

Swimming Golf Performance Set

Overview

The Swimming Golf Performance Set is a test of technical ability and conditioning. It can be used as a benchmark to indicate technique improvement over time. If you are a Level 3 swimmer, you'll do 3 x 300 Freestyle @ 30 seconds rest after each; if you are in either the Level 1 or 2 lanes, you'll do 10 x 100 Freestyle @ 10 seconds rest after each.

The goal of the set is to swim it in the shortest amount of time while holding a consistent pace throughout. In other words, you don't want to go all out on the first repeat or on the first length of a repeat and then slow down. While doing the set, a partner on deck will get your 100 yard or meter splits, your 50 stroke counts, and your stroke rate or cadence (represented as seconds per stroke which is actually the inverse of stroke rate to the math geeks in the crowd).

The numbers are great, but what does the set tell me?

The set is designed to help you understand what goes into making you a faster and more efficient swimmer. It also can act as a window into how well you pick the best speed and technical form to hold during racing situations. At the foundation of this test is the following equation:

$$\text{Speed in the Water} = \text{Stroke Length} \times \text{Stroke Rate}$$

In other words, how fast you swim is the combination of how far you travel on every stroke and how many strokes you take per second. In practice, we usually call these two items, "stroke count" and "tempo," respectively. The key thing to understand is that speed is a COMBINATION of stroke length and stroke rate, it's not all one or the other – there's neither value in having an "off-the-charts high" cadence with no speed to show for it nor in swimming a length in five strokes but going slow as molasses. And if you feel like you are underachieving in your races, odds are you are not picking the best combination of stroke length and rate leaving you locked into a slower speed.

You can manipulate the equation in the following ways:

- Option 1: If your stroke becomes more efficient and you travel further on every stroke (stroke length) without reducing your tempo (stroke rate), you'll go faster
- Option 2: If you can sustain a faster tempo (or stroke rate) without sacrificing efficiency (stroke length), you'll go faster
- Option 3: If you can go the same speed but do the distance in fewer strokes (i.e., raising stroke rate and lowering stroke rate), you've becoming more effective at that speed and you can consider using Option 2 to go faster

As I mention above, when we run this set, we get your 100 yard (or meter) splits, your stroke counts per 50, and your stroke rates on a sample of 50's. These numbers will help you think about what you are doing in practice and also help you understand how you can become a better swimmer.

The training philosophy is pretty simple: if you can consistently practice meeting or surpassing the results of your Performance Set every day in practice, you'll get faster, fitter, and more efficient.

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Training's not just about "working hard" or "doing more yardage." It's about figuring out how to make better choices consistently in practice to go faster speeds. Adding these variables to practice will make the sets more mentally challenging and will give you greater context around what you are doing. The more you practice choosing the stroke length, rate, and speed that's right for your sets rather than having them come out at random, the better swimmer you'll be and the greater probability that you'll choose the best combination on race day.

So what should my numbers be?

Stroke Rate and Stroke Length both contribute to swimming speed, but the best combination of those two variables to go a given speed is an individualized thing. The combination depends on your muscular make-up, your body size and shape, your physiology, and your gender.

- Muscular Make-Up: Stronger swimmers tend to swim with greater stroke length
- Body Size and Shape: Taller swimmers (or those with longer arms) tend to swim with greater stroke length
- Physiology: Swimmers with a greater proportion of slow-twitch muscle fibers tend to swim with greater stroke rate
- Gender: Men tend to swim with greater stroke length, women with greater stroke rate

So if you take a "tall, thin man with a large amount of slow-twitch fibers" or a "short, strong woman with a large amount of fast twitch fibers" you can see how a one-size-fits-all approach is not going to work too well.

