

# Competitive Swimming **STARTS, TURNS, and FINISHES**

## **Skills Development**



## Dive Start

Although a number of techniques have been used in the past, the simplest and most effective racing dive is called a "grab start". A variation of the grab start may be used which changes the placement of the feet on the starting block, this is known as a "track start" because it resembles the starting position used in sprint running. The start for freestyle, butterfly, breaststroke and individual medley races is a dive from an elevated platform (i.e. starting block).

A long-whistle from the referee signals the competing swimmers to step onto the block and assume any position they desire. The swimmer may take up a fixed starting position with toes curled over the front edge of the block or stand back from the front-edge of the block and await further starting instructions. At this stage the swimmer may be bent forward in a starting position or standing upright.

On the starter's command "take your marks" all swimmers must immediately take up a starting position with at least one foot at the front edge of the block. The accepted starting position is one in which the swimmer's body weight is close to the front-edge of the block while the body's weight distribution is evenly balanced over the feet. A stable base of support should allow the swimmer to remain motionless until the starter gives the starting signal (i.e. usually a 'gunshot', 'horn' or 'beep'). Foot placement may be close together or slightly apart, but probably no more than shoulder width apart. Hand placement may be between the feet or to the outside of the feet grasping either the front or side edge of the platform. Hand and foot placement should be comfortable and allow for some pressure to be maintained against the surface of the block. The swimmer will be in a position where the hips and knees are flexed. The degree of flexion will depend upon the swimmer's individual flexibility characteristics and balance. The swimmer's head is positioned so that the water just in front of the block is visible, do not tuck the head between the legs.

The swimmer is now in a balanced position with bodyweight as far forward as possible, but remaining motionless. There are several objectives to be achieved during the dive. First, the swimmer must react quickly and move the body weight forward after the starting signal. Second, the trunk and legs must be positioned so that maximum force can be applied against the block. Third, during the flight phase the body must be positioned so that entry into the water is made with minimal resistance.

## Grab Start

1. Ready on the starting block.



2. Body falls forward, hands release.



3. Legs extend, head is up.



4. Arms stop forward and below shoulders.



5. Head lowers between the arms.



6. Slight bend at the hips to adjust.



7. Make a small 'hole' with the hands.



8. Body follows through the hole.



## Changing the Body's "Balance" On the Block

1. Normal hand & foot placement.



2. Hands gripping low on side handles.



3. Hands gripping high on side handles.



4. Foot placement split -- "Track Start".



5 Track Start with different hand position.



## Adjusting the Body's Position "Flight Phase"

1 'A' Head up when leaving the block.



1 'B' Head down with leaving the block.



2 'A' Head lowered during flight phase to rotate the body into entry position.

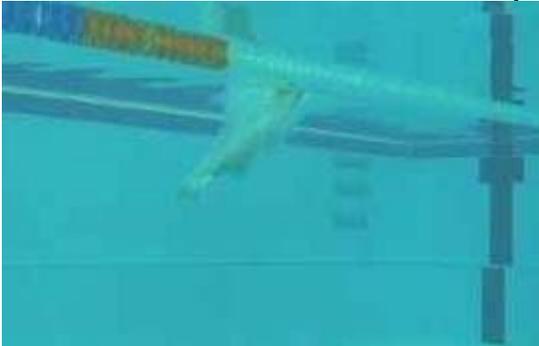


2 'B' Knees bend during flight phase to rotate the body into entry position.



## Entry and Streamlining

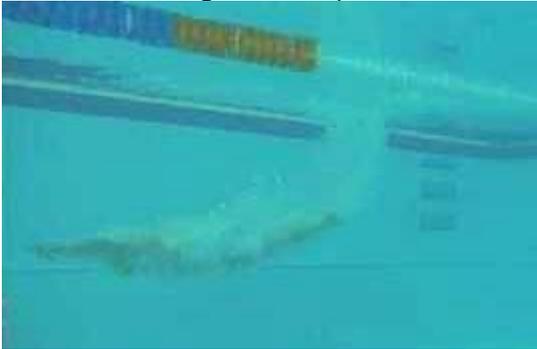
1. Hands make a 'hole' in the water for entry.



