

Improvement in soccer learning and methodology for young athletes

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Abstract

Problem Statement - Sporting success detection constantly leads coaches, performance analysts, and sports researchers to evaluate and promote new methodologies to improve performances. The acquisition of football technique has often been topic of debate about the real methodological approach to adopt in the adolescence.

Purpose - The aim of this study, on a sample of twenty (20) young athletes (aged 15-17 - mean age 16 ± 0.5) participating in agonistic football competitions, was to evaluate the improvement in performance, with reference to the percentage of accuracy of passages and shots on goal, verifying the quality of training methods choices. The research was carried on through an observational method and manual computerized detection, from October 2017 to April 2018, and general and diversified technical tests. The athletes (weight 62-73 kg - mean 67.79 ± 4.79 ; height 173 - 187 - mean 179.78 ± 5.23) divided into group A and B, took part in training (weekly- monthly) with the technical staff. Only 10 athletes of group B, participated 20 additional training sessions to improve their technical and physical learning.

Results and conclusion - The final result for both groups showed significant improvements in young athletes performances with particular reference to the percentage of accuracy of passages and shots on goal, valued around 5-7% (average percentage 6%). Group B said to have received benefits after participating extra training sessions, showing an increase in muscle tone, a better breathing control and greater accuracy in passages and shots on goal, proving validity of choices in training method.

Keywords: Soccer, Methodology, Coordination skills, Conditional skills, Passages, Shots.

Introduction

The method value is of fundamental importance in the acquisition of physical and technical skills (Montesano, 2018; Altavilla et al, 2018) to used in the soccer (Rampinini et al., 2007) context. The technical exercises, however, can not be separated from the athletic and tactical ones, and the acquisition of the characteristic movements (Di Salvo et al., 2006) of the discipline is perfected through the constant repetition of the game situations. The method quality also serves to prevent use among athletes of performance-enhancing drugs with easy results accompanied by glory and money gain (Mazzeo et al 2018; Mazzeo & Volpe, 2016). The evolution of the game of football (D'Ottavio, Castagna, 2001), with the increasingly exasperated agonism and the advent of soccer-business, has confirmed that it is necessary to facilitate learning using a mixed training methodology (Morgan, Orme, Anderson, Drust, 2014) setting.

To improve the technical abilities are indicated the games play seven against seven or eight against eight on reduced spaces compared to those played eleven against eleven on a regulatory field.

In the preadolescent (Montesano, Mazzeo, Tafuri, 2016) period between ten and twelve years the training-training phase begins, in which the specific technical skills (Budde et al., 2008) are stimulated and acquired. The training process (Hammami, 2018) will then consist in the acquisition of mastery and the exact execution of all the fundamental technical gestures, by virtue of a systematic training (that is, by means of numerous repetitions of the desired gesture). The task of the coach-instructor will be to support the attitudes of young athletes by proposing exercises with increasing difficulties (Molina, Oriol, Mendoza, 2018) and workloads, not forgetting the repetition of the technical gestures learned favoring the definitive assimilation and automation specially with the game. From the age of twelve/thirteen onwards, in principle, technical training must be characterized by a continuous and almost linear increase in the volume (Helgerud et al., 2001) of exercises that must re-present situations similar to those of the football competition. The improvement of technical skills, above all by means of the methodical repetition of combinations or game situations, also containing tactical elements, will allow the young player to transfer the skills learned from training sessions to the competitive race context (Jaspers A., Brink MS., Probst SG., Frencken WG., Helsen WF, 2017).

Both children and youth, including those who are overweight or obese or disabled (Montesano, Tafuri, Mazzeo, 2013), should be physically active and promote physical activity. The role of physical activity and exercise in health and disease goes beyond the effects on body weight (Sirico et al., 2018) and performances

although into the evidence linking excess body fat at a Young age to type 2 diabetes and coronary heart disease in adult years (Juonala et al., 2011) and to other non-communicable diseases and inflammation (Sirico et al., 2018), dieting alone often fails to achieve long-term benefits (Sirico et al., 2018; Flynn et al., 2006) and childhood obesity continues to rise in Europe (Lombardo et al., 2015; Illiano et al., 2017). Good coaches practices affect cohesion in team sport, through specific techniques and strategies to promote collaboration among players and the respect and the quality of opponents (Turman, 2003). Specific techniques as coaching are very important to verify methodological quality choices. Coaching can be conceived as the process in which individuals, mostly sport athletes, are supported for their improvement and development in order to achieve high levels of performance. In particular the criteria that guide to the dynamical aspects of coaches' impact on social cohesion processes are :

- Attentional Processes, intended as the extent to which the role model characteristics are attractive, the compatibility between athlete and model, and the quality/stimulation of the presentation or event;
- Retention Processes, indeed, the level of stimulation, creation of key images or messages;
- Reproduction Processes, the degree to which opportunity for reinforcement is available, availability and quality of feedback to the athlete;
- Motivational Processes rewarding behavior.

