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PERIODIZATION STUDY ON SOCCER UNIVERSITY TEAM

RAIOLA GAETANO¹, NAPOLITANO SALVATORE¹

Abstract

Purpose. Periodization is an offer made by Tudor Bomba and it's a methodological approach applied in order to obtain the training aims required for the predetermined competitive levels. The subject matter of the research is to verify the conditional improvements after the training time and the check of the moment of the peak performance during the evaluation time.

Methods. Periodization is based on the rise of the progressive load applied in training sessions, in order to allow the adaptation of the nervous system and therefore obtain improvements that affect the quantitative aspect.

Results. The results it is observed that both athletes get the strength's improvements, they attain peak performance at the beginning of the competitive period.

Conclusions. The object of this research, verified the improvements on a quantitative level, is to lay the foundations for new training methods whose don't forecast total separation between qualitative and quantitative features of training, but that fit together everything in unique sessions and exercises of training.

Keywords: Periodization, Quantitative features, Peak performance.

Introduction

Soccer is a sport about situation, influenced by many variables like pitch, adversary, teammates and presence of ball (gear).

In this sport the aspects concerning significantly the training are: physical, psychological and technical – tactical aspects.

Team sport activity is composed of conditional, technical, tactical features of performance and uses the periodization to put in practice strategies methods and teachings to develop the abilities of the individual and the collective group with the aim to get the best goals. The subject developed focuses on the concept of

periodization, which means the division of the training season in specific periods with clearly defined aims. The periodization includes the division of the training year in specific periods with well-defined aims. This ideal planning arises under the Sovietic union by Matveev, who used this method to the preparation of Olympic athletes.

Periodization is an offer made by Tudor Bomba and it's a methodological approach applied in order to obtain the training aims required for the predetermined competitive levels.

At the base of periodization, there is the "principle of progressivity of cargo and physiological adaptation".

¹University of Salerno, ITALY
Email: raiolagaetano@libero.it



The exercises during the strength training are designed in order to reproduce the technical model in soccer such as tracing movements similar to it, to be executed repeatedly, in order to facilitate the learning .

The imitation of technical skills involves the chain of muscles in a way similar to the one used in the analyzed discipline. The exercises and training methods, therefore, must be directed to the movements or the situation that emulate in the match, so as to increase the discharge of motor neurons and to induce the muscles to express athletic movements made of high power and speed .

During training the nervous adaptation of the strength improves the power and the speed contraction of the muscle evading the growth of the mass. Therefore, The exercises and methods of the training will be directed to movements emulated during the match of the discipline, in order to increase the shock of the motor-neurons and to persuade the muscles to express the athletic movements with high power and speed (Di Tore et al., 2011).

These methods have been proposed again to the seniors teams of the Portuguese academic championship that it is followed.

During the periodization must coexist:

- 1) Individual and team improvement
- 2) Short, medium, long-run of work development
- 3) The turnover of load and unload phases
- 4) Contemporary improvement of motors and cognitive abilities
- 5) The achievement of peak performance in the characterized competitive time.

The periodization in team sports is divided this way:

- 1) The introductory phase which is necessary to the general rehabilitation of psychophysical fitness. This time is indicated for young and old athletes of medium and high level.
- 2) Loading phase, where the amount of work prevail on its intensity. It has to be predicted during the championship downtimes or in conjunction with secondary prestige matches.

Method

Team sport activity is composed of conditional, technical, tactical features of performance; these 3 features have been improved during in the periodization phases; ; regarding quantitative features, according to the principle of the progressive increase of load ; regarding qualitative feature the improve has been obtain increasing the complexity of the technical and tactical exercises proposed, starting from cognitive exercises (step by step) , coming to propose ecological-

The purchase of technical abilities will be able to reveal very hard due to an eventual condition of fatigue. The most important aim of this phase is to develop the highest strength level possible. The most sport discipline request strength, muscular strength or both. For each of these types of strength is decisive the highest level of strength , because without it the strength can't develop.

- 3) Special or transformation phase is necessary to increase the work intensity and to develop a growing technical work. It coincides with matches of medium importance approaching to the decisive moments, play off. The primary purpose of this phase is to change the results achieved thanks to the training for the highest strength in those specific technical skills which are necessary to the match. Depending on the characteristics of a discipline, the highest strength will have to be converted into power or in muscular strength, or both, as happens in soccer. This aim is reached gradually over a period of 6-8 weeks.
- 4) Competitive phase: It's the moment where the reaching and the conservation of the highest peak performance are gained on the occasion of the most important matches. The performance peak cant' be kept for long periods and will be necessary the best precision from the trainer to program the reaching of this stage. The principal purpose of the power training in this phase is to keep the standard gained in the previous phases.
- 5) Transition phase: It coincides with a long pause between a competitive season and the other to regenerate the body.