2. Body remains streamlined through the hole.



3. Level-off and glide for a split-second.



### **Dive Start Checklist**

- Feet firmly on the block, bodyweight balanced over the front feet (or foot if track start is used).
- Knees bent, but bodyweight balanced forward.
- Looking down.
- Hands in contact with the block.
- Bodyweight begins to move forward, arms in front of body, head up.
- Arms push or swing forward, but stop below the shoulder, head up as feet leave the block.
- Full leg extension off the block.
- Head moves down (between the arms) during flight phase.
- Slight bend in the back or at the knee to help the head tilt downward during flight phase.
- Reach for the water with hands together, head between the arms.
- Enter the water from a small 'hole' made by the hands.
- Keep lower-body extended upon entry, but allow the legs to 'relax' slightly.
- Point the toes on entry.

## Backstroke Start

Backstroke events (and the backstroke leg, which starts the Medley Relay) begin from water-level. This takes away the advantage of an elevated starting position. However, the principles of a good start are the same as in the grab start. The swimmer takes up a position with the feet fixed firmly on the wall, at about hip width. Some swimmers feel more comfortable with one foot slightly higher than the other, this increases the size of the base of support. Hands may grip the starting block in several different positions, depending upon block design. The most common hand positions are directly in front of the body (grip with palm facing downward) or to the side of the block (palms facing inward).

On the long whistle the swimmer positions the hands and feet. Remember that the toes must remain below the water surface. At the command "take your mark" the swimmer pulls the body forward and slightly upward; the hips should be as high as possible, but not so high that the swimmer loses balance and foot pressure against the wall surface.

When the starting signal is given the swimmer must try to drive the hips upward and backward while throwing the arms over the head. Several simultaneous actions must be completed in a split second. Extension of the hips must initiate the movement, but a forceful swing of the arms (either to the side or straight over the body) will help to project the trunk over the water. The head tilts back and the trunk is arched slightly as these movements are made. The hands meet when the arms reach full extension and the final drive from the knees and ankles completes the movement. The hips should be clear of the surface, legs together and the toes pointed.

As the hands enter the water a slight flexion at the hip is used to lift the legs and allow the body to slide into the water smoothly. It's possible to level the body by using the hands as a rudder. The upper body must be held in a streamlined position (arms extended, head firmly between the upper arms) as dolphin kicking is used to propel the swimmer underwater. The swimmer may need to exhale continuously through the mouth and nose to keep water clear of the nose while submerged. As the swimmer approaches the surface (within the 15m limit for underwater swimming allowed by the rules) the kicking technique changes from dolphin to flutter as the first armstroke begins. The face should break the surface during this first armstroke. If the timing is correct the swimmer will maintain momentum and should continue into rhythmic stroking at race pace.

