

IN SEARCH OF THE AWESOME RIP IN PLATFORM DIVING ENTRIES

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INTRODUCTION: Outstanding diving performances depend upon: sound takeoff mechanics; good height; excellent form in the air; finishing the rotation well above the water; and a rip entry. Nevertheless, there is little doubt that it is the latter which makes a lasting impression upon the judges. When divers rip, they disappear below the surface with a minimum of splash as if they have been sucked into the water with barely a trace. Although the rip was perfected and popularized by Klaus Dibiasi, platform gold medalist in the '68, '72 and '76 Olympics, not until Gabriel's classic study (Brown et al., 1984) was any extensive systematic research on the technique undertaken. Since then, competitive diving has evolved with an increasing number of somersaults being executed and higher performance standards expected. The objective of the present study was to gather information on how rip entries are effectively executed by competitors performing multiple somersaulting 10-m platform dives.

METHODS: A video analysis of front, side, above and under water views of over 1,000 platform entries recorded at three United States national and three FINA/USA international competitions between 1998 and 2002 helped to identify common features of awesome rips performed by some of the world's best platform divers.

RESULTS AND DISCUSSION: All entries created some initial splash that increased in diameter until the widest part of the body passed through the surface. As the legs disappeared in outstanding entries, the spray pattern changed from being directed out ('crown' shape) to up ('mound' configuration). After divers submerged, a jet of water shot up through the center of the receding initial splash. This up-jet was associated with the return to the surface of turbulence created as divers entered the water. Entries in which the up-jet height not only was less than that of the initial splash but also was either markedly suppressed or almost completely eliminated occurred more often in men's than women's competitions and in forward than backward rotating entries. In addition, they were associated with the highest scoring dives and with a few divers who typically achieved the highest scores. Turbulence also rose to the surface in the form of seething. In awesome rips and many outstanding entries, however, there was a delay between the end of the up-jet and the appearance of seething.

Almost all divers swam their entries, releasing their flat-hand grip allowing their arms to move sideways. In awesome rips, the swim was initiated as soon as the hands went under the surface. Most divers then continued to rotate in the direction they were somersaulting when they contacted the water: rolls for forward and scoops for back somersaulting entries. Early, rapid, shallow rolls with a leg spread dispersed the turbulence and delayed its return to the surface. In general, scoops were deeper than rolls because of the more limited range of joint motion in the hips and spine available for an arched position. However, the column of turbulence attributed to the torso and legs did not continue vertically down for an extended period of time. As with outstanding forward rotating entries, the legs followed a vertical path as they dropped beneath the surface. Therefore, as the up-jet was making its appearance, the neck of the turbulent cavity extending up to the surface was very narrow.

CONCLUSION: A minimal up-jet, which was the main distinguishing characteristic of awesome rips, is achieved by dispersing and delaying the return of turbulence to the surface and preventing a deep concentrated vertical column of turbulence from developing.

REFERENCE: Brown, J.G., Abraham, L.D., & Bertin, J.J. (1984). Descriptive analysis of the rip entry in competitive diving. *Research Quarterly for Exercise and Sport*, 55, 93-102.