The aim of the research has been to detect, during a period of eight months, technical and tactical improvements of twenty footballers aged 15 -17 participating in soccer competitive championships stressing the importance of the quality method used for training.

Methods and Materials

Participants

Research was carried out on a sample of 20 young athletes (15-17 years old - mean age 16 ± 0.5) participating in agonistic football competitions (weight 62-73 kg - mean 67.79 ± 4.79 ; height 173 - 187 - mean 179.78 ± 5.23) distributed in group A and B.

Objective

The aim of the study was to evaluate the improvement in performances, with particular reference to the percentage of accuracy of passages and shots on goal, verifying quality of training methods choices.

Analytical and global methods must be well managed by the coach-trainer with on specific exercises and game situations and bearing in mind that football is a sport with a high level of variability.

The research was conducted with an observational method and manual and computerized detection, from October 2017 to April 2018, with general and diversified technical tests (Rampinini et al., 2007). Only 10 athletes of group B, participated 20 additional training sessions to improve technical and physical learning in addition to the weekly and months training sessions. The positions and the movements of the young athletes (Montesano, 2016) were monitored during trainings and competitions, with the test match analysis (Harley et al., 2010) with execution the precision tests of the passages and shots on goal. The accuracy of the passages was detected by performing the exercise by kicking the regulatory ball from position 1, located in midfield, to positions 2,3,4,5 located at varying distances (Figure II). The shots were made versus the door by moving from positions 1,2,3,4,5,6,7,8,9,10 (Figure 3) established outside the penalty area. After the initial data were collected, the young athletes were divided into group A (Tables I,IV) inserting the players with the best results, and in group B (Tables II,III,V), inserting the players who had to improve the performances

Session Training

Match Analysis

Analysis of the performance of the players during training (Figure I) and the game. With two fixed cameras, the team's training sessions were resumed by framing the athletes on the football field. The videos have been elaborated on the computer and the dynamic positions of the young players have been identified. By way of example, the positions of three athletes, a defender (a), a midfielder (b) and an attacker (c), who are inserted in group B, have been reported in Figure I.

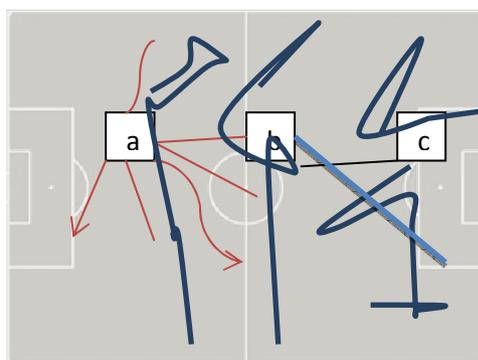


Figure I – Positions and displacements in the field (a, b, c)

Test exercise

1) detection of passing percentages

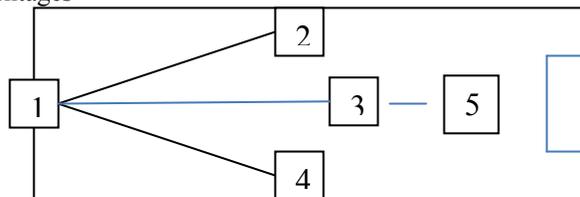


Figure II - Positions of athletes for the detection of the number of passes

Total number of steps to be made 20.

From station n.1 (midfield) the athletes, in turn, carried out 5 passages versus the station n.2, n.5 versus to the station n.3, n.5 versus the station n.4 and n. 5 versus the station n.5.

The distance between station n.1 and stations 2 and 4 was about 20m; the distance between station n.1 and n.3 was about 25m; the distance between station n.1 and n.5 was about 35m.

The exercise-test was administered in the initial, intermediate and final surveys.

2) detection of shootings percentages

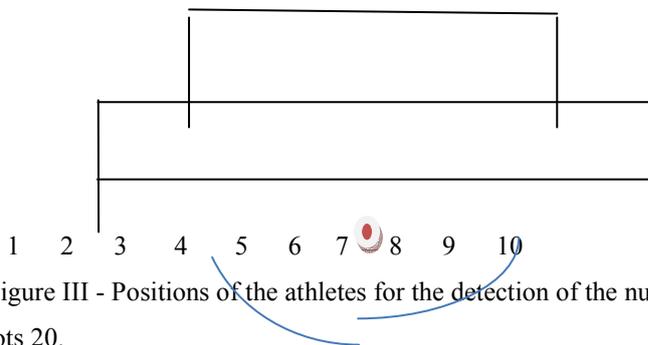


Figure III - Positions of the athletes for the detection of the number of shots

Total number of shots 20.

