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The comparison of overtraining syndrome indexes and body composition of Fc.Aboomoslem Players

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Abstract:
Overtraining syndrome frequently occurs in athletes who are training for competition or a specific event and train beyond the body's ability to recover. The purpose of this study was to comparison of overtraining indexes and body composition of elite youth football players during of general and pre-competition phases.This study carried a semi – experimental methodology. In this study, 20 elite youth and healthy football players, ABOOMOSLEM competition as study's subject that too well trained. The executive method of the study was such that after of elementary awareness, two blood samples were taken and analyzed in laboratory. For data analysis we performed descriptive statistics (average, standard deviation, variance and frequency tables) and inferential statistics (t.test) Using SPSS software.Physical aspects of the subjects before entered to general phase were consisted of; age (19.25 ±0.78) years, body weight (74.31± 1.98), skeletal- muscular mass (40.41 ± 1.01) kg, BMI (22.57±0.34) $kg.m^{-2}$, and training experience (7.4 ± 0.86) years. During of data analysis, there were significance different between of total testosterone in pre and post of the different training phases that include general and special preparation and Pre-composition (t_{19}= 23.79, p=0.000). Also, in amounts of cortisol between different training phases were significant different (t_{19}= 16.92, p=0.000). As for to results of the study, it recommended to football coaches, first they must be notation to overtraining indexes that employing this study and second, to use of recovery, tapering and more execute of the various training, prevention of elite youth football players from dangerous of affection to overtraining syndrome.

Key words: overtraining syndrome, total testosterone, ratio of testosterone to cortisol

Introduction:

Overtraining is defined as excessive training, characterized by long-lasting fatigue and worsening of competitive performance with further attempts to improve physical condition [(6)]. Overtraining may also be described as staleness, overwork, over-reaching, burnout and chronic fatigue. Fatigue and underperformance are common in athletes. Understanding overtraining syndrome (OTS) is helpful in the evaluation, management, and education of athletes [(7)]. Although improvements in athletic performance hinge on increasing the training load or "over-reaching", overtraining - a vicious circle of more training producing lower performance and chronic fatigue –
seems to be a stress response to training too hard too often, with insufficient recovery time between exercise bouts. In some cases, the term overtraining may not be appropriate, as other stressors (e.g. psychological, lifestyle, malnutrition, and infection) may be responsible for underperformance. Perhaps a better terminology is the description of this syndrome as "unexplained underperformance, confirmed by the athlete and coach that are not resolved following at least two weeks rest". This definition recognizes that the cause of the underperformance and chronic fatigue is not necessarily solely related to the training load [(6)].

The "catch them young philosophy" that matched the beliefs of many coaches who think that in order to

achieve success at senior level it is necessary to start intensive training well before puberty [1], That has meant many of our youngsters are training intensively and for considerable hours by the time they become adolescents[2].Such heavy loads that potentially causes the athlete to engage in very hard training without being aware if it really is of benefit for his / her own performance [3]. So, the combination of heavy training, inadequate recovery and imitated social support networks for the young athlete can result in overtraining in even young and aspiring elite athlete [3, 4]. During of it, sport discipline of football. Also need to a study to paying to the comparison of overtraining indexes (testosterone, cortisol, and testosterone to cortisol ratio and rest heart rate) and body composition in football. It is therefore important that sport scientists, coaches, medics and parents start to become aware of the potential negative health implication (physical and physiology) of such training practices in young athletes[2], that purpose of this study was to comparison of overtraining indexes and body comparison of elite youth football players during of general and pre-competition phases.

Methods of the study:This study carried a semi – experimental methodology. In this study, 22 elite youth and healthy football players of ABOOMOSLEM club (one of the club's of one's league of Iran) competition as study's subject that too well trained. It necessary to mention that 2 subject from persons of this group because of severe injuries, notable to participation to general and special phases and so, our study were fallowed with group of 20 football players as subject. The execute method of the study was such that after of elementary awareness two blood samples were execute in other to; A) first sampling executed before start of general preparation phase and B) second sampling executed after end of Pre-competition phase and before start of competition phase. In order to data analysis, we performed descriptive statistics (average, standard deviation, variance and frequency tables) and inferential statistics (t.test) Using SPSS software. Level of significant were accepted at $p < 0.05$.

