Abstract

Title: Analysis of player’s load in national handball match

Aim: The aim of the work was to measure the internal and external load of the national handball players during the second league match and then to analyze the data.

Methodology: 7 players from TJ Gračárna Gatec took part in the measurement, including 1 defender, 3 midfielder and 3 strikers. Prior to the load measurement, the maximum heart rate was determined for each player using the Yo-Yo Intermittent Load Test by using the Polar Team 2 Sportstesters. The load measurement took place in a second league match between TJ Gračárna Gatec and TJ Spartak Rožmitál pod Třemšínem. The measured data was processed in MS Excel. The level of statistical significance was set at p < 0.05.

Results: The results show that the longest distance players have traveled in the zones of staying (49.2% distance), walking (26.5% distance) and running (15.4% distance). They spent the longest time in the zones of the staying (54.5% of the time), walking (21.6% of the time) and the trotting (19.5% of the time) and their heart rate was mostly in the zones 80-90% SFmax (28.2% time), 70-80% SFmax (23.1% of time) and below 60% SFmax (18.5% of time). The average speed of the players was 2.3 km/h and the average heart rate was 146 beats per minute. The average distance covered by the players was 2337.1 m.

The results show that both attackers and defenders traveled the longest distance in zones of trotting (attackers 49% distance, defender 43% distance), walking (attackers 20.7% distance, defender 37.7% distance) and running (attackers 17% defender 14.5 distance). Most of the time the attackers and defenders spend in zones of standing (attackers 46.4% of time, defenders 60.6% of time). The second longest time attackers
spend in the trotting zone (25.4% of the time) and the defender in the walking zone (21.6% of the time). The third longest time attackers spend in the walking zone (21.7% of the time) and the defenders in the trotting zone (15.1% of the time). The heart rate of attackers and defenders was the longest time in the zone of 80-90% SFmax (attackers 31% of the time, the defender 26.1% of time). The second longest time, the heart rate of attackers ranged between 70-80% SFmax (21.7% of time), and heart rate of defenders in the zone below 60% SFmax (25.6% of the time). The third longest time the heart rate of attackers ranged in the 90-95% SFmax zone (17.7% of the time), and heart rate of defenders in the 70-80% SFmax zone (24.2% of the time). The average speed of defenders was 1.8 km / h, while the average speed of the attackers was 3.5 km / h. The average heart rate of the defenders was 139 beats / min. and the average pulse rate of the attackers was 155 beats / min. The average distance overtaken by defenders was 1821.7 m and the average distance overtaken by attackers was 3024.1 m.

**Keywords:** national handball, load, distance, heart rate, speed.