

# How to Implement an Underwater Kicking Program

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This talk will provide you with SPECIFIC IDEAS on how to get your team into a sound underwater kicking program.

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The very first step in implementing an Underwater Kicking Program is to see that a knowledge base is developed for each coaching staff member and swimmer in your program. This can best be accomplished with a presentation to the coaching group that will develop the terms and concepts of programs. All coaches should have developed that “conceptual mode” of the “foil movement” that is to be taught and practice to the swimmer. A review of performances involving underwater kicking in practice and in meets will provide a great service to your staff. Develop a very specific set of “practice rules” for you coaches to use with the swimmers. Provide a variety of drills and sets for practice. See that guidelines are put in place to provide enough practice to have a “treatment effect” upon the learning process. Use fins to help the development process!!!!

The next step is to develop this same knowledge base with the swimmers. Again, the most effective way to do this is with a presentation, WITH THE USE OF VIDEO! The groups should be somewhat stratified by age and experience levels. Don’t do a ten and under talk to senior swimmers; give them the REAL STUFF!

Video of a practice progression without fins and with fins.

## **Develop a very specific set of “practice rules” for you coaches to use with the swimmers.**

Examples:

- Always count your kicks during breakouts!!!!
- Always use an odd number of kicks in practice.
- Be precise on technique.
- Focus on one kick direction at a time when you can.
- Focus on back/up kick precision!
- It is better to be too deep, than too shallow.
- Don’t approach the surface too quickly on kickouts.
- Best of Breed! Teach and practice them all.
- Use Number of Kicks for Workout Groups and Specific Skills.
- Measure Kicking Tempo
- Use a Tempo Trainer to gain perfect tempo precision in Underwater Kicking!
- Use Fins to develop the skills of Underwater Kicking.

**Always count your kicks during breakouts!!!!**

It is absolutely essential that swimmers count their kicks on extended breakouts. It is the only way to get totally consistent with high level performances that challenge the fifteen meter mark, which is presently the limiting rule for underwater kicking distance.

For top level swimmers at this time the variance is not much, but it can make a big difference BECAUSE EVERY HUNDREDTH OF A SECOND COUNTS IN THIS SPORT! Also, this will change over time, but most top swimmers are now taking between 9 and 11 kicks to cover the 15 meter breakout distance, with a kick tempo of approximately .40-.50. This is meant to give you some starting points for your evaluations and work on underwater kicking.

### **Always use an odd number of kicks in practice**

In a previous section I discussed the concept of reducing cycle counts, by substituting 2 dolphin/fish kicks for each cycle. In relation to this, I have presented the technique of adding only one more kick to a series in order to take off an addition cycle, a trade off of 1 for 1. This is accomplished by getting very good at the foil movement; meaning developing more distance per kick. The pattern of movement, magnitude of the knee bend and the increased utilization of the core body strength with the magnitude of body undulation are very important to this goal.

Referring to the concept of adding one dolphin/fish kick to the breakouts, the goal is to getting 1 more cycle off with only one more kick—rather than two more kicks. I have always felt like the pursuit of this goal would have a higher probability of happening if swimmers always used an odd number of kicks in the breakouts. Therefore, the progression of 3-5-7-9-11 or 13 kicks should be used. Using this approach will speed up the developmental process. Little swimmers to elite swimmers should be instructed to use an odd number of kicks for breakouts.

### **Be precise on technique.**

Encourage the swimmers to make a commitment to precise execution of technique. The way developing swimmers get big time drops is to make small improves in precise technique in every aspect of the skill sets needed for a race. Getting most of it, is not acceptable—do every single little detail the best that you can do is the right approach. Our greatest coaches have had that ability to instill that pride in doing every single thing exactly “right” with detail attention to anything that can make for better performances!

### **Focus on one kick direction at a time when you can.**

When you are leading practice repeats on precise kicking form, ask the swimmers to focus on either the front/down kick or the back/up kick separately. You will get more precise in the execution of the kicks.

