

# Impact of several consecutive matches in a day on physical performance in elite junior badminton players

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## Introduction and Method

The aim of this study was to analyze the effects of playing several badminton matches (one singles and one doubles) on the same day on physical performance (i.e., vertical jumping (counter-movement Jump (CMJ)); grip strength; shoulder profile (range of motion (ROM) and isometric maximal voluntary contraction (MVC) of the dominant/non-dominant shoulder); hip profile (ROM and isometric MVC of the dominant/non-dominant hip)) in elite junior players, during an international tournament. We hypothesized that physical performance would be significantly reduced after the completion of competitive matches.

## Results

Results showed significant differences ( $p < 0.05$ ) in dominant and non-dominant hip adduction strength, shoulder external rotation ROM of both arms, and all measures of hip ROM, except abduction in non-dominant leg, between pre-test and post-tests in boys. Especially relevant were the losses in dominant internal rotation shoulder strength, hip and shoulder ranges of motion. Contrarily hip strength tests increased considerably. In girls, t-test demonstrated significant differences ( $p < 0.05$ ) in dominant and non-dominant hip adduction strength, dominant hip abduction strength, non-dominant shoulder external rotation ROM, and external and internal hip ROM of both legs, between pre-test and post-tests.

## Discussion and Conclusion

The most significant losses in neuromuscular variables after matches were hip and shoulder ranges of motion. On the other hand, most of the strength variables increased highly. Regarding sweat rate measures, data showed similar rates between boys and girls, with no signs of dehydration. Moreover, a moderate-to-high levels of exercise-induced muscle damage was found in the present sample of players, as measured by several folds increases in the pre-to-post-competition values of serum CK and myoglobin, highlighting the high-intensity nature of badminton competition. Moreover, based on the ROM impairments reported, it appears necessary, especially at young ages, to restore the “normal” shoulder ROM before having to play the next match as well as to improve general flexibility.