

# Functional Training for Swimming

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**A**re you looking to gain the competitive edge over your opponents? Developing a strong core, along with functional training for swimming, may be exactly what your program is lacking. Too many programs focus only on the numbers in the weight room, forgetting that swimming is a 3-dimensional activity, and therefore giving their strength gains minimal practical value to improving skill.

Functional training can increase the body's ability to generate power from the core. You will often hear the core (abdominal and back muscles) described as the power center of the body. This is because when trained correctly, these muscles act synergistically to dramatically improve sport performance. This doesn't mean that you need to do thousands of crunches per day. It simply means that you must train for specificity, and practice like you compete. These exercises will help you transition weight room strength to movement-specific strength for swimming. When evaluating an exercise for a specific sport, it is important to make sure the exercise will transfer to the activity at hand. The drills to follow will mimic swimming in order to transfer the strength gains to performance. With time being most people's biggest constraint to their training program, it becomes critical to choose your exercises wisely.

There are two common problems that occur among swimmers that can be minimized with this type of functional training program: postural imbalances and overuse injuries. A postural defect can cause a swimmer to swim much slower than they are able, or fatigue more quickly trying to swim at the same speed. Proper body alignment in the water can actually reduce drag and increase core power, enabling you to swim faster with less effort (decreased heart rate) and greater efficiency, for a longer time period. Poor head and body positioning or weak core muscles can contribute to lower back pain both during and after workouts. Another common injury is Swimmer's Shoulder. This is an overuse injury caused by instability in the glenohumeral

joint (shoulder joint), leading to inflammation in the rotator cuff muscles. Proper stroke mechanics play a key role in preventing this type of injury. Mechanical flaws are most often seen with fatigue, or inadequate flexibility, causing increased stress to the shoulder, both of which can be prevented with proper training. The stronger the stabilizing muscles are, the longer an athlete is able to train at a high intensity with proper technique.

Studies have shown that even a four-week interruption in training dramatically changes the metabolic characteristics of a swimmer's muscle<sup>3</sup>. With a four-week break in training (common with any overuse shoulder injury), the ability to generate power during swimming is significantly reduced, while complete inactivity leads to decreased aerobic capacity, which can dramatically alter the outcome of your season. You will be much better off preventing the injury that will lead to any interruption in your training program.

This program is designed for a seasoned swimmer, and should be done in conjunction with a traditional weight training and swimming program. These exercises are designed to enhance the local strength developed in the weight room, and transfer the result to general endurance, having a specific application to the real-life movement in swimming. According to Tudor Bompa<sup>1</sup>, "Endurance sports should consider multi-joint exercises involving several muscle groups. This type of exercise may not permit equally high amounts of work, but do provide a superior general and specific functional component."

This circuit uses a medicine ball for plyometrics, exercise tubing to provide variable resistance for the stabilization demands, as well as body weight exercises, using Pilates principles, to provide a balanced workout. You will use multi-joint, multi-planar movements to increase stability, power, and flexibility of the body. Strong muscles will display more endurance, as well as increased forces at sub-maximal levels of exertion compared to weak muscles, according Brooks<sup>2</sup>. Hopefully you will use this functional training program to integrate with your traditional strength-training program and reap the benefits of both types of exercise, with improved sport performance.

When using this program, work at full intensity after you are warm, enabling the activity to transfer to competition. Remember to practice like you compete. Try to move from one exercise to the next without more than one minute of rest. You want to keep yourself in continuous motion for smooth transitions and fluidity. For better results, go with your body's natural movement pattern. It is when we fight the natural tendency that injury usually occurs. All of your joints should work synergistically in a functional movement. This will help keep your heart rate up and well within your proper training limits. If you are a distance swimmer, try to keep your heart rate between 60 – 85% max. If you are a sprinter, it is appropriate to train above 85% max and into your anaerobic training zone.

## The Program

This program should be done 2 – 3 days per week prior to swim workouts. Complete this circuit 3 – 4 times depending on time available. Rest for 3 minutes between circuits. The first circuit should be at 75% intensity to make sure you are completely warm before performing plyometrics at full force.

### 1. Overhead Shoulder Press with Rotation to a Squat:

Use a medicine ball (6 – 8 lbs for women; 10 – 12 lbs for men). Repeat this activity alternating right and left for 20 repetitions (10 each side).

- Phase 1: Start standing with ball at chest to overhead shoulder press (see Figure 1a & 1b).
- Phase 2: Spinal twist to the right, then back to center (see Figure 1c).
- Phase 3: Back squat with ball at chest (see Figure 1d).



Figure 1a. Overhead Shoulder Press with Rotation to a Squat: Starting Position



Figure 1b. Overhead Shoulder Press



Figure 1c. Overhead Shoulder Press with Rotation



Figure 1d. Squat

## 2. Back Squat:

Place medicine ball on back between the shoulder blades, with elbows pointing up. Perform 20 repetitions without rest.