The best approach that you can take is to get a snapshot of where you are at a given time, like we did with this performance set, and then repeat the set periodically to detect changes. Your goal should be to swim any speed with the longest stroke and the slowest cadence that is still rhythmic and that you can hold for your goal distance. If you can find this "best stroke length, lowest stroke rate" combination, you can then play around with adding more stroke rate to yield more speed for your effort (Option 2). Any manipulation that you do will be on the margins, a 5-10% change rather than a 25-30% change, because big swings in stroke length or stroke rate usually will cause you to slow down or add a ton of effort for no speed gain. And we don't want to settle in on changes that make you a slower swimmer! So the bottom line is: you need to know YOUR base speed, YOUR stroke count, and YOUR tempo so you know what it is that you are tweaking about YOUR stroke on a daily basis. Awareness of these variables on every set will help make your practice more meaningful and effective.

How do I reach the next threshold?

It's very alluring to simply look at the time interval in the next lane up and use that as your guide. You can think, "Well, I can swim harder and make that 1:40 send-off, so I should move up." The problem is that speed isn't just about making the time; it's also about the stroke count and the tempo you use to hit that speed.

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Generally speaking, you'll probably be able to hit the pace of the next lane before you can hit the golf score of the next lane. You'll think of "working harder and turning it over more" to hit the send-off. Using our speed equation, you're adding a bunch of stroke rate to hit the interval for the lane. The problem with this approach is that speed is a range, not a fixed value. Furthermore, the tables above are a little bit misleading because there isn't one interval for a lane, but a variety of intervals depending on the required speed and intensity for the lane; the one that I list is the "threshold interval" or the one you'll do with about an 80% effort. To make you better swimmer, we want to develop a range in your swimming arsenal to be able to slow down and stretch out, swim at threshold pace, do aerobic power sets, and crank out anaerobic sprint sets. It's the combination of training at all of these different types of speeds that makes you a faster and more versatile swimmer.

If you are using the upper ranges of your stroke rate just to stay up with the threshold interval, you have no room to increase your speed using more stroke rate (Option 2 from above). You'll find that you keep up with the lane on threshold sets, but fall behind on any sprint or other high-intensity sets. Practically speaking, if your stroke rate on your performance set drifts into the low .80's or faster, you are probably focusing too much on tempo to the detriment of stroke length and are limiting your ability to improve and advance a lane. Our goal is not to turn our high stroke rate swimmers into low stroke rate swimmers. The goal is to have you reserve that high stroke rate for the fastest speed possible and emphasize stroke length more on all of the slower speeds.

Your goal needs to be holding the pace for your lane but doing it on fewer strokes (Option 3). You should stay in your lane until you are able to hit your 100 send-off with 10 or more seconds rest on fewer strokes than what the next lane up requires in its golf set. For example, using our charts, a person swimming in the 2A lane on 1:40 per 100 yard send-offs should look to consistently repeat 100's in 1:28-1:30 or better and in fewer than 34 strokes per 50 before moving to the 3B lane. You should feel like this pace is in the middle to lower part of your stroke rate range. Then you can move up, add more stroke rate to swim faster and comfortably hit the 1:30 send-off in the 3B lane (Option 2).

Achieving this goal will require you to work on feeling your stroke rate and stroke length on every set in practice. Work on holding your speed, count, and tempo for longer distances or on shorter rest to build your fitness with awareness to form. To take strokes off your count, learn your drills, practice them accurately, feel them in the full stroke at slow speeds, and then feel the form at main set speeds. Practice stroke elimination sets where you work at swimming at a lower count than your performance set while maintaining rhythm and flow. To work on your tempo, use a TempoTrainer to feel what it's like to swim at, above, and below your performance set stroke rate. Finally, use swimming golf sets to play with the combination of the two variables and how they affect your speed.

No matter where you are in your swimming skill development, you can always work on these variables to figure out ways to add more speed and efficiency in your stroke. Working on these variables is what practicing and training is all about. When you get to race day, you'll have a leg up on your competition because you've been planning how to parcel out your stroke length and stroke rate every day in practice.