

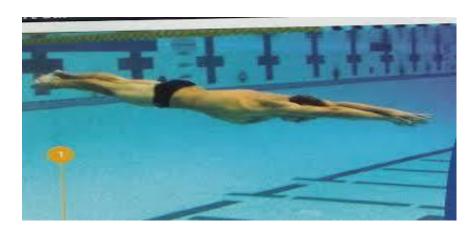
Backstroke streamlining and skill development

# Streamlining

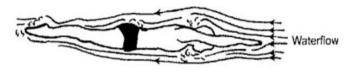
The simplest way to improve swimming speed is to improve the streamline of the head and body

- Poor skills in starting/turning/transfer to stroke will put you at a disadvantage to other swimmers in the race who have superior skills.
- The older you become improvements become minimal, superior streamlining skills and transfer to stroke ability off starts and turns, should be addressed early in the training programme.
  - Technique is the number 1 avenue for improvement!

- It is difficult for humans to progress through water because they incur resistance, which causes a swimmer to slow down.
- Reduce resistance caused by the head and body and the swimmer will go faster when seeking speed or go further each stroke when attempting to swim long distances.



- Most Olympic Champions swim with less strokes than their competitors (improve streamline improve stroke length)
  - Most are more streamlined within the actual swimming stroke for longer



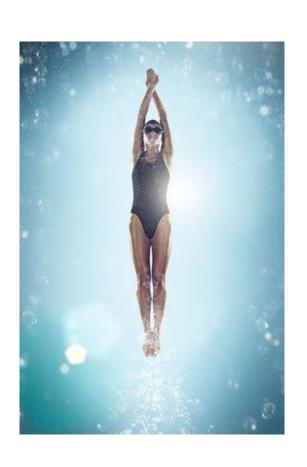
Small drag in streamlined position

Better streamline = less frontal drag



Poor streamline = increased frontal drag

Large drag in unstreamlined position



# Perfect streamline

Teach streamline focus on tension through Joints

- Ankles Knees hips
  - Shoulders Neck
    - Elbows Wrist
- Apply strength in these areas
  - Maintain flexibility

Your turn.....

# **Essential technical points**

- Body / head Position
- Breathing
- Body roll (Hip shoulders)
- Entry / re position / catch
- Pulling phase
- Recovery phase
- Kicking

Newtons 3<sup>rd</sup> law – for every action there is an equal and opposite reaction.....

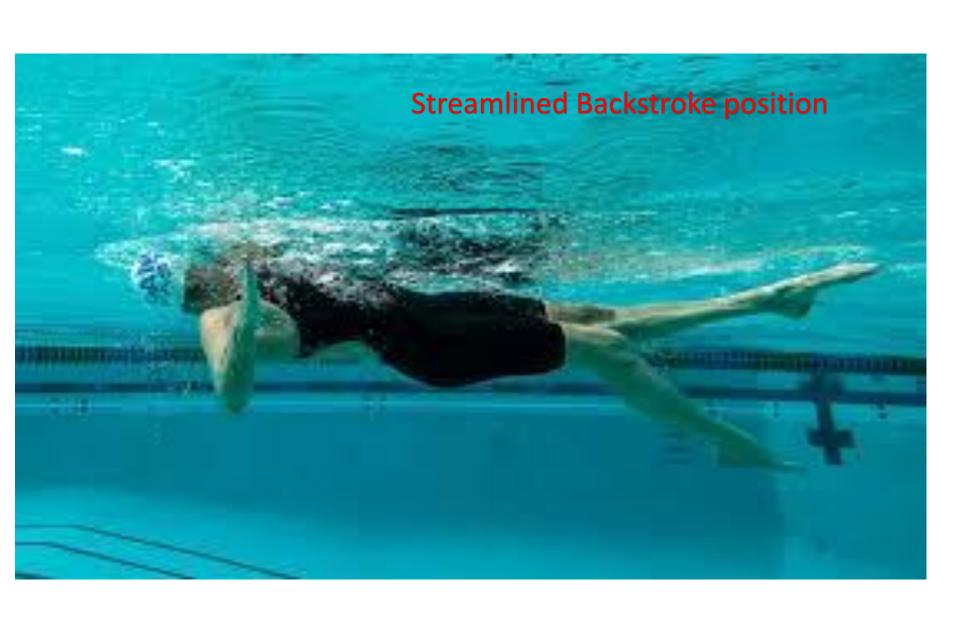
- Stroke Length/DPS
- Stroke Rate
- Acceleration
- Rotation
- Rhythm
- Consistency of application
- Flexibility and ROM
- Overall efficiency

#### Backstroke key technical points

- The nature of the stroke demands that balance ,rhythm, relaxation and controlled rotation are key to good technique.
  - Timing of rotation is important to keep the stroke flowing and maintain balance
- Build a strong core strength to maximise underwater skill off the wall
  - Important to hold SR throughout the race, this is a common fault particularly when swimming 200 BK
- Have the ability to maximise underwater transition from the start and turns, accelerate into first stroke at the surface.
- Rate of underwater kick is crucial to maintain momentum and speed off the wall
  - Important to maximise u/w kick in sets (don't ignore or be lazy off walls)

### Backstroke body and head position: Reducing resistance

- The posture of the swimmer should embrace being flat along the surface (good posture in water).
- Head held back and aligned with the horizontal axis with the eyes looking directly up at the ceiling of the pool.
  - Keep the head still and stable (no movement).
- Body position should be firm along a horizontal axis in the water
- Some part of the hip should be visible through out the stroke: If hips are too low more resistance is encountered = slower swimming.



# Backstroke body roll: Reducing resistance, increasing efficiency

- Body roll consists of the hips and shoulders rotating to ~45° to both sides. That reduces frontal resistance and positions the pulling arm closer to the mid-line.
  - The harder a swimmer kicks, the greater is the amount of resistance developed. Kicking should remain small and fast and deviate to each side in concert with the roll of the shoulders/hips.
  - Backstrokers should emphasize body roll by performing a vertical recovery that lifts the shoulder / facilitates the roll.
    - Do not move the head with the body roll





# Backstroke key technical points

- Slight incline in body position acceptable to accommodate head position.
  - A high head = lower hips = more resistance.
  - Fixed head position throughout stroke cycle.
  - Rotation of body through hips and shoulders
- Early flexed elbow in pull, accelerate continually through pull phase
  - Hand finishes below body line.
- Thumb first recovery on exit, turning to lead / entry with back of hand (slightly rotted hand acceptable)
  - Continuous kick from hips
    - Slight in-toeing of feet
    - Propulsion on up-kick