Results: Physical aspects of the subjects before entered to general phase were consisted of; age (19.25 ±0.78) years, body weight (74.31± 1.98), skeletal- muscular mass (40.41 ± 1.01kg), BMI (22.57±0.34 $kg.m^{-2}$),and training experience (7.4 ± 0.86) years. During of data analyzing, between of total testosterone in pre and post of the different training phases (general and special preparation and Pre-composition) were significant different (t_{19}= 23.79, p=0.000). Also, in amounts of cortisol between different training phases were significant different (t_{19}= 16.92, p=0.000). There were not significant decreasing in testosterone to cortisol ratio in second sampling (t_{19}= 1.75, p=0.096). In addition, there were significant increasing pre and post different training phases in amounts of rest heart rate (t_{19}= -11.41, p=0.000). In the end, between all of body composition indexes (weight, fat mass, skeletal-muscular mass and BMI) during pre and post of the different training phases, there was significant different ($p < 0.05$).

Variables	Mean		Standard deviation		t	Significant levels
	Before training phases	After training phases	Before training phases	After training phases		
Testosterone ($ng.dL^{-1}$)	576.35	432.84	36.08	38.71	23.79	0.000†
Cortisol ($micg.dL^{-1}$)	7.42	9.13	0.8	0.82	-16.92	0.000†
Test to Cort ratio ($micg.dL^{-1}$)	0.2	0.061	0.09	0.011	1.75	0.096
Resting heart rate ($bit. Min^{-1}$)	66.7	71.5	1.98	1.85	-11.41	0.000†
Weight (Kg)	74.31	70.43	1.89	1.75	3.2	0.005†
Skeletal – Muscular Mass (Kg)	40.41	38.78	1.04	1.01	7.6	0.000†
Fat Mass (Kg)	12.79	10.53	0.5	0.47	27.02	0.000†
Body Mass Index (Kg.m-2)	22.57	20.82	0.33	0.34	104.59	0.000†

† Significant level at P<0/05

Table1. Show the indexes of overtraining syndrome and body composition, before and after of general preparation, specific preparation and pre-competition phases

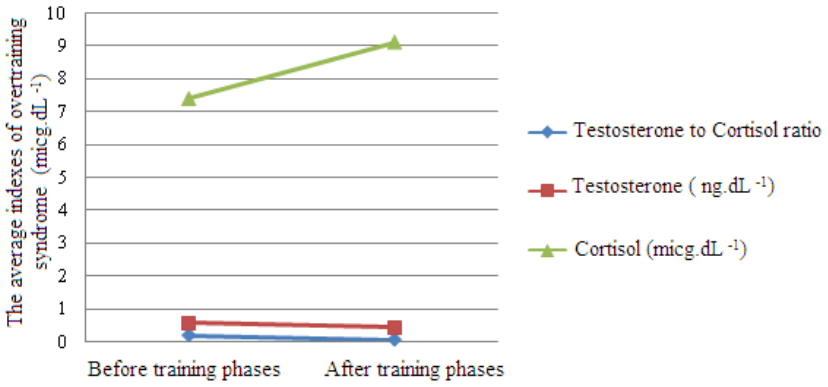

Figure 1-Show levels of Testosterone, Cortisol and Testosterone to Cortisol ratio before and after of general preparation, specific preparation and pre-competition phase

Conclusion :

As for to results of the study, determinate that elite youth football players with execute of different physical activates, during different training phases (general and special preparation and Pre- competition) faced to overtraining syndrome. As the base of it, amounts of testosterone and cortisol hormones in serum, after of different training phases, statically decreased and increased, respectively, also, testosterone to cortisol ratio, as mention to main factor for determination of overtraining syndrome, decreased. In fact, it showed creation of acute stages of it syndrome not statically significant. In addition, amounts of SMM, fat percent and also weight of the football players decreased, significantly that can be to important factor for determination of this syndrome [(2)] In parallel to it, amounts of rest heart rate in elite youth football players significantly after second sampling were increased that it can be one of simple indexes but less validity in determination of syndrome overtraining [(2)]. At the end, it necessary to mention that the results of the study consonant with results of Moragan et al (1988), Kentta et al (2001) and Coakley et al (1992) that they also were mentioned overtraining prevails in your manuscripts [(5,4,3)]. In conclusion, as respect consideration to results of the study that overtraining syndrome have prevalent in youth athletes and also it necessary to discover the manners that determination of elite football players that have overtraining or they are in limits of affection to it, recommended to football coaches, first they must be noted to overtraining indexes that employing this study and second, to use of recovery, tapering and more execute of the various training, prevention of elite youth football players from dangerous of affection to overtraining syndrome.

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