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IMPACT OF AN EXERCISE TRAINING PROGRAM ON HAND-EYE COORDINATION IN COLLEGE BADMINTON PLAYERS: EVIDENCE FROM THE RULER DROP TEST.

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Background: Badminton requires rapid reaction time, visual tracking, and efficient hand–eye coordination. Poor coordination can affect shot accuracy and response during rallies, ultimately impacting overall performance and competitive outcomes. Exercise-based coordination training may improve neuromuscular control and reaction ability, enhancing sport-specific skills and performance.

Purpose: To determine the effect of a structured exercise training program on hand–eye coordination in college badminton players.

Methods & Materials: Fifty-eight badminton players were screened and 42 participants meeting the inclusion criteria were included. Baseline reaction time was assessed using the Ruler Drop Test (RDT) with a 60-cm ruler. Participants were randomly divided into Exercise Training Group (Group A, n=21) and Conventional Training Group (Group B, n=21). Group A performed coordination exercises including tennis ball dribbling, shuttle bouncing with a racket, wall rally drills, and tennis ball targeting drills. Training was conducted three sessions per week for four weeks (12 sessions). Group B continued conventional practice. Post-assessment was done after four weeks. Data were analyzed using paired and unpaired t-tests with significance set at $p < 0.05$.

Results: Pre-test values showed no significant difference between groups ($p > 0.05$). Post-intervention results showed significant improvement in the experimental group with reduced ruler drop distance indicating better hand–eye coordination ($p < 0.01$). The control group showed no significant change. Between-group comparison favored the experimental group ($p < 0.01$).

Conclusion: A four-week structured coordination exercise program significantly improves hand–eye coordination and reaction time in college badminton players, supporting its inclusion in regular training programs to enhance athletic performance and responsiveness.

Keywords: Hand–eye coordination, Reaction time, Badminton players, Exercise training, Ruler Drop Test.