The subject matter of the research is to verify the conditional improvements after the training time and the check of the moment of the peak performance during the evaluation time.

dynamic exercises that aim to reproduce the same part of the match, whit all the different variable that it can show, having improves regarding the reaction-time, whit aim to reply for the better to the different incitements participating to the match, and therefore improving the single and collective performance . this research doesn't concern the quantitative features because tests won't executed to obtain scientific information which shows the improves .in football and in the disciplines based on power and speed, whose



provide quick actions and explosive movements, many exercises of power and maximal loads burden on the nervous system training, whose have the object to obtain an adaptation of the nervous system. The study has been realized in the University of Porto (Universidade do Porto) and the University of Salerno (Università degli studi di Salerno), during the Erasmus project. The study has been conducted on the activity of two 22 years old males athletes of a Soccer Team of University Portuguese League, through the test of Maximum Strength and endurance strength, which helped us to evaluate the improvements of physical performances at different stages of periodization. Different athletic tests have been executed For the survey of the improvements during the different phases of the periodization training.

The Tests have been carried out:

- 1) At the beginning of the preparatory period
 - 2) At the end of the period of load
 - 3) At the end of the period of transformation (which coincides with the start of the competitive period)
- All tests allow us to find the quantitative improvements achieved.

The tests are:

- 1) Test of endurance and strength (curl up; push-up;
- 2) Test of FM.
- 3) VO2 Max (Cooper's test).

Subsequently, the data, collected during the research, were submitted to a statistical study. The latter showed us the physical performance trend in the different training periods during a season.

Results

Tables 1. General data of athlete 1, 1.b.strenght tests.

General data			
age:	22		
height:	194,00		
Periods examined →	Preparatory period 02/07/2012	The End of the load period 06/09/2012	The end of the processing period 22/10/2012
Weight	82 kg	80 kg	84 kg
Resting heart rate(FC Repose)	55	57	56
Heart rate after exercise (FC Máxima)	198	198	188
Abdominal strength (curl-up).	46,00 rep	56,00 rep	59,00 rep
Superior Force Members (push-ups)	22,00 rep	29,00 rep	32,00 rep
Lower limb strength (half squat)	80 kg	108 kg	124 kg
Cooper's test ↴			
meters	2960	3220	3440
Value	61,15 ml/Kg	47,51 ml/Kg	73,67 ml/Kg



Result	EXCELLENT	EXCELLENT	EXCELLENT
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Table2._ General data of athlete 2, 2.b.strenght tests.

general Data

Age	22
Height	174,00

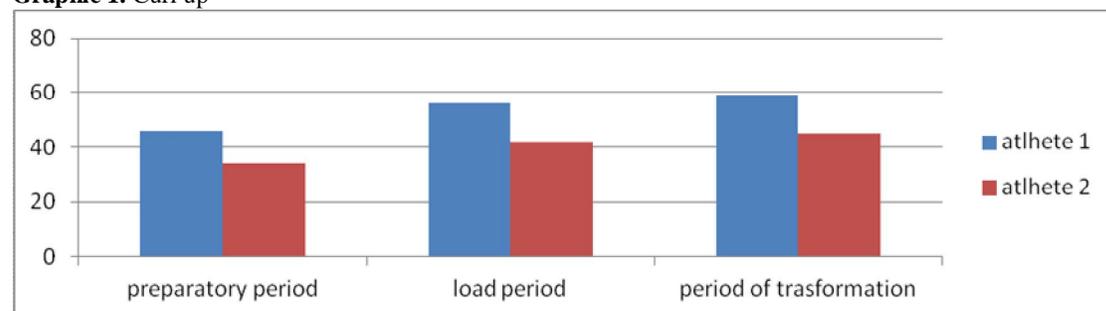
Periods examined →	Preparatory period 02/07/2012	The End of the load period 06/09/2012	The end of the processing period 22/10/2012
Weight	71,00	70,00	68,00
Resting heart rate(FC Repouso)	57	62	56
Heart rate after exercise (FC Máxima)	198	198	188
Periods examined →	Preparatory period 02/07/2012	The End of the load period 06/09/2012	The end of the processing period 22/10/2012
Abdominal strength (Curl-up)	34,00 rep	42,00 rep	45,00 rep
Superior Force Members (push-ups)	23,00 rep	30,00 rep	32,00 rep
Lower limb strength (half squat)	81 kg	108 kg	114 kg

