The Perfect Model

Ian Thorpe

Ian Thorpe was born on 13th October 1982 in Sydney, Australia. He is a full time swimmer and has been recognised as an elite athlete in his field since he was the youngest person ever to be chosen to swim in the Australian team at age 14. He was the fastest 14-year-old swimmer in history, which makes him a good subject for this piece. His achievements to date include gold at the Commonwealth Games where he broke the Commonwealth Record, World Record at the Australian short course championships, Gold at the World Swimming Championships and three gold medals and a world record at the last Commonwealth Games in Manchester.
Ian trains 20 hours a week in the pool and three hours a week in the gym. His body fat levels are approx. 7% compared to an average of 15% for his age.
Ian's primary stroke is Freestyle, an event in which he excels, I will now explain the aspects of the skills which are used by Ian and other elite performers to achieve maximum efficiency in the water.

Body Position- it is very important that the body is in the correct position in the water. The water level is at the forehead, with the body flat and streamlined but low enough in the water to give an efficient kick. It is important that a longitudinal roll can be achieved so that the hand can sink to "catch" the water and the head may be turned to breathe. The roll should be equal on both sides, this can be achieved by bilateral breathing (breathing to both sides). This makes the roll equal and is also useful for spotting other swimmers position in a race. Excessive rolling can lead to problems with the stroke such as "snaking" down the pool instead of going in a straight line. It is important that one side of the body mimics the other to achieve optimum balance and to stabilize the swimmer in the water.

Leg Action- is very important as the kicking propels the swimmer through the water. The leg action comes from the hip region and passes down through the knees which then bend under the pressure of the water, it then finishes at the feet which are plantar-flexed and whip down creating the propulsive action through the water. Both feet work closely together. Leg action in this way gives good propulsion, the action keeps the body high and maintains a streamlined position in the water. When the arm enters the water the opposite leg kicks in a downward direction due to the body roll. The leg movement counteracts the excess roll from the pull and balances the body in the water.
There are different types of kick, the straight two beat kick, four beat kick and six beat kick. Each style of kick has no effect on the "pattern" of the kick itself but it is important that the feet are plantar-flexed at all times to prevent drag.
Timing is very important in kicking, the leg is split into three parts, the upper leg, the lower leg and the foot, it is crucial that the timing of each movement is correct and unless the kick is executed in a "wave" like pattern it can become inefficient.

Arm Action- from the "catch" position, the hand flexes slightly and then skulls outwards, backwards, downwards and then inwards, tracing a slightly outwards path finishing down by the costume. The elbow then exits the water first followed by the little finger. The whole pattern is in the form of a shallow "S". Recovery of the arm is with the elbow in a high position and the entry of the hand into the water takes place about 45 centimeters in front of and in line with the shoulder. After the entry the hand sinks to begin the catch once again.

The catch takes place about 20 CM under the water, at this stage the elbow is not higher than the hand. The hand then enters the propulsive stage and is in one movement, the whole underwater phase must be continuous otherwise the hand will "slip" as the water is moving during this period of time.
There are two main types of catch, the conventional is where the hand enters the water like a "spear" the arm then extends and the hand is turned and pulled down through the propulsive stage. The second, used by Ian Thorpe is relatively new but gives a better catch in the water. The hand enters the water as normal but is already in a plantar-flexed position this allows for less drag and an immediate and powerful pull to propel the swimmer through the water.

Breathing- is unilateral or bilateral. The swimmer inhales through a trough or "bow wave" that is created by the movement of the body past the head. Near the end of the pull phase, trickle or explosive exhalation takes place during the remainder of the arm cycle. The breathing must be synchronized to the stroke cycle, techniques used by Ian Thorpe and other elite performers include Bilateral breathing, Late breathing- momentary restriction of the head movement after inhalation, Explosive breathing, Breath holding and controlled or hypoxic breathing.

Timing and Co-ordination- is the number of kicks or leg actions to one complete arm cycle. When co-ordinating the front crawl stroke the swimmer kicks in multiples, as one hand enters the water and sinks to catch, then that same hand re-enters, the number of kicks during this period are important to the timing of the stroke (as described previously).

Efficiency of stroke- With regard to Ian Thorpe, his body position in the water is next to perfect. This is because his arm and leg action is performed with great skill which enables him to be very well balanced in the water. The propulsion gained from his arm and leg action lifts the body high in the water and decreases drag. He demonstrates very good use of plantar-flexion in his feet and wrists, which help to propel his body forward and at the same time helping his body to streamline with minimum drag. His body composition is also perfect for swimming, he is very tall and has huge feet that act like flippers to catch as much water as possible making him one of the fastest and most respected swimmers in the world.