- Phase 1: Squat back to a 90-degree angle at the knee (see Figure 2a).
- Phase 2: Extend to standing with explosive power on the exhalation (optional plyometric jump on phase 2 for sets 2 – 4). (See Figure 2b).



Figure 2a. Back Squat Phase 1



Figure 2b. Back Squat Phase 2

## 3. Back Throw:

Perform 15 repetitions without rest.

- Phase 1: Squat, bringing the medicine ball between your legs to the shins (see Figure 3a).
- Phase 2: Extend legs to standing while swinging arms overhead with power (do not let go of the ball). (See Figure 3b).



Figure 3a. Back Throw Phase 1



Figure 3b. Back Throw Phase 2

**4. Overhead throw with Forward Lunge (Alternating Legs):**

Perform 10 repetitions on each leg without rest.

- Phase 1: Perform a forward lunge with the medicine ball overhead and elbows bent to 90-degrees (see Figure 4a).
- Phase 2: Simultaneously with phase 1, extend elbows as if to throw the ball forward. (Do not let go of the ball). (See Figure 4b).



Figure 4a. Overhead Throw with Forward Lunge Phase 1



Figure 4b. Overhead Throw with Forward Lunge Phase 2

**5. Fast Squat with Straight Arm Lat Pull Down:**

Use a medium resistance long tube with two handles. Hook the tubing around a pole and face the pole.

Perform 30 repetitions without rest. Try to go as fast as possible as speed determines intensity.

- Phase 1: Perform a back squat while simultaneously pressing arms to hip, keeping the elbows straight (see Figure 5a).
- Phase 2: Return to standing (see Figure 5b).



Figure 5a. Fast Squat with Straight Arm Lat Pull Down Phase 1



Figure 5b. Fast Squat with Straight Arm Lat Pull Down Phase 2

#### 6. Forward Freestyle Punches (Shoulder Roll):

- Use a medium resistance long tube with two handles. Hook the tubing around a pole and face away from the pole.
- Perform 30 punches without rest. Make sure to alternate arms. Try to go as fast as possible as speed determines intensity. You should almost feel like you are swimming freestyle with a shoulder roll (see Figure 6a, 6b & 6c).



Figure 6a. Forward Freestyle Punches Starting Position



Figure 6b. Forward Freestyle Punches Phase 1



Figure 6c. Forward Freestyle Punches Phase 2

#### 7. Straight Arm Trunk Rotation:

Use a medium resistance long tube with two handles. Hook the tubing around a pole and stand perpendicular to the pole.

Perform 30 repetitions without rest to one side. Repeat exercise to the other side.

- Phase 1: Stand with slight tension on the tube, facing sideways. Keeping arms straight, perform a spinal twist as far as your body will allow (see Figure 7a).
- Phase 2: Return to starting position (see Figure 7b).



Figure 7a. Straight Arm Trunk Rotation Phase 1



Figure 7b. Straight Arm Trunk Rotation Phase 2

#### 8. Flutter on Stomach:

Lay on your stomach with arms straight overhead and legs straight with your head down. Make sure your neck is in line with your spine to eliminate possible tension. Repeat this exercise twice before moving on.

- Phase 1: Lift arms and legs like Superman and flutter both arms and legs simultaneously for 20 repetitions (see Figure 8a).
- Phase 2: Return to starting position (see Figure 8b).



Figure 8a. Flutter on Stomach Phase 1



Figure 8b. Flutter on Stomach Starting Position

#### 9. Scissors:

Lay on your back in hamstring stretch position with both legs straight in a scissor position. Your bottom leg should be off the floor. Hold your top leg with both arms at the calf. Perform 20 repetitions without rest (10 each leg).

- Phase 1: With your eyes on your belly button and your neck in a “C” shape curve from mid-back, pull your top leg toward your head for a gentle stretch. Hold of 1 second. Be sure to keep your lower back glued to the floor (see Figure 9a).
- Phase 2: Swing legs to switch positions while remaining stable through the shoulder girdle and small of the back. Repeat phase 1 with the other leg (see Figure 9b).



Figure 9a. Scissor Phase 1



Figure 9b. Scissor Phase 2

## References

1. Bompa T. (1999). *Periodization: Theory and methodology of training* (4<sup>th</sup> ed.). Champaign, IL: Human Kinetics.
2. Brooks D, Brooks, C. (2002). *Integrated balance training: A programming guide for fitness professionals*. Canton, OH: DW Fitness, LLC.
3. Kammer S, Young C, Niedfeldt, M. (1999). Swimming injuries and illnesses. *The Physician and Sports Medicine*, 27(4):51-60.

## About the Author

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