### Above Water view (starting position)

1. Normal hand and foot placement.

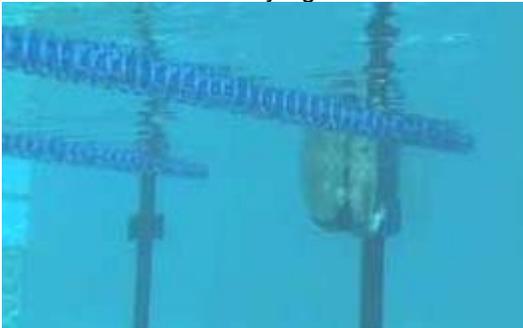


2. Hand placement on side grips.

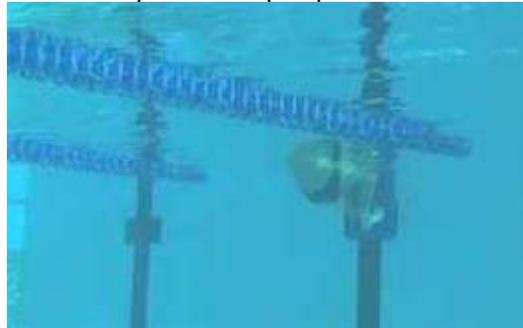


### Underwater view (from 'start' to 'first stroke')

1. Ball of the feet firmly against the wall.



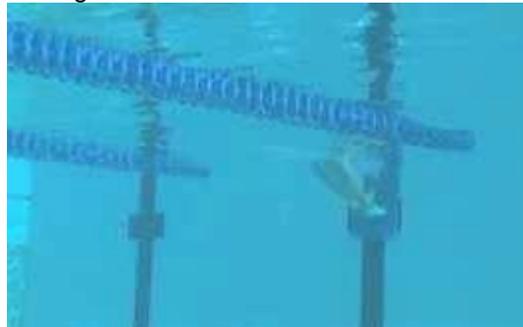
2. Start to push the hips up.



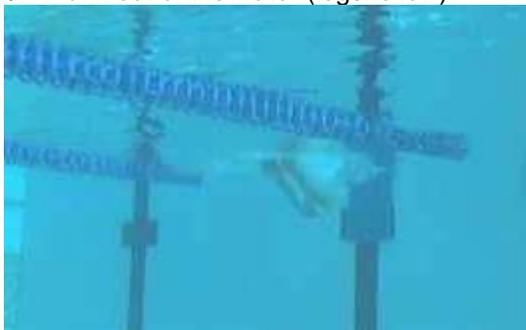
3. Hips clear the surface of the water.



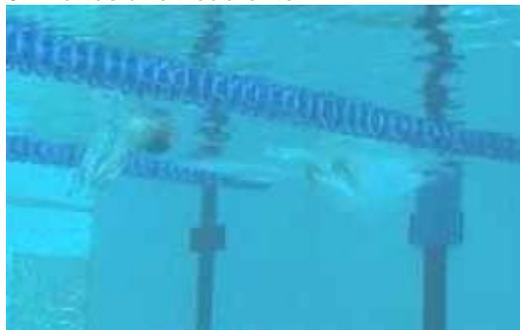
4. Legs extend and feet leave the wall.



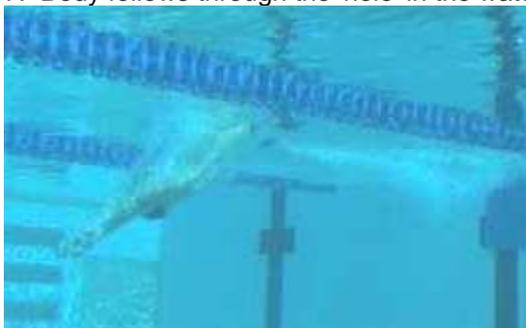
5. Trunk out of the water (legs follow).



6. Hands and head enter.



7. Body follows through the 'hole' in the water.



8. Streamline entry.



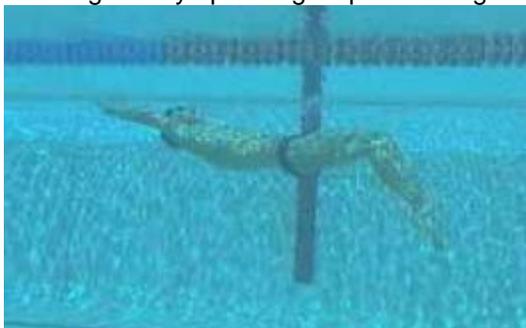
9. Level-off.



10. Dolphin kick on the back.



11. Angle body up during dolphin kicking.



12. Begin first armstroke and flutter kick.



### **Backstroke Start Checklist**

- Feet firmly on the wall (usually slightly apart) so the bodyweight is evenly balanced. Toes must remain below the surface. Feet may be placed parallel or staggered (i.e. one foot slightly lower than the other) on the wall.
- Knees bent, bodyweight as close to the wall as possible.
- Looking forward or slightly down.
- Hands grip either the horizontal or vertical bar in a comfortable position (don't squeeze too hard!).
- Slight bend in the back to help lift the hips.
- Reach for the water with hands together, head between the arms.
- Enter the water from a small 'hole' made by the hands.
- Keep upper-body extended upon entry, but allow the legs to 'relax' slightly.
- Point the toes on entry.
- Dolphin kick several times in a streamline position on your back while underwater. Head must break the surface within 15m of the start.
- Begin normal kicking action as the first armstroke begins.

