MONITORING EXERCISE LOAD AND RECOVERY DURING 2010 FIFA SOCCER WORLD CUP

Tschopp, M. 1)

1) Swiss Federal Institute of Sports Magglingen, Switzerland

Keywords: monitoring, exercise load, recovery

Introduction

When preparing elite soccer players for a tournament, it is crucial to apply a balanced load and recovery routine during the training process. A too-heavy load or insufficient recovery can result in decreased performance and possible injuries. In contrast, a too-light load will not lead to the desired training adaptations. The aim of this study was to quantify exercise load during both the preparation and tournament phases in the 2010 FIFA World Cup (WC_{2010}), and to evaluate its effects on the ability of players to recover.

Methods

The exercise load of 23 Swiss national squad soccer players (age: 27.1±3.9 y) was recorded during 33 days in WC_{2010}, including 23 training sessions (TS) and five games (two preparation and three final-round games). The global exercise load was obtained using the session-RPE method (L_{RPE}), and cardiovascular load was obtained using the Heart Rate Index (L_{HRI}). Every morning the players were asked to record their recovery score (RS) on a scale from 1 (no recovery at all) to 10 (maximal recovery).

Results & Discussion

The mean L_{RPE} per player in the different tournament phases are presented in Tab 1. There was a significant correlation between L_{RPE} and L_{HRI} (r: 0.76). Mean RS was 4.9±1.0, 5.5±0.8, and 5.5±1.1 for the build, tapering, and tournament phases respectively. 52% of the RS variance could be explained by the variance of the L_{RPE} the day before. RS was more tightly correlated with L_{RPE} than with L_{HRI} (r: 0.92 vs. 0.76) in training days. A decrease in RS tended to be associated with daily L_{RPE} >450 AU, whereas an increase in RS with L_{RPE} <200 AU.

Tab 1. Mean exercise load (L_{RPE}) per player in arbitrary units (AU).

	L_{RPE}/day Mean±SD	L_{RPE}/TS Mean±SD	L_{RPE}/game Mean±SD
Build phase (13 days)	347±53 AU	290±45 AU	457±236 AU
Tapering phase (10 days)	196±23 AU	269±49 AU	
Tournament phase (10 days)	261±73 AU	243±70 AU	572±297 AU

Conclusion

Exercise load and recovery state are closely correlated. Monitoring the daily exercise load by the session-RPE method and the players' recovery state by 1-10 RS therefore may help to assess optimal training loads during a training process in elite soccer.

References

1. Impellizeri, F. M. et al. (2004). Med Sci Sports Exerc *36(6)*: 1042-1047.