N. 2 shots on goal from each station, for a total of n. 20 shots

Progressive execution from station n.1 to n.10 with moving shots not exceeding the boundary lines of the penalty area.

n. 2 regulatory balls were placed in each station.

The exercise-test was administered in the initial, intermediate and final surveys.

Training

All athletes participated in two weekly training sessions and one league match. Each training session lasting 60-80 minutes, has been divided into three phases. The first was referred to the general activation (Hammami, Zois, Slimani, Russel, Bouhlel, 2018) with slow running exercises, joint mobilization, stretching, changes of direction and skip running; the second to the exercises in the form of games with purposes related to the development of coordination and conditional skills with exercises of variation of speed, management of the ball, overcoming small obstacles; the third one concerned the training games designed to reproduce the real situations of the competition with exercises five against five, six against six, seven against seven, eight against eight and then eleven against eleven (Krustrup, Dvorak, Junge, Bangsbo, 2010). At the same time, the concept of space will be developed allowing young players to play on the football field, but varying the distance of the penalty area and the doors, taking care of the technical aspects with passages and shots exercises performed after touching the ball once, twice or three times. At the end of the training session 5/10 minutes of relaxation were always granted with slow running and stretching. For the purposes of the workouts were used balls, obstacles, cones and sticks.

The additional training sessions were implemented with isotonic and isometric strengthening exercises with medicinal flasks, weighing between 1kg and 3 kg, elastic used in the gym sessions and continuous technical exercises. The strengthening with rubber bands was carried out twice a month at the gym on days other than collective training sessions.

Materials and resources

- football field with the use of a single goal post
- regular footballs
- cones
- 2 detectors of the number of goals
- 2 instructors
- 10 strikers and 10 defenders
- 2 operators detectors of match analysis

Results

The final results, taken at the end of races racing, denoted improving the performance, particularly in the percentage of accuracy of shots on goal, estimated at about 5%. Athletes of the B group have denoted the greatest percentage increases but also some of the group A (Graphic I), motivated to perform workouts with greater concentration, showed an improvement in the performance of a few percentage points. Athletes of the B (Graphic II) group reported that they had received benefits from participation in extra sessions and they have found a uniform muscle toning and better control of breathing during exercise.

Initial Recognition

The starting survey showed only in six athletes a percentage between 90-100%. Both in the passages and in the shots on goal two athletes have scored a percentage of 100%, two a percentage of 95% and two a percentage of 90%.

From the analysis of the average percentages the groups A and B were formed and in the working group B the athletes were introduced that showed a lower percentage of overall average precision between passages and shots on goal.

Table I – Group A with average percentage between passages and shots

Athletes	% on numbers total precise shots	% on numbers total precise passages	% average
1	90	90	90
2	100	100	100
3	80	90	85
4	85	90	87,5
8	100	100	100
9	85	90	87,5
10	95	95	95
14	95	95	95
15	90	90	90
18	82	83	82,5

Table II – Group B with average percentage between passages and shots

Athletes	% on numbers total precise shots	% on numbers total precise passages	% average
5	65	75	70
6	80	85	82,5
7	75	85	80
11	75	75	75
12	85	75	80
13	65	75	70
16	80	80	80
17	75	75	75
19	75	80	72,5
20	75	75	75

Intermediate recognition

The mid-term survey showed an average percentage increase in Group B of approximately 6%. In particular, the performances of athletes 5, increases of 5%, and 12, increases of 8% .

Table III – Group B - Average percentage of intermediate increase in passages and shots

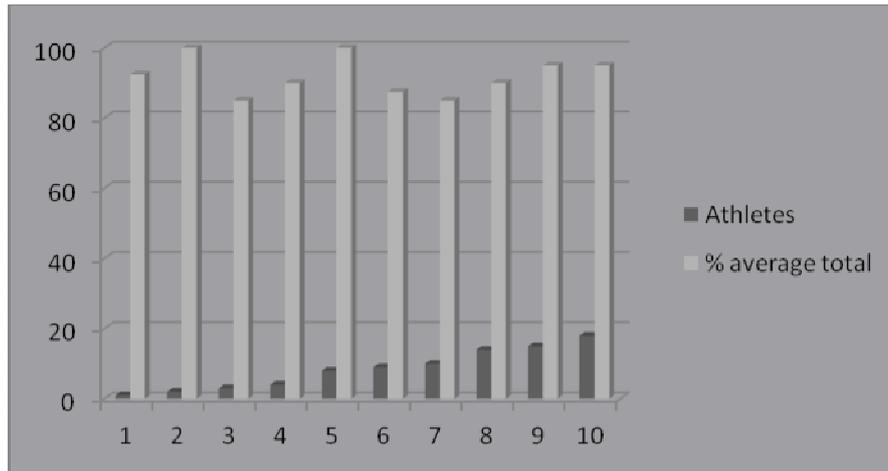
Athletes	% on numbers total precise shots	% on numbers total precise passages	% average
5	70	80	75
6	85	85	85
7	80	85	82,5
11	80	75	77,5
12	85	80	82,5
13	75	80	72,5
16	80	85	82,5
17	75	80	77,5
19	80	80	80
20	75	75	75

