****

**Module 4**

**Hydrodynamics in Swimming**

**Trainer’s Guide**

**Name of Trainer:**

**HYDRODYNAMICS IN SWIMMING**

**Overview**

The establishment and application of Sports Science into talent identification, athletic training and development have led to a quantum leap in sports performances. Swimming is no different. The understanding of how the body moves and behaves in water is key to establishing biomechanically efficient body shapes and positions and swimming strokes.

At the end of this module, you should be able to:

* Understanding mechanics of different swimming strokes
* Perform the four swimming strokes competently

**Total Number of Learning Hours**: 6 hours

**Assessment Method for Module**: Practical Assessment of Swimming

Strokes/Proficiency

**HYDRODYNAMICS IN SWIMMING**

|  |  |  |
| --- | --- | --- |
| **Time (mins)** | **Activity** | **Resources/**  **Reference** |
| 5 | Trigger Activity ~ Hydrodynamics in Swimming  *The body acts differently in the water and as a coach, it is important that you understand the concepts and ideas in hydrodynamics.*    Explain that the more we understand WHY things happen in the water, the better we will be at what we do in the water as a swimmer and as a coach teaching swimming.    This module serves to help them understand hydrodynamics in swimming. | Slide 4  LG pg. 1-3 |
| 5 | Buoyancy.  Recall concepts of weight and buoyant force and Archimedes principle.  Recall concept of specific gravity. Explain how the body composition of an individual affects how the body behaves in the water.  *Can we predict what will happen to a swimmer in the water based on his/her body type?*  Trainer to provide some examples of body types egs. heavily muscled person, older person with osteoporosis, obese individual.  *What will happen to the swimmer if he is:*   * Not relaxed * Adopt a certain head position * Lack of confidence * Adopt a certain arms position * Holding breath vs breathing out * Body composition   Facilitate the discussion on this ensuring that participants understand the reasons behind the observations of that body in water. | Slides 5-6  Slide 7  Slides 8  LG pg. 4  Slide 9  LG pg. 4 |
| 5 | Recall Torque.  Explain that the body will rotate until the weight and buoyancy force are aligned.  Recall Propulsion and Drag  What are the factors affecting the swimmer’s performance?  Explain the concepts of propulsion and drag.  Recall Drag and Lift  Explain the concepts of drag and lift. | Slides 10  LG pg. 5  Slide 11  LG pg. 5  Slide 12-13  LG pg. 6 |
| 5 hours | Practical Swimming  Perform a quick RAMS of the training area before proceeding with the training. This is to reinforce the habit of doing risk assessment and management each time they start training at the pool.  Introduce Swimming Strokes.   * Introductory activities for beginning swimmers * 4 swimming strokes – content and sequencing   Participants must demonstrate the different strokes. They would also be given opportunities to observe one another and provide feedback as a “coach” to improve swimming performance.  Assessment of Swimming Competencies | LG pg. 7-25  Assessment of Swimming Competency Form. |
| 10 | Conclude  Summarise the learning outcomes for the module. |  |