Cooper's test

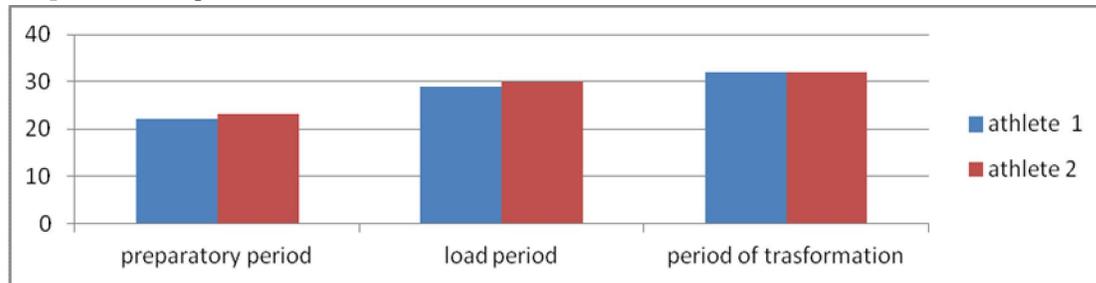
meters	2234	2620	3013
Value	41,70 ml/Kg	47,51 ml/Kg	53,55 ml/Kg

Result	Average	good	EXCELLENT
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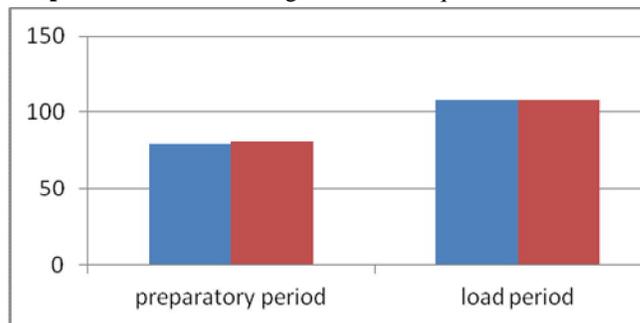
Graphic 1. Curl up



Graphic 2. Push up



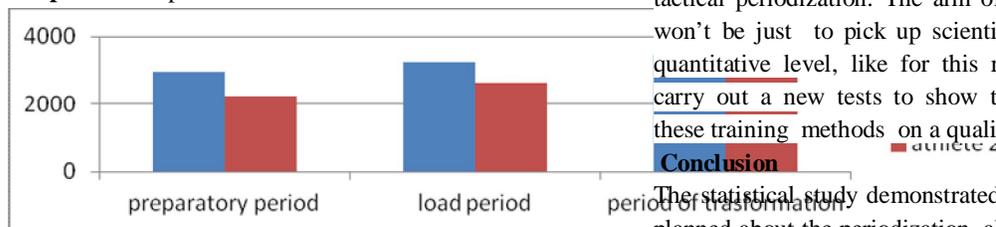
Graphic 3. Maximum strength test - half squat



for the prevention of the athletes from possible injuries. (the 2 athletes not have suffered injuries).

The object of this research, verified the improvements on a quantitative level, is to lay the foundations for new training methods whose don't forecast total separation between qualitative and quantitative training, but that fit together everything in unique sessions and exercises following as training model the applied methods of Josè Mourinho (f.c.Real Madrid trainer) and of his staff, who don't talk just about periodization on a conditional level, but also about tactical periodization. The aim of the future studying won't be just to pick up scientific information on a quantitative level, like for this research, but also to carry out a new tests to show the improvements of these training methods on a qualitative level.

Graphic 4. Cooper's test



Conclusion
 The statistical study demonstrated us how the training planned about the periodization, allowed the athletes to reach the "peak performance" within the period, in which there is, usually, the most important match of the whole season which is part of a competitive period. The studying object is to prove the conditional improvement after the training time and the prove of the peak performance during the proving time (competitive time).

The whole completion is conditioned by the multiple aspects of quantitative and qualitative way. Thus, it has been established that the good way is the integrated and complex teaching method (Raiola 2008). So on, it could be useful to improve the ecological-dynamic approach in didactics for all level of competition. The specialization of quantitative aspects in soccer has to follow in according to a entire phenomenon of empowerment of the athletes and of performance analysis principles.

Discussion

The informations, collected during research, have been subjected to a statistical studying ,that whose show the evolution of the physical performance during the different training phases over the year, showing how the planning of the training, carried out thanks to the assistance of the method of periodization, allow us to reach the peak performance over the prearranged period that in football is equivalent to the most important match of the year which is part of the competitive year.

It's important, therefore, the principle progressive increase of load and complexity of the proposed exercises, whose allow the nervous system to adapt itself in a gradually way to identify improvements on a quality level. The progressive growth is also important



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