

Full Report

The effect of a novel dynamic hamstring brace on muscle and athletic performance tests among young basketball players

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Background: Hamstring injuries are the most common musculoskeletal injury in sports, with high rates of recurrence.

Aim: To evaluate the effect of the novel hamstring brace on athletic performance among basketball players.

Methods: Ten healthy adolescent basketball players (age $M=14\pm0.6$ yrs; height $M=168\pm5$ cm; weight $M=65.1\pm6.3$ kg) underwent two sets of six performance tests, performed on two different days. The participants wore the dynamic brace for one set of tests (research) and without brace for the other (control). The isolated hamstring tests included: (1) the end-range hamstring-strength test using a hand-held dynamometer; and (2) the single-leg bridge test. The performance tests included: (1) horizontal explosive 10-meter and 20-meter sprints; (2) the vertical explosive counter-movement jump; and (3) the squat jump test.

Results: Participants achieved improved results when wearing the dynamic brace compared to control condition. A significant increase was seen in the single-leg bridge test (30 ± 4 vs. 23.5 ± 5 repetitions, respectively, $p<0.01$). Yet a significant decrease was seen in the 10-meter sprint (2.01 ± 0.1 vs. 1.88 ± 0.1 seconds, respectively, $p<0.05$). No significant differences were seen in other tests.

Conclusion: By improving hamstring-muscle endurance, the dynamic knee brace may have the potential to reduce hamstring injuries, with little negative impact on the athletes' performance.