

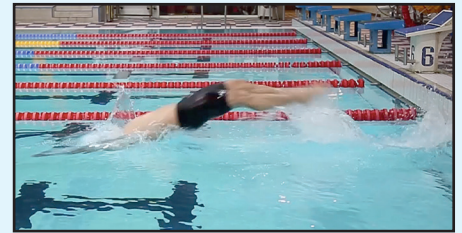
THROUGH THE SURFACE & OFF THE WALL

A tight, squeeze streamline position must be held through the arms, shoulders and torso when the swimmer dives through the surface or pushes from the wall. A 'weak' position which allows independent movement of the arms, head, torso or legs will create drag and slow the swimmer down.

THROUGH THE SURFACE (1):

STARTS

A backstroke start entry will mean the swimmer is travelling down towards the pool floor. This trajectory can be controlled by small movements of the hands with fingers pointing diagonally up towards the surface. The sharper the upward point the more steeply the swimmer will surface. Weak kickers need to surface sooner than strong kickers.



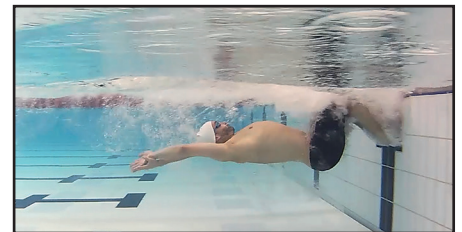
OFF THE WALL:

TURNS

The push for backstroke should be diagonally down towards the pool floor. The spine should be held firmly fixed during the push.

DOLPHIN KICK

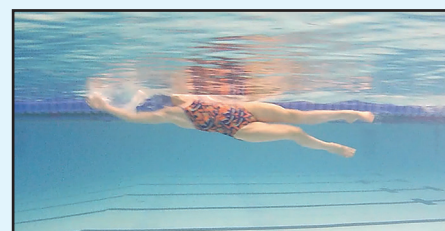
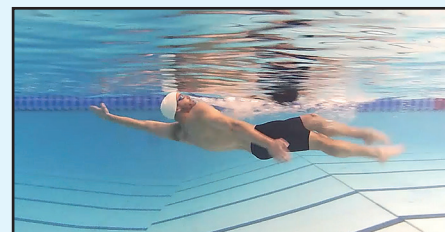
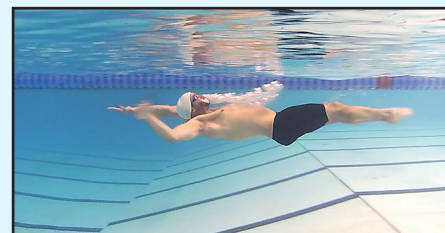
- **This section describes the underwater dolphin kick on the back which if done correctly is the way of fastest movement in water.**
- Shortly after the entry or push the swimmer will feel a slight slowing down or a retardation of motion. Just before this point (a 'learned' skill) the swimmer should rotate to one side, no more than 45°, and the dolphin kick action should be started - underwater kicking on the side is faster than kicking directly on the front or back.
- The stability of the torso, shoulders, head and arms is critical to controlling the amount and the direction of power from the legs. The upper body, therefore, should be kept in a stable position with no bouncing and very little undulation of the arms or shoulders.
- The size (amplitude) of the kick should move from small at the beginning of the underwater phase to large at the end.
- The legs and feet are mostly kept close together but there should be a slight parting of the knees on the upbeat followed by a slight parting of the feet at the top of the downbeat. This creates a 'heart' shaped pathway for the foot movement which allows a larger 'flat' surface of the instep to press the water.
- The kick rate should be around two kicks per second or slightly faster and should mimic a whiplash from the stomach/hips through the thighs, feet and toes. The quadriceps muscles (front of the thigh) provide the majority of the power though hip flexion & knee extension.
- The uplift of the feet is responsible for 'setting up' the 'fix' for the following propulsive thrust. The mental image of the kick should be 'up then down' and the emphasis of the whiplash should be on the kick down as that movement provides the bulk of the power.



THROUGH THE SURFACE (2):

THE PULLOUT/TRANSITION

- On backstroke the dolphin kick changes to a flutter kick when the swimmer has travelled the planned distance underwater. The backstroke change is made by stopping **one** foot at the bottom of the down kick so that the feet become split. When the moving foot reaches the top of the next upbeat and starts its downbeat, the stopped foot is restarted and both feet then assume a standard flutter (alternating) kick.
- The first pull is usually made with the 'top' hand but it is a personal preference. It starts when both legs start the flutter kick. Perfect timing means the downsweep of the hand coincides exactly with the first kick of the two-footed flutter. The first arm pull should be matched by an extreme forward stretch of the other arm and hand.
- One stroke is used to transition through the surface at the end of the underwater phase (a single arm pull on backstroke). The pull should enable the swimmer to 'swim through the surface' in a smooth, manner at the end of the second downsweep on backstroke and into 'normal' stroke timing with both arms. The body and the legs should surface through the same hole. Perfect timing means the second arm on backstroke starts its pull exactly at the point where the head and shoulders break the surface.
- The first surface arm recovery should be longer than the 'normal' swimming strokes in order to 'settle' the swimmer into the best possible body position.
- No breath should be taken during the first stroke cycle.