### **Racing Turns**

The tumble-turn technique used in freestyle is essentially the same for backstroke. Even young competitive swimmers, from the age of 8 years, are capable of mastering the skills of this turn. Tumble-turns should be an integral part of training swims, as the energy cost (provided the technique is correct) is not significantly greater than the slower hand-touch turn. The major problem encountered by young or inexperienced swimmers in executing tumble-turns is insufficient forward momentum going into the turn. This is usually the result of: (1) poor streamlining which results from lifting the head out of the water to look for the turn or take a breath, or (2) reducing (or stopping) the flutter kick during the pre-turn stroke, or (3) not using the arms effectively to maintain momentum at the start of the tumble action.

Breaststroke and butterfly turns are similar to each other in many ways. Because these two strokes are swum with the shoulders level (i.e. no roll of the shoulders as in freestyle and backstroke) the turn must "pivot" the body after the hand touch is made. The pivot action turns the body sideways so that wave action against the trunk is minimised. The turning action must then return the swimmer to a level shoulder position to continue the race. A fast competition turn in breaststroke or butterfly uses the body's forward momentum as the hands touch the wall to begin the turning action. The legs must be drawn-up into a tuck position so that the feet are quickly positioned on the wall for the push-off. During the turn the body must create as little resistance as possible. The legs drive the body off the wall in a streamline position.

Finally, the Individual Medley event has its own set of turns to master as the swimmer switches from one stroke to another. These turns are very specialised and will be taught as a group once turns in each of the four strokes are mastered individually.

### Freestyle Tumble Turn

1. Approaching the turn.



2. Last armstroke completed.



3. Head down, dolphin kick.



4. Tuck position.



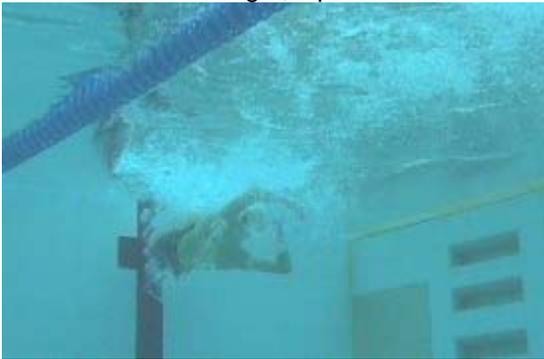
5. Hands assist with rotation, knees bend.



6. Quarter body twist using hands.



7. Feet strike the target, hips are flexed.



8. Extend upper body, leg extension begins.



9. Streamline body off the wall.



10. Complete body twist to prone position.



11. Several fast dolphin kicks.



12. Transition to flutter kick on first armstroke.



### Freestyle Turn Checklist

- Complete last armstroke so that both hands remain near the side of the body.
- Drop head and dolphin kick.
- Tight tuck at the waist and keep the chin close to the chest.
- Bend knees as the legs rotate out of the water over the body.
- Use both hands to help the body rotate while it's upside-down.
- Both feet strike the wall at the same time, body is in a tuck position, hands close to the face.
- Extend from the hip and knee and stretch the body completely as the push-off is completed.
- Head between arms, hands together.
- Dolphin kick.
- Begin first stroke and strong transition to freestyle kick.