### **Focus on back/up kick precision!**

Ask for more focus on the back/up kick during kick sets. As the legs move back, the knee joint is kept in a fully extended position until the desired maximum range of motion in the backwards direction is reached. Do not let swimmers bend their knees during the back/up movement! This back/up kick is the most important characteristic of effective kicking and needs continuous focus.

**It is better to be too deep, than too shallow.**

it is better to be too deep, rather than too shallow on underwater kickouts; especially when dolphin kick is beginning used, instead of fish kick or slant kick. On dolphin kick, the reason is that the vortices of the kicks are disrupted significantly when up directional vortices crash into the top of the water (you can easily see this trailing a shallow kickout by a swimmer) and down (forward kicking) vortices compress against the bottom of the pool. The interactions of the next kicks will not be as effective. If you are swimming in a seven foot deep pool, and you set up the majority of the kicks at three and a half feet, on dolphin kick you will have about 24 inches between the end of your kick and the top of the water or bottom of the pool! This situation can be reduced with slant or fish kick.

**Don't approach the surface to quickly on kickouts.**

Breakout trajectory of extended underwater breakouts is very important. How many times have you seen developing swimmers try to keep kicking too shallow on a breakout and have their feet start breaking the water too soon? Their velocity just falls off the cliff! I try to get the swimmer to stay away from the surface of the water for as many kicks as possible, and then do a slightly sharper angle up into the "surge stroke" of the breakout. For example, on a nine kick fish kick breakout on butterfly, I would have the swimmer on the side for eight kick, and then make the transition to the front on the one last kick before the surge stroke. They would ascend during the last three kicks. On backstroke, I would have the swimmer do ALL nine kicks on the side and then initiate the bottom arm breakout with flutter kick—ascending the last three cycles.

**Best of Breed! Teach and practice them all.**

PRACTICING swimming coaches often find themselves on such issues. However, with my work with several top swimmers over the past 15 years on these skills, I have developed enough "practical experience and coach's feel" that I believe I have a good grasp in the evaluation of the different kicks. I believe that I have a reasonable probability of not being wrong; but if I am, the negative consequences of being wrong are few to none!

I feel the efficiency differential between fish kick and dolphin kick in the competitive situation can be expressed in the following: approximately the distance achieved on 9 or 11 fish kicks at .45 tempo, will be the same as for 10 or 12 dolphin kicks at .45 tempo. Most individuals would say the difference between 11 and 12 is not very much! However, at .45 seconds per kick it is very significant number! I believe the quantified difference is one kick!

All this being said I want you to know that the TYPE of kick is not really the most important variable in underwater kicking EFFECTIVENESS. THE MOST IMPORTANT VARIABLE IS THE NUMBER OF KICKS.

### **Use Number of Kicks for Workout Groups and Specific Skills.**

Age group coaches should run a progression of kickouts for their age group programs. For example, start with 5 kicks for drop pushes and 3 kicks for turns with the little swimmers. The intermediate competitive swimmers are coached to go 7 on drop pushes and 5 on turns; and the advanced age groupers are coached to go 9 from drop pushes and 7 on turns. A popular combination for Jr. Elite Swimmers is 11 and 9. For the Jr. Elite Swimmer (18 and under, Jr. National and above swimmer), you would like to see the 15 meter mark challenged on starts with 9 and challenged with 11 on ALL turns. This will be the future of our sport!!!!!!!!!!!!!!!

### **Measure Kicking Tempo.**

Measuring kick tempo on underwater kicking is very simple. Start the stopwatch at the end of a forward kick and count the kick, zero, one, two . . . I then split after 3 or 5 or 10 kicks. The more kicks you use in the calculation, the more valid the measurement will be. For examples, 5 kicks at 2.25 would be .45 tempo; 10 kicks at 4.50 would be .45 tempo; 3 kicks at 1.35 would be .45 tempo. After you do it a few 1000 times, you just know at a glance—works for coaches too;)

### **Use a Tempo Trainer to gain perfect tempo precision in Underwater Kicking!**

One of the best coaching tools for effectiveness in teaching underwater kick tempo is the Tempo Trainer. The new ones are much improved. With underwater kicking the variance of effectiveness is small; at this time it seems to be in a range from .35 to .50, with a higher probability of successful at about .45 as a mode and a mean. Set the tempo trainer and have the swimmer practice 13 kicks repeats in fairly large numbers of repeats; example 20 X 13 kicks @ .45 on 20 seconds in a 15 meter course using flex-lane bulkheads. Or, 3 sub-sets of 10 X 13 kicks @.40 on 20 seconds in a 15 meter course. It does take much practice time, but you will have great success as a result of these efforts.

