DEVELOPING ANTICIPATION SKILLS OF JUNIOR TENNIS PLAYERS

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Anticipation skills are fundamental to successful performance in fast ball sports such as tennis. The ability to anticipate is presumed to be due to an enhanced ability to notify and process information arising from the opponent's postural orientation prior the ball racket contact. The purpose of this study was to determine whether the anticipation skills of junior tennis players could be improved through on-court and video simulation training and appropriate instruction.
A total of 24 junior tennis players participated to this study. Players were divided into two groups, G1 (n=17, age 14.7$\pm$2.9 years) and G2 (n=7, age 13.6$\pm$2.4 years). All players participated in their normal tennis training sessions approximately two times per week. In addition G1 received (4 x 20 min) video simulation training in the laboratory conditions over a 3 week period. Each session consisted of 20 trials (tennis strokes) in which players were firstly required to react to each trial and secondly their attention was directed with appropriate instruction to the informative areas of the stroke execution.
In the laboratory test participants were required to react as quickly as possible in response to near life-size images of tennis forehand strokes and in the field test physically respond to actual forehand strokes on-court. In both test conditions strokes were directed into four different areas on court (left, right, front and back). Video and on-court test included six practice and 30 test trials in which stroke type and ball end locations were randomized. Decision time (ms) and accuracy (%) was measured before and after the training period in both test conditions. Difference scores from accurate trials were calculated to examine the effectiveness of the training period.
A significant reduction in decision times from pre to post-test was found for both groups in the laboratory (G1: 224$\pm$118 ms, $p<0.001$; G2: 131$\pm$79 ms, $p<0.01$) and field (G1: 214$\pm$83 ms, $p<0.001$; G2: 65$\pm$69 ms, $p<0.01$) tests. In the laboratory post-tests G1 had significantly faster decision times when compared to G2 (-32$\pm$72 ms vs. 66$\pm$108 ms, $p<0.05$). Similarly a significant difference was found in the field post-test between G1 and G2 (-67$\pm$88 ms vs. 149$\pm$156 ms, $p<0.001$). Response accuracy in laboratory test was significantly ($p<0.01$) decreased in G1 (7%) from pre to post-test. No significant differences were observed between the groups in response accuracy.
Both groups improved their decision times on the laboratory and field test conditions. Even though it seems that junior tennis players were able to improve their anticipation skill also during their normal tennis training this improvement was not transferred so effectively to the field setting. In conclusion these results suggest that even fairly brief periods of video simulation training and appropriate instruction can lead to meaningful improvements in decision times and furthermore substantially facilitate players´ on-court performance.