

Freestyle Fundamentals ©

By Anita Killmier

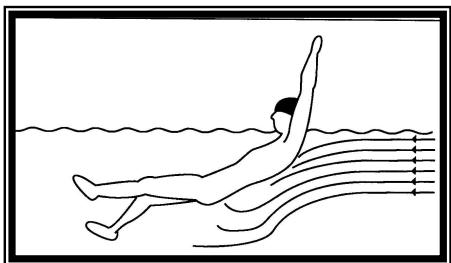
1. Streamlining and its importance
2. Pressure points and body position
3. Breathing
4. Side Kicking as it relates to body rotation



Both Freestyle and Backstroke are referred to as Long Axis strokes strokes and this image is useful when we swim.



1 - Streamlining



Streamlining is such an important part of swimming.

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.

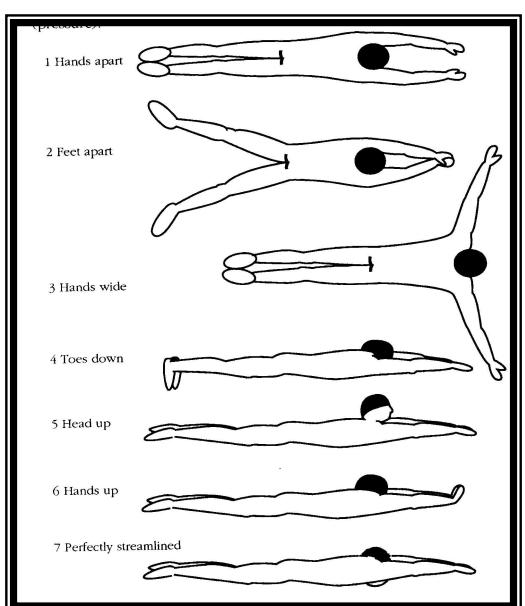


In all strokes, we aim to swim as horizontally as possible to reduce

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 is the art of streamlining off every start (whether it is from a dive or a push) and from every turn. To see the effect of drag on your body, try the following streamlining variations. When you do this, concentrate on how the water feels as it flows around your body. Feel which parts of your body are feeling the greatest amounts of pressure or drag. Some will be obvious, others may be more subtle or softer to feel.

In a 50m race in a 25 metre pool, streamlines can account for up to 50% of the race. The momentum that is generated from the dive can carry the swimmer out for 15 metres, and off the turn for 10 metres ($15m + 10m = 25m$), hence we place the utmost importance on it. When races are won or lost by hundredths of a second, every detail counts. If they DON'T streamline perfectly, they are effectively giving away time to their opponents.



However, swimmers will always perform their WORST habits in a race, particularly when they are under stress and fatigue. The only way they will ever do it perfectly in a race is if they practice it perfectly all the time in training until it becomes such an ingrained habit that they don't need to think about it.

Thought for Today:

**"Practice does not make perfect.
Only perfect practice makes perfect."**

(Bill Sweetenham – Past National Youth Coach of Australia)

BEGINNERS

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

- ◆ The learner's 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 (strongest or bottom hand should always pull first when commencing strokes)
- ◆ 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.



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

Cue words for beginners are

Push; Glide; Kick; Swim

ADVANCED AND SQUAD

When swimmers streamline off the wall in Backstroke they must make exactly the same shape which we call an 'upside down torpedo'.

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!). Allow your body to glide until you feel it start to slow down. (**Good swimmers aim to glide past the Backstroke flags before they take their first stroke**). The moment BEFORE 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 pushoff. If you are NOT very proficient at dolphin kick, you are best to stick to flutter kicking.

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.

Memorise this word sequence and make sure your actions match the words every time you streamline.

An progression 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.

Streamlining is equally important in diving. In fact a good racing dive is simply a perfect streamline, so knowing one will help the other. When you dive, the word sequence then is exactly the same.

Once a basic dive has been mastered, swimmers can be shown how to do a racing dive.

WAKE LINES

Here is a sequence from a novice adult on her first attempts at streamlining which she has managed to do really well. I have asked her to streamline on the surface, because this reveals her **wake lines**, which are excellent. These wake lines say much about the accuracy of the streamline. Done well, they should appear the same as if you are standing at the prow of a boat and the point (in our case the middle fingers) cleaves through the water, parting the water allowing it to flow smoothly either side of the boat. If you don't see this, or the wake lines are turbulent or disrupted, it indicates things are not quite right.



The Push. Wake lines appearing. If the hands are underwater the wake lines will appear much different.



Early glide: Wake lines developing.

Note lines radiating out from her fingertips, in an inverted “V” shape. Rough water is bad drag, but the aim is to minimize this as much as possible by making the longest skinniest shape.



Mid Glide:

Her form is good although her back is in a slight ‘u’ shape. Head is in the right position. Wake lines holding.



Late Glide;

If you look closely enough you can see the wake has radiated well out to the edge of the pool and the water is ‘ruffled’. There is a clear distinction between the still water, and the water that has been disturbed.