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## Learning Effect of Anchoring Bias in Combination with Action-Perception Coupling in Novice Golf Putting

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Quality of instruction significantly influences skill acquisition and performance in sport related tasks, such as golf putting. Instruction for novice individuals should promote external focus, and constantly emphasize the relationship between motor action and task outcome. **PURPOSE:** To analyze the influence of an anchoring bias, while also examining the learning benefits of integrating action-perception external foci. **METHODS:** The putting protocol consisted of three trials: pre-test, acquisition, and post-test. Each trial was performed from a distance of eight feet on artificial turf. Subjects (6 males, 6 females) did not receive instructions or cues for any of the ten putts during the pre- or post-tests. Two counter balanced groups were made upon the completion of the pre-test. Immediately before the start of the acquisition trial subjects were provided an anchor number and asked to estimate whether their average putt would stop closer or further than the number. Group one (High) was given an anchor of 12 inches and group two (Low) was given an anchor of 3 inches. External cues were positioned in front of and behind the starting point of the ball to facilitate club and ball path for the acquisition trials. The subjects were not made aware of the cues or instructed to use them in any way. The acquisition trial contained five blocks of twenty putts with a three-minute break between each block. Twenty-four hours after the completion of the acquisition trial subjects returned to complete the post-test. Distance from the target was measured as the average sum of horizontal and vertical distance. **RESULTS:** The high anchor group responded with an average of 5.55 inches ( $9.3 \pm 1.96$  vs  $3.75 \pm 1.78$ ,  $p < 0.05$ ) more than the low anchor group. This difference was found to be significant, demonstrating that anchor values may have an influence on estimation. Error was reduced in both the High ( $50.1 \pm 18.07$  to  $40.84 \pm 9.71$ ,  $p < 0.05$ ) and Low ( $58.72 \pm 18.59$  to  $35.71 \pm 7.99$ ,  $p < 0.05$ ) groups from pre-test to post-test. Differences between groups were not found to be statistically significant ( $p = 0.262$ ). **CONCLUSION:** Individuals used the provided anchor values to adjust their estimate of predicted performance. Significant differences in putt performance from pre to post test showed improvement in both groups. Improvement between groups were not significant.