### Backstroke Tumble Turn

1. Approach the turn, count strokes.



2. Recovery-arm crosses over the body.



3. Body rolls into prone position.



4. Leading arm completes pull, head drops.



5. Dolphin kick into tuck position.



6. Rotate in tuck position.



7. Feet strike the wall, upper body streamlined. 8. Push-off in streamlined body position.



9. Dolphin kick.



10. Transition to flutter kick at the surface.



### Backstroke Turn Checklist

- Use recovery-arm by crossing-over the body to begin the rotation.
- Finish the underwater pull as the head drops down.
- Dolphin kick to lift the hips.
- Rotate in a tuck position to complete the tumble.
- Keep both hand under the face and allow arms to help speed the body's rotation.
- Feet strike the wall at the same time.
- Push-off by extending from the hips and knees.
- Stretch the body completely in a streamlined position, head between the arms and hands together.
- Dolphin kick, but keep upper body straight.
- Begin first stroke with a strong transition to flutter kick.

## Breaststroke Turn

1. Touch the wall at full extension.



2. Pull one hand away to turn the shoulders.



3. Legs tuck and rotate toward the wall.



4. Underwater hand helps to level the body.



5. Push-off in a streamline position.



6. Body finishes rotation into prone position.



7. Long breaststroke pull.



8. Finish pull, stay in streamline position.



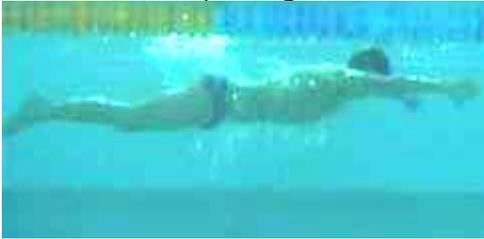
9. Recover arms first, then the legs.



10. Kick to drive the body to the surface.



11. First 'normal' pull begins.



12. Head breaks the surface.



### Breaststroke Turn Checklist

- Reach for the wall and begin to pull the knees up under the body.
- After a two-hand touch, pull one hand away (this is the 'leading arm', elbow pulled in toward the trunk).
- Body rotates toward the 'leading arm side' (this arm stays underwater and pressure on the hand helps the body rotate).
- 'Trailing arm' falls off the wall and recovers over the water.
- Both feet strike the wall (toes pointed to the side) and trailing hand enters in front of the head.
- Body is level as extension from the hips and knees drives the push-off.
- Body quickly rotates from a slight side position into a prone (i.e. stomach down) position.
- Stretch and streamline the body, head between the arms, hands together.
- Underwater pull is similar to a butterfly pull, keep the head level.
- Underwater pull finishes with both hands at the side of the body.
- Hands recover close to the body as the legs begin to recover.
- Legs drive back (breaststroke kick), arms stretch forward and head is still down.
- Head lifts as the first armstroke is made at the surface (head must break the surface before the hands start to move inward).

## Butterfly Turn

1. Contact the wall on a full stroke.



2. Pull knees under the body.



3. Stay in a 'tuck position' during rotation.



4. One arm underwater, one over the top.



5. Pivot onto the side.



6. Feet strike the wall, top hand enters.



7. Push-off from side position.



8. Streamline off the wall



9. Dolphin kick off the wall.



10. Head breaks on first armstroke.



### **Butterfly Turn Checklist**

- Streamline as you reach for the wall.
- Pull the knees under the body as a two-hand touch is made.
- 'Leading arm' moves under and 'Trailing arm' moves over (similar to Breaststroke).
- Use pressure on the hand of the leading arm to help the body rotate.
- Trailing hand enters the water in front of the head.
- Hands together as the arms extend and a strong extension of the hip and knee drives the body from the wall.
- Body comes off the wall slightly on the side, but quickly rotates to a prone position.
- Point the toes during the streamlined glide.
- Several dolphin kicks, keep the back level and head between the arms.
- Begin first butterfly armstroke, head breaks the surface as the hands begin to sweep inward.
- Always finish the first stroke 'as-long-as-possible'.

### Individual Medley Turns

Swimming rules require the swimmer to complete each section of the race in accordance with the specified rules for that stroke, and begin the next section of the race in accordance with the rules for that stroke.

