



The Science of Triathlon

All About The Swim!!

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“Good” Swimming

- Technique or Fitness?
- Good technique is the key to performance and confidence in the water
- Technique comes with practice
 - Beginners: Drill until you own the skill (it must be part of muscle memory, not conscious thinking)
 - Intermediates: Drill 30% of training
 - Advanced: Drill 10-25% of training
- Fitness is also developed with practice and training
 - Max VO₂ measures endurance
 - Lung capacity (VC) is also important for swimming



Two Primary Focus Areas

-Prioritized-

- #1 Reduce Drag
 - Body Level at surface of water
 - Head position
 - Eliminate cross over
 - Long axis rotation
 - Deep, clean entry
- #2 Create Propulsion
 - Timing of entry hand with hip rotation
 - Catch (grip on the water)
Early Vertical Forearm
 - Pull through, strong finish
 - Kick within the body cylinder, ankles flexible



Priority # 1 Reduce Drag



- Body level with surface – thoracic pressure
- Head down/look toward far end of pool
- Long axis rotation – arms at 10 & 2 o'clock
- Clean hand entry – below surface at 3 o'clock

Reduce Drag: Basic Body Position Drill Sequence

- Flat Balance
 - experience being level at the surface of the water and maintaining level using just two elements: head position and pressure.



Reduce Drag: Basic Body Position Drill Sequence

- Side Balance
 - Rotate the body while keeping the head still
 - The balance element of pressure now moves a bit



Reduce Drag: Basic Body Position Drill Sequence

- Head First Balance
 - New head position and dynamic pressure needed to maintain balance



Reduce Drag: Basic Body Position Drill Sequence

- Extended Balance
 - New element of balance: lead arm depth
 - (Easier than previous drill)
 - Longer = Faster



Reduce Drag: Clean Entry



- Lead Arm Depth
 - “Steep and Deep” entry (3 o’clock)
 - “Aim for the bottom of the tiled X at the end of the lane”

Creating Propulsion: Early Vertical Forearm

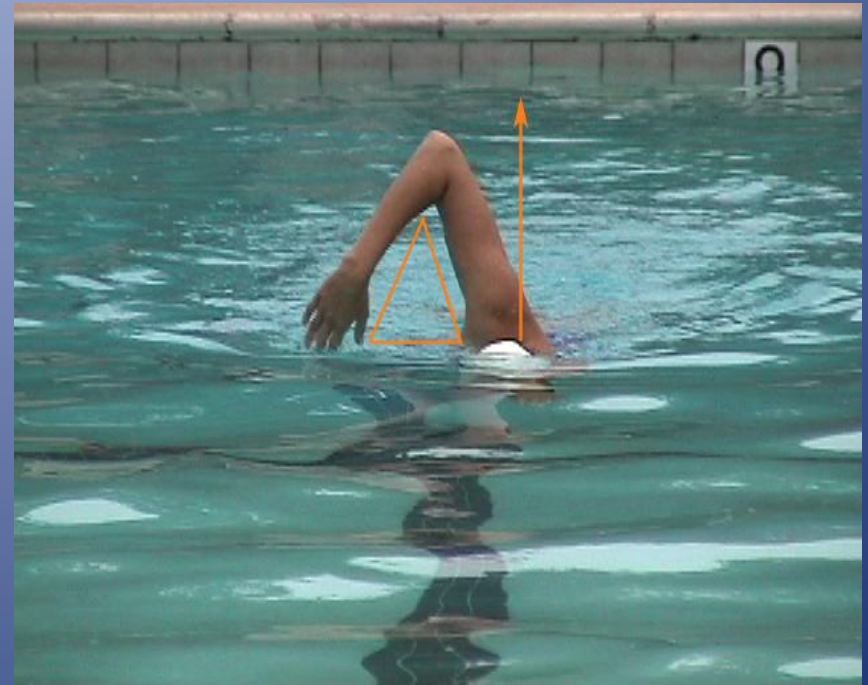


- Early Vertical Forearm
 - “Steep and Deep” entry
 - “Aim for the bottom of the tiled X at the end of the lane”
 - Bend arm at elbow and pull with forearm



Creating Propulsion: Recovery Archer's Arm – Timing Rotation

- Triangle Recovery Arm
 - Extended balance position
 - Time long axis rotation of body with arm entry



Creating Propulsion: Recovery Archer's Arm – Timing Rotation

- Triangle to Roll
 - Then let that potential energy in the hip build as the recovery hand moves forward
 - At the “trigger point” let the hip drive the hand forward into Extend Balance on the other side



Open Water

- Reduce anxiety
 - Build confidence in swimming ability & endurance
 - Exposure – opportunities for practice in the area (Reston, Haymarket)
 - Warm up adequately
 - Visualization & Relaxation techniques
 - Enter on edge of swimmers, start a bit later, get into your zone
- Sighting
 - Look often at first – every 3-5 strokes
 - Look less once internal compass sets in
 - Sight to something larger in distance
 - Minimal head lift; maintain body position
 - Combine sight with breath
- Draft
 - Off feet or hip
 - Frequent contact may cause reaction & response
 - Sight beyond the leader to confirm direction and avoid other swimmers



Let's Jump in the Water!!!