PHYSICAL REQUIREMENTS

- Strong quadriceps.
- Ankle extension in plantar flexion.
- Shoulder flexibility.
- Long, wide feet are an advantage.

TESTING & MONITORING



TARGET NUMBER OF VERTICAL KICKS IN A SET TIME, SAY 15, 30, OR 60 SECONDS.

MALE/FEMALE			
LEVEL	15S	30S	60S
1	45	80	150
2	40	70	125
3	30	55	100

'WHIPTAIL' CHALLENGE:

DIVE 25M UNDERWATER DOLPHIN KICK – ONE ABOVE WATER BUTTERFLY STROKE REQUIRED AT THE FINISH. TIMED FROM FEET LEAVING THE BLOCK TO DOUBLE HAND TOUCH AT 25M

LEVEL	MALE	FEMALE
	TIME	TIME
1	11.0	12.0
2	14.0	15.0
3	17.5	18.0
4	21.0	21.0
5	25.0	25.0

THE RULES

- SW 6.4 (BACKSTROKE) Some part of the swimmer must break the surface of the water throughout the race. It is permissible for the swimmer to be completely sub-merged during the turn, and for a distance of not more than 15 metres after the start and each turn. By that point the head must have broken the surface.

COACHING PROCESS & CONTROL

- The swimmers should attempt to move water backwards towards the end of the pool rather than focus on kicking 'up' and 'down', hence the extreme knee bend and the requirement for ankle flexibility.
- Weak kickers should continue for maybe **2-3 seconds** before surfacing, strong kickers for longer (mindful of the 15m limit obviously).

LAND EXERCISES

- Flexibility exercises for; a) lower back, b) forward shoulder-blade depression (to assist the maintenance of arm position), c) hyperextension of the knees and ankles.

SKILLS DEVELOPMENT

- Underwater kicking for time. Experiment with the frequency and amplitude of the kicks to find the fastest combination for each swimmer.
- Vertical kicking +/- fins or monofins, +/- weights attached to the waist, and holding a weight above the head in the streamline position (filled water bottles are nicely heavy).
- Dolphin kicking on the back (knees **must** stay submerged). Hands on stomach or extended overhead.
- Underwater dolphin kicking on the side or on the sides and back (right side, back, left side, front – repeat).
- "Whales": underwater dolphin kicking then explode out of the surface into a "breach" just like a Killerwhale – try to do a complete 360° rotation before splashdown.
- Training sets demanding at least 5m underwater off every wall. Increase this to 8/10/15m as the swimmers improve. Note: 15m is a very long way for young (small) swimmers; start with 5m and be prepared to be patient waiting for competency.

INTERPRETING THE RULES

- On backstroke the swimmer must 'remain on the back', 'Back' is limited in the rules as "past vertical" so the swimmer is allowed up to 90° of rotation; the suggested 45° is, therefore, not a problem.
- Butterfly rules restrict the underwater arm pulls to one movement. Freestyle and backstroke have no restrictions! Backstroke has no restrictions on the underwater arm pulls, however, it is sensible to restrict the arm movements to one underwater pull (one arm freestyle) before 'swimming through the surface' and launching into full speed surface mode.
- The 15m underwater limit is usually marked on the lane lines and sometimes on the pool floor. Some part of the head must break the surface **before** the 15m mark. 15m is a long way for young (small) swimmers – most of them will be better served by surfacing at a shorter distance and 'getting into the swim'. However, continuous practice should encourage them to lengthen their underwater comfort zone.

COMMON FAULTS & FIXES

- Unstable body/arm position. This allows movement of the torso/arms and creates drag.
- Kicking from the knees – no hip or stomach involvement.
- No 'whiplash' effect during kick.
- Fear of losing breath (a 4 or 5 second underwater stay can seem like 40 or 50 seconds to some young swimmers).

DESCRIPTIVE WORDS & IMAGERY

Dolphin/mermaid/spear/torpedo/missile/whipcrack/whiplash

SEE ALSO

- British Swimming: britishswimming.org
- ASA: swimming.org
- SASA: scottishswimming.com
- WASA: swimwales.org
- BSCA: gbswimcoaches.co.uk