown in the following photos) is a great exercise to facilitate hip flexor length simultaneously with core and gluteal stability.



*Power Swings. Balance on one leg, and swing opposite arm and leg back and forth keeping core tight.*

## MatchingDonors

**D**id you know that more than over 270 people die every day in the United States waiting for an organ transplant because there are simply not enough organs available? MatchingDonors is a nonprofit organization and the nation's largest online organization finding donors for people needing organ transplants. In conjunction with various health organizations throughout the United States, the MatchingDonors Living Organ Donor Initiative program has already saved thousands of lives. This has been achieved by helping people recognize that they can save lives by being a living organ donor, registering as an altruistic living organ donor, and by donating other things. 100% of all donations go to help people get organ transplants on MatchingDonors.com.

Currently, patients waiting for an organ donation are placed on a national waiting list through the government. A computer system matches patients to donor organs according to objective criteria, such as blood and tissue type, immune status, medical urgency and time spent on the waiting list. The average time to receive a deceased organ is 7 to 12 years. MatchingDonors.com offers a way to enhance the search with a more active approach. Many patients receive a kidney transplant within six months of registering on MatchingDonors.com.

Please consider making a positive difference in the lives of others! Visit MatchingDonors.com for more details. ●

In the water, the athlete can target the core outside the typical land-based sagittal plane motions, and train the core like a cylinder in anterior/posterior/lateral and rotary planes. It is almost impossible not to engage the core musculature when performing vertical exercises in the water. Additionally, sport specific movements can be broken down and replicated in the water to target those motor patterns limited by muscle imbalances, and then solidified with land based training.

Trainers working with athletes with Lower Cross Syndrome in the water need to remember a few points:

- Know your athlete and their sports; make sure you educate yourself on biomechanics, kinesiology and the latest research so you can improve the specificity of training.
- Cue effectively. Provide corrective feedback to your athletes so that new motion/posture/alignment can be established. Remember to break the movements into parts.
- Perform split stance and single leg

exercises with your athletes because most sports are played that way.

- With your female athletes, make sure additional gluteal exercises are performed. Female athletes tend to dominate movement with their quadriceps and have an increased risk of ACL injuries.

Regardless of the sport or the goal, when working with athletes in the water – keep it fun, functional and purposeful. ●

### Author



*Dr. Rick McAvoy, PT, DPT, CSCS has specialized in aquatic physical therapy for over 25 years. He is the owner of McAvoy Aquatic & Sports Therapy, as well as H2X Fitness, in Southern Maine. He has invented aquatic exercise equipment, developed exercise software, is a published author and a researcher. He teaches at the University of New Hampshire (Department of Kinesiology) and Franklin Pierce University (Doctoral of Physical Therapy program), where he serves as an adjunct faculty member. For more information, contact [www.MastH2o.com](http://www.MastH2o.com)*

### Dine Online

## Summer Smoothie



By Sara Glassman, Vine Dining

**I**n the northeast US during June and July, berry season is in full force. July 4th is associated with eating platefuls of patriotic red and blue berry fruit salads for dessert. The recipe I have provided, however, is a creamier, sweeter dessert option, that can be multiplied for your holiday barbeque dessert.

Using berries in a creamy smoothie will satisfy everyone from children to adults. Plus, the homemade whipped cream is a great cholesterol-free and sugarless option that will satisfy your sweet tooth. Aside from being a sweet complement to a summer barbeque, berries have great health benefits for our bodies. For example, strawberries have a variety of antioxidants that fight tumors and inhibit inflammation in our bodies. Likewise, blueberries are also noted for their antioxidant qualities, in addition to their cognitive support. In other words, they are great for memory functions.

So, the next time you're reaching for dessert in the summer, rethink the cake, and go for the berries!

For the complete recipe see Dine Online with Sara Glassman, Vine Dining. Log into the Members Only area of the AEA Website, click E-AKWA from the top menu bar, and then select AKWA Extra and scroll down to find the recipe. Happy cooking! ●

### Author



*Sara Glassman, certified Natural Foods Chef, is the owner of Vine Dining, a plant-based cooking-class business, in the greater-Philadelphia region. She teaches clients one-on-one, or in groups, about the health benefits and the history of the ingredients used to make nourishing, homemade meals. She cares deeply about the food she cooks, feeling most satisfied when she uses new ingredients to cook innovative cuisine. Feel free to email her at [sara@vinedining.com](mailto:sara@vinedining.com).*