Final recognition

At the end of the research period the final results showed an average improvement of about 7% for group B, with an average percentage increase of 20% for athlete 11 and 10% for athletes 13 and 19.

Table IV– Group A - Average percentage of total passages and shots

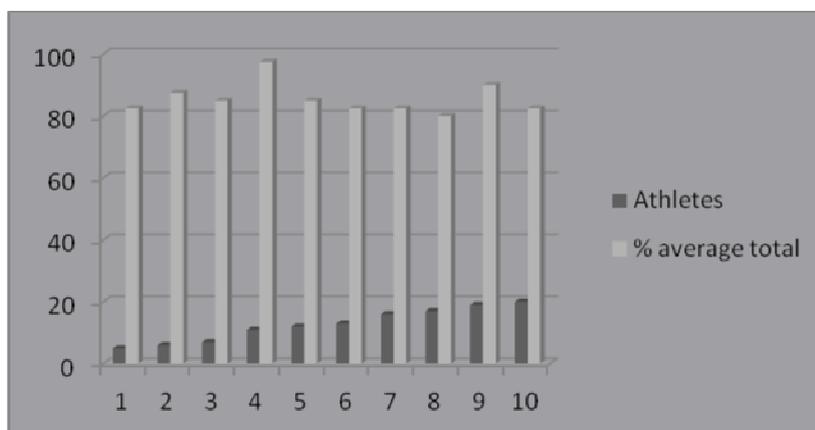
Athletes	% on numbers total precise shots	% on numbers total precise passages	% average total
1	95	90	92,5
2	100	100	100
3	90	80	85
4	90	90	90
8	100	100	100
9	90	85	87,5
10	90	80	85
14	90	90	90
15	95	95	95
18	95	95	95



Graphic I – Group A - Average percentage of total passages and shots

Table V - Group B - Average percentage of total passages and shots

Athletes	% on numbers total precise shots	% on numbers total precise passages	% average total
5	80	85	82,5
6	85	90	87,5
7	85	85	85
11	90	95	92,5
12	85	85	85
13	85	80	82,5
16	85	85	85
17	80	80	80
19	90	90	90
20	80	85	82,5



Graphic II – Group B - Average percentage of total passages and shots

Conclusion and remarks

Young athletes training should facilitate the correct succession of auxology phase. Athletes must live the football experience with joy and awareness, to continue this activity in free time and as a job. Coach-instructors are fundamental in planning training sessions based on methodological proposals related to the age and skills of young people. They should sensitize athletes, teach how to manage successes and possible failures. They should re-motivate the subjects stressing the importance of effort and concentration, both in terms of athletic phases (techniques and tactics) and control of emotions and movements, without focusing on external influences (i.e., misfortune, accidents, etc.) as factors of failure (Montesano et al., 2013).

Sporting success increases self-esteem and interest in sport. Conversely, a failure can negatively affect self-confidence and reduce the availability of time to continue the sport.

This study shows that proper methods training planning improve growth and personal results, not just competitive results or performance. This must be carried on through the synergistic action of experts that take care of the physiological and psychological aspect. In this way adolescents can face adolescent crisis and choose sport activities they like. The workouts should be fun, interesting, educational and valid, with objectives related to the age and maturity levels of each athlete. The coach should not be an authoritarian leader, but authoritative, not too permissive, but empathic, motivating, stimulating and enthusiastic (Altavilla et al, 2018; D'Elia et al., 2018). The football school should be identified as an educational site where a group of experts follow the growth of adolescents, help them to develop confidence in their abilities and contain aggressiveness. The research hypothesis, (season 2017-2018) has showed that methodological choices are important to reach specific objective and improve the percentage of fundamental passages and shots on goal of the young players. Tests, administered after initial recognition of the assessment of the attitudes of the boys and the definition of the technical characteristics of the roles, allowed to draw up the program for additional training sessions.

Final results showed an average increase in shots on goal and passages percentages of about 5/7% after the team had been divided into group of control A and research group B, consisting of athletes with lower initial percentages.

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Conflict of Interest

The authors declare that there is no conflict of interest.

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