



KINEMATIC ANALYSIS OF THE REVERSE DIVE (B) 5M PLATFORM

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Abstract:

This study aims to calculate the kinematic variables by performing a two-dimensional video analysis of the preparation before the jump of the reverse dive movement (B) and the open movement before entering the water and present the basic data on the basis of the analyzed kinematic data in order to increase the completeness of technical expressions and perform difficult elements safely. This study depicted the reverse diving movement (B) of five athletes representing the Saudi diving team and a two-dimensional analysis of the movement was carried out in order to achieve the purpose of this study. This study concluded that the reverse dive requires a rapid vertical lift of the center of mass and an increase in the angles of the joints when getting up, in addition to tightening the ankle and knee joints and rapid bending of the hip joint upon rising. Correcting these positions and techniques through repetitive training on the ground will help athletes improve performance in 5-meter ladder dives

Keywords: Kinematic analysis; reverse dive.

1. INTRODUCTION:

Diving requires physical strength factors such as strength, agility, and flexibility to perform high-level skills in aerobic movements. It is an event that requires strong mental strength to overcome fear of heights along with technical factors. Includes diving competitions. Diving from the escalator and stationary ladder. The escalator dive is an event that is performed using the flexibility of a ladder and is 1m by 3m high. It has the property of producing elegant and flexible movements. The fixed ladder is performed using a diving platform fixed at a height (5, 7.5, and 10 meters) from the surface of the water. The movements must be made in a short moment with the capabilities of the person without the reaction force of the ladder. Diving competitions consist of six sets indicating the direction of rotation of the dive. Group) 1) Forward and group (2) Stand back, Group (3) Stand forward and jump (reverse), Group (4) Stand back and jump forward (inward), Group (5) Twist, Group (6) (handstand). In addition, four pneumatic positions (straight (A), (semi-curved type (B), (full-curved type (C)), (freestyle (D)) must be performed with high-level and perfect movements and finished with precision ([FINA, 2015]).

The curved inverted dive is one of the inverted dives group and leads to the effect of the back dive from the front rise, and these dives are of great difficulty not only because they are blind dives, but also for the head rotation in them back towards the diving ladder, and one of the most important success of learning reverse dives from the fixed dive ladder at a height 10 meters is a necessity for both the coach and the teacher to understand the mechanics of upgrading and to be able to communicate it to his players with confidence, clarity and power (Jamal, 1980). In diving competitions into the water, the diving score consists of two parts: the judges' score and the dive's difficulty score. The height of the dive is taken into account when judging the dive, and a greater height allows more time to turn and prepare to enter. The diver must strive to the maximum dive height with sufficient angular momentum to allow expansion before entry while maintaining a safe distance from the ladder in flight. The degree of difficulty of the dive increases with the rotation of the flip, so it is beneficial to use a dive with high rotation requirements. The amount of flip rotation that can be achieved depends on time of flight, angular momentum, and body composition. Rotation potential, defined as the product of angular momentum and time of flight (Hiley & Yeadon, 2008).

While rising from the diving ladder, maximum reaction force is applied to the ladder, but the force at this time is nearly constant regardless of the level of difficulty (Hamill & Golde: 1986). Individuality, and provides a foot-wide margin to sufficiently raise the center of mass in the air. The strength and flexion of the knee have a significant impact on the performance of diving movements (Sander: 1998). It consists of three movements: jumping in place, moving in the air, and entering the movement. None of the three movements is considered unimportant, but at the time of the jump, the