### **Use Fins to develop the skills of Underwater Kicking.**

Mono fins are a great tool for developing the correct foil movement involved in fish/slant/dolphin kick. First, I think development works best with a mono fin, rather than with just using two individual foot fins! It has to do with a movement educational type principle—**“kinesthetic awareness and tactile feel”**--keeping the feet together while on the side, readying for the drop push, maneuvering to get out of the way of another swimmer, and the like. Become at one with the fin:) Another very important quality of this type of fin is to help the swimmer coordinate the **“summation of forces”** by using the core body strength to develop

more distance per kick. The mono fin should first be selected for teaching the foil movement and training second. It should not be a fin with the characteristic that are associated with performance fins. The mono fin should be of the proper size for swimmer to handle. It should be made of safe material! It should be the right shape and have the right flexibility. I believe that small (cut off) fins are not good for young developing swimmers. They do not promote that fin like range of motion and emphasis at the end of each foil movement. The scientists in fish hydrodynamics say that the end, or flip, at the end of foil movement is extremely important; and hard, short, inflexible fins do not develop this skill as well as flexible, longer, and pliable fins.

## **Provide a variety of drills and sets for practice Underwater Kicking.**

For Example:

3 subsets of 4 X 25 Underwater Kicking, n Kicks, then breaststroke pull with dolphin kick the remaining 25 yards—n = 13 kicks, 11 kicks, 9 kicks, 7 kicks. One subset of each dolphin, slant, fish kicks.

Vertical Kicking: 3 subsets of 4 X 13 kicks. Focus on Forward Kick with exaggerated upper body movement, focus on Back Kick, focus on big exaggerated movement with big range of motion with upper body, and focus on power tempo. Same set with fins on. Same sets with hands down and then sets with hands overhead.

**!!!!4(5 X 25 @ 30 seconds) Underwater kicking fish kick with fins. Subsets: focus of forward movement, focus on backward movement, focus on distance per cycle (count kicks), and focus on tempo.**

4(5 X 25 @ 30 seconds) Underwater kicking kick with fins. Subsets: dolphin, slant, right side fish kick, left side fish kick.

**!!!!Fish/Flops. 20 X 50 @ 1:00. Dive from blocks, 11 Fish Kicks, 5 Cycles (Females) on fly for 25 yards, swim back easy in the next lane over on freestyle flop.(Males should try for 9 Kicks, 4 Cycles). Sometimes use the Plus 2 Rule!!!!!! (13K, 4 C or 11K, 3C).**

Fish/Flops. 4(3 X 50 @ 1:00. Subsets: fly, back, free, fly with Plus 2 Rule.

Fish Kick with and without mono fin—9 (3 X 25 @ 30 Seconds) Cycle 3: Big Range of Motion, Build Tempo, and then Tempo.

!!7 & 7

**See that guidelines are put in place to provide enough practice to have a “treatment effect” upon the learning process.**

It is important to practice the skills of Underwater Kicking on a regular bases. If you are only doing some type of underwaters once per week, you will probably not get very good at it. You must have enough practice to get that necessary practice time to have a “training and learning effect” on the swimmers skills. Set up guidelines for each group within the program. For example, age groupers do at least one small set in each practice—something without fins and something with fins. For example, the senior group with do at least three sets of “fish/flops” each week. They will do at least three sets of Underwater Kicking with mono fins each week! Film each senior swimmer once a month to evaluation their foil movement during fish kick. Time at least three all out dive, 25 yard, underwater fish kick each month.