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Effects of the Tennis Tournament on Players' Physical Performance, Hormonal Responses, Muscle Damage and Recovery

Tuomo Ojala , Keijo Häkkinen

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University of Jyväskylä, Jyväskylä, Finland

Tuomo Ojala
 Department of Biology of Physical Activity, University of Jyväskylä, Jyväskylä, Finland
 Email: Ojala.tuomo@gmail.com

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ABSTRACT

The purpose of this study was to examine changes in selected physiological and performance variables of male tennis players (n=8) during a 3-day tennis tournament and the following 2-day recovery period. Each player played three two-hour tennis matches. The following measurements were taken: blood samples for serum testosterone T, cortisol C, creatinekinase CK, performance tests of maximal isometric leg press MVC and maximal rate of force development RFD, 5m run 5m, 5-leap 5l, counter movement jump CMJ and serve velocity S and DOMS questionnaire. During the games at 40 and 80 minutes the following tests were made: blood sample, MVC, 5m, CMJ and S. Both MVC and RFD were before the 2nd and 3rd match significantly lower than before the 1st match (p < 0.02) and remained reduced after 1 to 2 days of recovery. Serum C was significantly higher than the baseline value before each match (p < 0.05) and after 40 minutes of playing (p < 0.03). Serum T elevated from the baseline during every match at T40 (p < 0.02). CK elevated during the whole tournament peaking after the 3rd match. After one rest day CK was still significantly higher than the baseline value. Upper and lower body DOMS were elevated significantly but remained above the baseline after one rest day. The tennis tournament leads to reduced MVC and RFD, increased muscle damage and soreness and reduced recovery. It seems that a tennis tournament causes such a heavy speed strength load for the legs in addition to muscle damage that the recovery of explosive attributes of leg extensor muscles is impaired after two days of rest after the tournament. Serum cortisol and testosterone concentration elevated before and during the tennis match, but the outcome of the tennis match is difficult to predict using C or/and T levels before, during or after the match.

Key words: Tennis, maximal voluntary contraction, rate of force development, creatinekinase, fatigue

Key Points

- The tennis tournament impairs player's MVC and RFD, increases muscle damage and

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