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Research article

## A Comparison of Jump Height, Takeoff Velocities, and Blocking Coverage in the Swing and Traditional Volleyball Blocking Techniques

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### ABSTRACT

The purpose of this study was to compare traditional and swing blocking techniques on center of mass (COM) projectile motion and effective blocking area in nine healthy Division I female volleyball players. Two high-definition (1080 p) video cameras (60 Hz) were used to collect two-dimensional variables from two separate views. One was placed perpendicular to the plane of the net and the other was directed along the top of the net, and were used to estimate COM locations and blocking area in a plane parallel to the net and hand penetration through the plane of the net respectively. Video of both the traditional and swing techniques were digitized and kinematic variables were calculated. Paired samples t-tests indicated that the swing technique resulted in greater ( $p < 0.05$ ) vertical and horizontal takeoff velocities ( $v_y$  and  $v_x$ ), jump height (H), duration of the block ( $t_{BLOCK}$ ), blocking coverage during the block (C) as well as hand penetration above and through the net's plane ( $Y_{PEN}$ ,  $Z_{PEN}$ ). The traditional technique had significantly greater approach time ( $t_{APP}$ ). The results of this study suggest that the swing technique results in both greater jump height and effective blocking area. However, the shorter  $t_{APP}$  that occurs with swing is associated with longer times in the air during the block which may reduce the ability of the athlete to make adjustments to attacks designed to misdirect the defense.

**Key words:** Volleyball, blocking, technique, penetration, jumping

### Key Points

- Swing blocking technique has greater jump height, effective blocking area, hand penetration, horizontal and vertical takeoff velocity, and has a shorter time of approach.
- Despite these advantages, there may be more potential for mistiming blocks and having erratic deflections of the ball after contact when using the swing technique.
- Coaches should take more than simple jump height and hand penetration into account when deciding which technique to employ.

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