

Why Distance Per Stroke (DPS) & Stroke Counting Matter



By Benoit Lavigne



The world's best swimmers are faster than you because they travel further with each stroke, not because they are moving their arms faster.

Distance per stroke (DPS) is the distance you travel per stroke and it is a direct reflection of your technique efficiency.

Once you have developed the ability to control and maintain a constant pace throughout your swim sets, distance per stroke is the next important training component to focus on.

Stroke counting is an excellent way to increase your distance per stroke.



Keeping track of the number of strokes you take per length will allow you to lengthen out your stroke and save energy for later in the swim or race.

Here is a typical progression for exploring and then improving your DPS performance:

1) Find your target stroke count

Start by counting your number of strokes (count each arm movement) per length regularly and check if these are constant from the beginning to the end of a swim set. Staying focused on this can be challenging as you get more tired towards the end of the set. You don't have to count the strokes for every length, just a few at the beginning, middle and end of the swim set.

Determine what your range is. Try to swim most of the time at the low end of your range or below your lowest stroke count. Don't worry about speed at first. ***It is normal that your speed decreases initially during a technical set, as you concentrate on lengthening your strokes.*** You can influence speed later.

2) Develop the ability to hold a constant number of strokes at a steady pace

Holding a regular distance per stroke at a constant speed throughout an entire swim set can be very demanding. It requires lots of focus as you have to keep checking your times as well as your number of strokes. This is, however, an important target to achieve in order to maintain an efficient technique, especially when your body gets tired.

A good swim set to track your improvement is to regularly do a 12 x 50 m/yd Freestyle counting your strokes and swimming with the best average time (speed).

Swimming sets of 50's (or 33's) is easier to record your times and count your strokes as well as staying focused on a good technique and maintaining a constant pace throughout the set.

Start with a comfortable send-off interval or an easy clock read (e.g. on 1 minute start) and try to swim the best average time with the same number of strokes for each repetition throughout the set. E.g. 12 x 50 m/yd on 1 minute (1'00) start at 50 seconds (50'') pace with 42 strokes.

3) Increase your distance per stroke

In order to increase your DPS, the goal is to bring down your average stroke count per length. This will allow you to improve your stroke efficiency. In other words, you go further with each stroke.

However, if you increase your distance per stroke too much, it can result in over gliding which will effect your speed. A longer glide can end up with you decelerating and swimming slower.

To increase your DPS, you need to find a balance between a good body position which eliminates drag and developing more power under the water. Focusing on a different part of your stroke and practicing specific drills regularly will help you to achieve this.

[Here](#) is an example of the Freestyle technical breakdown during the first part of a training season.

4) Maintain your DPS and steady pace while increasing repetitions, then distances

Once you have established your DPS and can maintain it at a steady pace, regular practice is needed to make this your new automatic setting. When this is achieved, it is time to increase the number of repetitions of this kind of training in your swim set and, eventually increasing the distances you swim.

Below is an example of progression from 20 minutes to 30 minutes Freestyle set:

➤ 20 x 50 m/yd on **1'00** start (50" pace with 42 arms per 50 m/yd)

Once the above is constantly achieved a few times, proceed to the next step:

➤ 4 x (4 x 50 m/yd on **1'00** + 100 m/yd on **2'00**)

In a longer term:

➤ 4 x (2 x 50 m/yd on **55"** + 2 x 100 m/yd on **1'50**)

Then:

➤ 15 x 100 m/yd on **1'50** start

Eventually:

➤ 18 x 100 m/yd on **1'45** start

Whatever progression you do, don't rush it! Always ensure that each step is well established and achieved before moving onto the following challenge. Swimming requires patience and consistency.

5) Increase speed without impacting your technique

Swimming faster while maintaining good technique is very demanding. This requires strong focus, some mental toughness and a good level of fitness.

One way to achieve this next important step, is to increase your stroke rate while trying to maintain the best possible technique.

Stroke rate is the number of cycles (counting both arms) you take in a minute. This reflects the speed of your stroke.

Below are some focus points to help you increase your stroke rate.

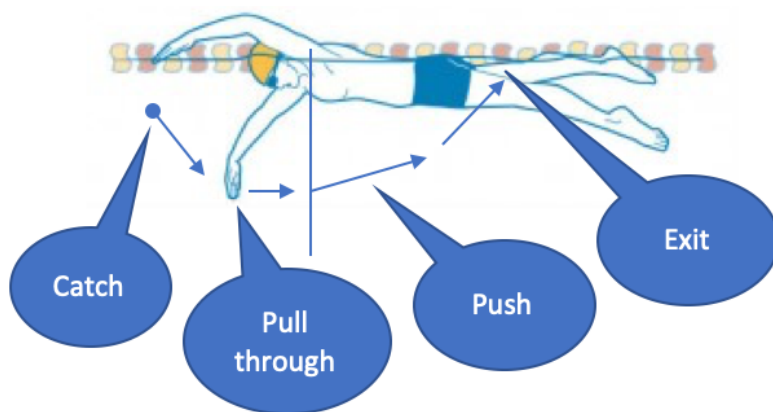
The propulsive part (under the water) is the most important part to getting more power and speed.

This includes:

- **Setting up a faster catch**
- **Accelerating** the speed of your hands as you push back

The non-propulsive parts also play an important role in minimizing drag such as:

- **Reaching** further out in front by giving your shoulders an extra stretch
- **Streamline** with no gap between ears and shoulders when reaching your arm out in front
- **Horizontality** by keeping your hips at the surface or as high as possible during the propulsive part (particularly when your stroking hand is directly below the shoulder)
- **Body rotation** allowing you to use the larger back muscles during the propulsive catch



To swim faster, you may need to shorten your strokes a little. This will decrease your DPS (adding more strokes) but try to keep this to a minimum!

A good rule of thumb is to not allowing yourself more than two extra strokes per length between a steady and a fast pace.

For example if your usual stroke count is 42 arms per 50 m/yd at a steady pace, try not to go over 44 arms when you are swimming at a fast pace.

Finally, swimming short distance repetitions at various paces, sprints, strength and power development with pull buoy, elastic band and paddles, will also contribute a lot to your speed development.

Example of short distance swim sets at various paces:

12 x 50 m/yd descending pace 1 – 3, 4 – 6, 7 – 9 & 10 – 12

Swim the 1st 50 at easy pace, the 2nd 50 a little faster and the 3rd 50 faster than the second one.

Repeat the same from the 4th to the 6th and so on.

The goal is to keep a similar number of strokes as you go faster.

Also:

6 x 50 m/yd Fast

6 x 25 m. Sprints

