

Streamlining

Streamlining is such an important part of swimming, that we revise it at all levels throughout our curriculum until it can be performed perfectly, habitually. It is kept relatively simple in the learn to swim levels with greater detail added at successive squad levels.

Every skill and stroke in swimming involves minimising resistance as much as possible. Some strokes such as Butterfly and Breaststroke trade off good streamlining for greater power.

In all strokes we aim to swim as horizontally as possible to reduce water resistance also known as drag. Drag is increased by poor technique. Breaststroke is the most resistant of all strokes because the arms and legs stay underwater and make wide movements. However, drag is also increased by poor body position in the other strokes.

The single most important skill for swimmers to learn therefore is the art of streamlining off every start (whether it is from a dive or a push) and from every turn.



For perfect streamlining on all dives, turns and pushoffs, swimmers should try to make their body as long and thin as possible. In learn to swim lessons we call it a torpedo. Ensure that their;

- body is completely straight and stiff from their fingers through to their toes.
- One hand is placed on top of the other with the weakest hand on top
- The thumb of the top hand should wrap around the outside of the bottom hand so the hands don't break apart
- Arms are locked at the elbow
- The head is positioned between the arms with the ears being squeezed by the biceps. No daylight should show between the arms and the ears.
- Ankles are together and toes are pointed.
- Shoulders are shrugged upward in an effort to touch their ears. This makes them even thinner.
- The small of the back is as flat as possible by tucking the bottom and firming the abdominal muscles.

A useful image is to think of your body as a long thin pencil with the tip sharpened into a point (your middle fingers).

When you streamline off the wall in Backstroke you must make exactly the same shape which we call an 'upside down torpedo'. Unfortunately, so many swimmers are uncomfortable on their back, particularly underwater when the water can leak into the nose, that they compromise their body position to compensate. On Backstroke then, swimmer's need to learn 2 additional skills so they can comfortably perform a good streamline.

1. To exhale through their nose, and to control the rate of flow so they can constantly blow until their face breaks the surface. Blowing too fast will result in running out of air while still deep underwater. While air is blowing down the nasal passages, it is impossible for water to leak back up. Once the airflow ceases however, because the swimmer has run out of breath, the water will flow in.
2. Being able to sense how long they will streamline underwater (based on depth), so they can control the rate of flow accordingly. This takes much practice and is determined by how the weight of the water feels on the swimmer's body (greater pressure equals greater depth) and by the swimmer watching the surface of the water above him/her. As he rises the surface will come closer and will indicate how deep or shallow he is. A combination of the two will signal to the swimmer when to initiate the breakout stroke which, as the name suggests, breaks the swimmer's face above the water for the next breath.

The skill of watching the surface also helps the swimmer, as they will be able to see through the surface for landmarks such as the backstroke flags. All swimmers should set the target of streamlining past the flags every time before they breakout and begin stroking. (Don't forget that the strongest hand should always pull FIRST on the breakout stroke)

Top swimmers streamline deep under water until they are ready to take their first stroke because, surprisingly, it is FASTER. Pushing off on the surface will slow you down because of all the rough water on top. Underneath, the water is very still, so there is less drag to slow you down.

Once you have streamlined off the wall in the perfect position, you will be traveling quite fast (assuming you pushed very hard - the harder the better!). In fact your body will be traveling faster than your fastest swimming speed if you have pushed off hard. You need to capitalize on this speed off the wall and allow your body to glide ONLY until you feel it start to slow slightly. If you allow it to slow down too much, i.e slower than your fastest swimming speed, it requires more energy to regain that lost speed. Hence, not only will the others in the race have got a lead on you, but also you will have needlessly wasted energy.

A good way of viewing this is to think of your body as a car. Imagine one day you are out for a drive with Dad and the car runs out of petrol and stops in the middle of the road. Dad asks you get out and help push the car off to the side of the road. What you will find is that it is VERY hard to get the car moving when you start pushing it, but once it has begun to roll, it is easy to keep it going. If you allow it to slow down and stop again it requires a huge amount of energy on your part to get it going again. Your body works in just the same manner as that car. It takes great energy to get it going (the push off) but once it is moving it is easy to keep it going (streamline glide, kick, swim). But if it slows down in the glide phase you will use up loads of energy trying to regain any lost speed.

A worthy goal is to train yourself to push and glide at faster than race speed at least to the Backstroke flags. The moment you start to feel your body slow, begin to do very fast powerful dolphin kicks (usually between 4 and 6), and then change to very fast flutter kicking if you are doing Freestyle or Backstroke. Butterfly kick is the fastest kick of all if done well and it helps to maintain the speed that you got from your push off.

Keep your head locked between your arms and gently angle up toward the surface as you start your kicks. If you rise too steeply, again, you will increase drag. When your head is near the surface you pull with your strongest arm to make your breakout stroke.

As its name suggests, this stroke will pop you above the water and now you are ready to resume your normal stroke.

A simple few key words to help you remember the sequence is;

Push; glide; 4 fly kicks; flutter; breakout and swim.

Tell the swimmers to memorise this word sequence and to make sure their actions match the words every time they streamline.

An advanced drill is to do the above sequence, not taking the first breath until after the fourth Freestyle stroke has been taken. Top international swimmers hold their breath on every dive and turn for at least this amount time.

A very good visual image to think of on all dives, turns or streamlines in general, is to pretend you

are a dolphin caught in a fisherman's drift nets. Your only chance of saving yourself from drowning is to push, glide, kick and swim SO hard that you break free of the nets. Your push should be explosive; your kick has to be MORE than just hard and fast; and your breakout strokes have to be at 110% effort if you want to break through the nets and survive!!!

Think:

- Push = EXPLODE
- Glide
- Kick = HARD and FAST – Boil the water with your feet EVERY time.
- Swim = 4 strokes POWERFULLY!! Dig in and throw the water as hard as you can to your feet in the first 4 strokes.

The above streamline is important to establish your MAXIMUM speed from a dive whenever you race. After the first 4 strokes, depending upon the stroke and distance you are racing, you should then either try to maintain that speed, or ease back to your rehearsed race pace. Your ability to ease back the right amount will be conditional on how hard and fast you go in these first few strokes (and a lot of practice!) – they will set up the race for you and therefore are of UTMOST IMPORTANCE to get correct.

Even when you are doing slow sets, still practice pushing hard and working your kick and breakout stroke to establish good race habits.