THE INFLUENCE OF SOME HORMONAL AND BIOCHEMICAL PARAMETERS ON THE CHANGES OF VO_2max IN PROFESSIONAL FOOTBALL PLAYERS

Handziski Z.,Handziska E.

Faculty of medical sciences, Un.Goce Delcev-Stip; PZU Kineticus-sports medicine and exercise science-Skopje, Republic of Macedonia

The aim of this study was to evaluate the influence of some hormonal and biochemical parameters on changes of $V0_2$ max in professional football players during a training and competition football process.

This study included 30 professional football players from one of the teams of the first football league. The investigations were made at three points: in the beginning of the preparation period, after the preparation period, and after competition period. Each of the investigations was performed in three phases. The following parameters had been determined: VO_2 max (ml/kg/min), heart rates (b/min), blood lactates (mmol/l), serum levels of testosterone (nmmol), plasma levels of cortisol (mmol/l) and ACTH (pg/ml) by RIA method and plasma levels of creatine kinase (CK U/l) by DEROM method during a maximal treadmill test in the first phase; AnT (km/h and beat/min) with Conconi method in the second phase; blood lactates during a specific designed high intensity football training session on the field in the third phase.

There were significant changes of VO_2 max (48,31±4.08; 51,31±4.16; 49.5±4.81) during the season, with insignificant changes of AnT (12,7±0,80; 12,73±1,71; 12,2±1,47). CK plasma levels changed significantly during the season (decreasing at the end of the season). There were significant changes of testosterone serum levels (decreasing at the end of the season) and cortisol and ACTH plasma levels (increasing at the end of the season) during the season. The blood lactates levels during maximal treadmill test changed insignificantly and on the field changed significantly (increasing at the end of the season) at the end of the season. The changes of VO_2 max were significantly influenced by hormonal and biochemical parameters in each period of training and competition period.

The significant changes of some parameters and their correlations indicate disadaptation and depletion of the adaptation mechanisms at the end of season. The significant increasing of VO_2max , decreasing of CK exercise induced answer and the lower levels of blood lactates after preparation period indicate a beginning of adaptation of some systems, although there is no increase of AnT and cortisol exercise induced answer as sings for an improvement of sport performance. Some biochemical and hormonal changes during the football training and competition period could be the markers of VO_2max changes.

Key words: football, VO_2max, hormones, creatine kinase, blood lactates