### Butterfly to Backstroke Turn

The butterfly to backstroke changeover begins as a normal butterfly touch on the wall. The swimmer should try to make contact with the wall on a full stroke, with arms extended, and without excessive gliding into the wall. Once a simultaneous two-hand touch is made, the swimmer will pull one hand away (i.e. the leading-hand) from the wall and begin to pivot the legs toward the wall in a tuck position. The trunk begins to twist slightly during the pivoting action of swinging the legs up and inward toward the wall. When the feet strike the wall the toes will be pointing straight up, or up and slightly to the side. The momentum of the body's rotation causes the trailing-hand to fall off the wall an instant before both feet make contact. The trailing-hand is usually brought over the surface and re-

enters the water behind the head as both arms extend. A streamlined position on the back is held for only a fraction of a second, then an underwater dolphin kick (on the back) or a flutter kick is used to drive the body toward the surface. The face breaks the surface as the first armstroke begins.

1. Touch to end fly leg of the medley.



2. Bring knees under the body.



3. Feet swing up toward the wall.



4. Trunk tilts back to level the body.



5. Push-off with both hands overhead.



6. Streamline and begin to dolphin kick.



7. Several dolphin kicks.



8. Transition to backstroke kick.



### Backstroke to Breaststroke Turn

The backstroke to breaststroke changeover is perhaps the most difficult of the medley turns. The backstroke leg must end with a single hand touch while on

the back. There are several methods commonly used to execute this turn. Beginning competitive swimmers will find that a simple open-pivot turn is effective and then graduate to a faster method. The hand touch is always made at, or slightly below, the surface. In the open-pivot turn the body pivots underwater, rotating toward the hand making the touch, as the hips and knees flex to bring the body into a tuck position. The non-touch hand remains underwater and assists with the rotation of the body by pressing upward with the palm. The shoulders and head move toward the underwater hand as the touch-hand releases from the wall just before the feet strike. The toes will point to the side. The touch-hand comes over the water and enters in front of the head; both arms then extend as the push-off is completed. The body may be slightly on its side as the legs begin to extend, but the rotation of the turn brings the body into a prone position during the glide off the wall. The long underwater breaststroke pull completes the transition to the next leg of the race. Once a swimmer has mastered the open pivot turn it's time to move on to something faster. This second stage turn is called a "bucket" turn because it looks like the swimmer is sitting in a bucket about half-way through the turning movement. Because the lower legs are lifted out of the water during the bucket turn it is considered to be faster than the open-pivot turn.

1. Touch wall to complete back.



2. Press against the wall, bring knees up.



3. Swing feet out of the water (i.e. sitting in a bucket). 4. Use hands to help pivot body around.



5. Feet strike the wall, hands come together.



6. Push-off and streamline.



7. Short streamlined glide.



8. Complete long breaststroke pull.



9. Stretch arms toward the surface and kick.



10. Head breaks as the hands sweep out.



### Breaststroke to Freestyle Turn

A breaststroke to freestyle changeover is very simple. The touch is made from the breaststroke and the pivot action is identical to a normal breaststroke turn. As the swimmer drives off the wall a normal freestyle kicking action begins. The success of this changeover is usually determined by the swimmer's ability to pivot quickly and change swimming tempo quickly (remember, the swimmer is changing from the slowest to the fastest stroke).

1. Touch wall to complete breaststroke leg.



2. Pull knees under the body.



3. Pivot with one hand underwater.



4. Complete pivot with one hand over.



5. Push-off in a level position.



6. Streamline for a fraction of a second.



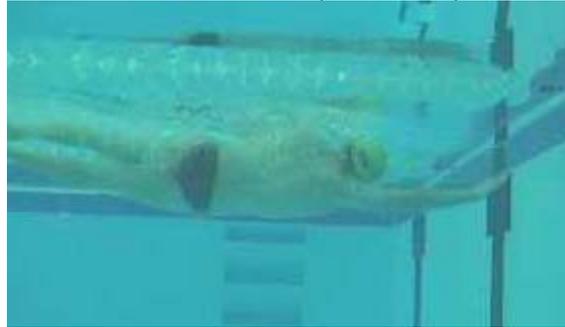
## Race Finishes

### Freestyle

1. Look down and forward.



2. Extend and streamline (head down).



### Backstroke

1. Count strokes from under the flags.



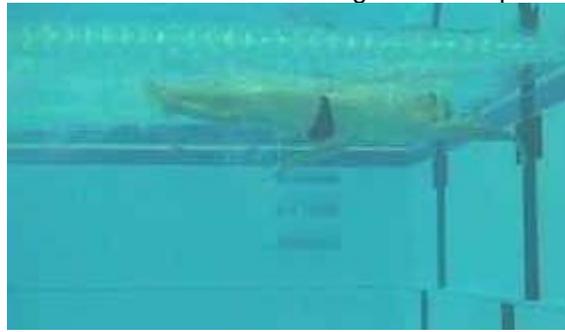
2. Extend and streamline on last stroke.



3. An extra kick may be required.

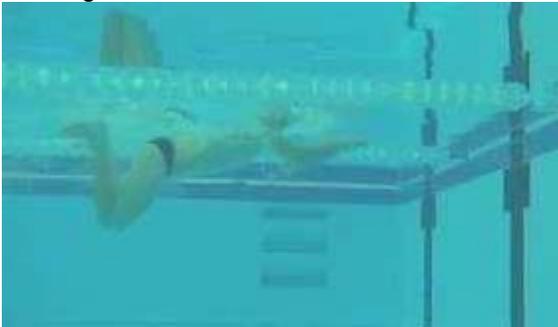


4. Touch the wall before lifting the head up.



### Breaststroke

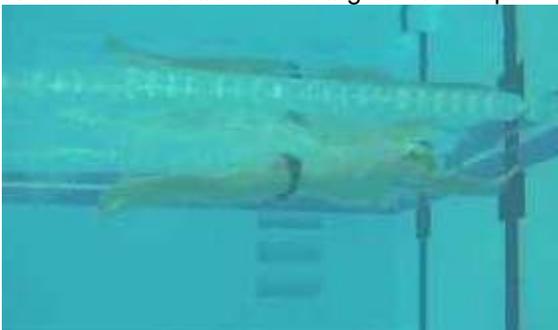
1. Judge the distance to wall on last stroke.



2. Drop the head as you reach for the wall.



3. Touch the wall before lifting the head up.

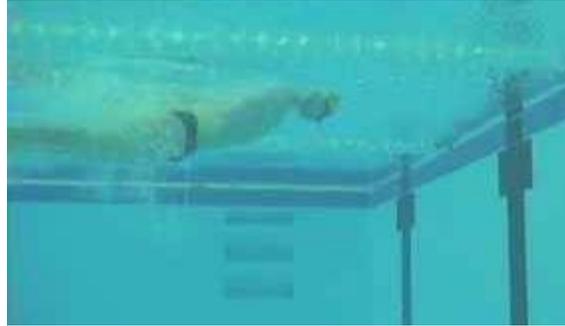


## Butterfly

1. Judge the distance to wall on last stroke.



2. Keep head down.



3. Touch at full extension of the arms.



### **Finishing Checklist**

- On freestyle, breaststroke and butterfly finishes you must look for the wall 'targets' and judge the distance travelled over the last 3-4 strokes. This should be practiced in every training session.
- On backstroke you must count your strokes as the head passes under the 'backstroke flags'. This must be practiced in every training session.
- Once you know the number of strokes taken from flags to wall, try to finish with a full reach on the final stroke. (all strokes)
- Keep the head down until the hand(s) touch the wall. (all strokes)
- Keep the body streamlined and at the surface until the touch is made. This is done by using small and fast kicks in freestyle, backstroke and butterfly.
- Small adjustments to stroke length during a breaststroke finish are made with the armstroke.
- On freestyle, try to finish the last 5m (from flags to the wall) without taking a breath.

## Notes

[Write any special tips or key points to remember in the space provided below.]

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