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Effects of the Practice of Football in Medium Congolese College on the Development of Speed Quality

Itoua Okemba Jean[1,2*], Alongo Yvon Ghislain Rock[3], Mabassa David Sylvain[1], Massamba Alphonse[1,4]

[1]Laboratoire de Didactique des Activités Physiques et Sportives, Institut Supérieur de l'Education Physique et Sportive (ISEPS), Université Marien Ngouabi, Brazzaville, Congo
[2]Chaire UNESCO en Sciences de l'Education pour l'Afrique Centrale, Ecole Normale Supérieure (ENS), Université Marien Ngouabi, Brazzaville, Congo
[3]Laboratoire de Physiologie de l'Effort et de Biomécanique, Institut Supérieur de l'Education Physique et Sportive (ISEPS), Université Marien Ngouabi, Brazzaville, Congo
[4]Laboratoire Pluridisciplinaire "Société, Santé, Sport, Développement" (L3SD), Université Marien Ngouabi, Brazzaville, Congo
Email: *itoua_okemba@yahoo.fr

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Abstract

The aim of this study is to assess the impact of a football cycle in Physical Education on improving the quality of speed in young college Congolese. This longitudinal and analytical study was carried on 20 subjects aged 14 to 17 years (mean age: 14.1 ± 0.3 years). They moved in the general secondary schools. All subjects underwent a program of 12 lessons 6 themes for each. Each 45-minute theme was given a specific objective. Before and after the duration of cycle one month and two weeks, two assessments were allowed to determine the running time, the speed and the force of the lower limbs (maximum anaerobic power, PAmax. For this, two races tests were used: linear running and hook over a distance of 20 m. Data obtained shown the time taken during the linear travel by subjects after the program was significantly shorter than those recorded during the hook race: 3.57 ± 0.12 s *versus* 5.49 ± 0.21 s. Thus, the average speed of topics during the linear running test was higher than that recorded in the hook running (5.60 ± 0.07 m/s against 3.04 ± 0.08 m/s). In contrast, for the absolute PAmax the finding was equal to 1748.8 ± 36.4 watts for hook running ($p < 0.01$) against 1345.5 ± 43.7 watts for linear running. It was the same for the PAmax on the weight. On completion of the program, with respect to the hook running event race times were significantly diminished among midfielders: −13.6%. In contrast, the values of speed and PAmax were distinguished by superior performance, respectively: 14.5%, 23.3% and 15%, 3%. In conclusion, our study demonstrated the effectiveness of a good football cycle to maximize sprint performance. In

short, an appropriate educational content is an effective strategy for improving the quality performance rate among college students in the football.

Keywords

Football, Cycle of Physical Education, Speed, College, Congo

1. Introduction

The level of enseignement/apprentissage of the EPS in the Congolese schoolboys can be compared to a sedentary life style of the teenagers. Indeed, it is characterized by a weekly time of practice of the Physical Sporting and Artistic Activities (APSA) lower or equal to two (2) hours. It is thus cycle of football. However this fact is recognized like playing a role determining in the deterioration of the quality of life (Babyak et al., 2000). However, the EPS must allow the improvement of the quality of life in its psychological, physical and social dimensions in the provided education for populations (Bandura, 2005).

Football is an intermittent sport with mixed intensity, requiring fast and/or explosive movements repeated (Gorostiaga et al., 2006; Gravel & Blessing, 2000; Hoff & Helgerud, 2003; Khanfir et al., 2013). During a match of 90 minutes football, the player traverses between 8 and 12 km with a heart rate (FC) near to 90% of the maximum frequency (FC max) (Bangsbo et al., 1994); Moreover, it carries out on average a hundred sprints, 8 heads and 11 tacles (Bangsbo, 1994; Stolen et al., 2005). With regard to the sprints, the pupils carry them out on a distance from approximately 2500 with 3000 m (Stolen et al., 2005). The decisive actions are then explosive movements on a bottom force-speed. In addition, to unbalance an unfavourable defense or a defender in particular, the offensive attackers and mediums mainly carry out sprints followed by offensive techniques (dribble, pretence), contrary to the techniques carried out most of the time by the defensive defenders and mediums (tacle, against, interception of master key) (Bizid & Paillard, 2006). Consequently, to be powerful in the schoolboys evolving/moving in attack, it is of primary importance of entrainer regularly the physical quality "speed". However, according to Cazorla et al. (2003) the drive of this quality induced of the adaptive neuromuscular mechanisms according to whether the sprint is carried out in straight line or with change of direction.

In Congo (Brazzaville), the practice of football within the school framework is carried out mainly within the provided education for infanto-youthful population. It is mainly about that evolving/moving in the colleges, in accordance with the official instructions. This practice leads to the formation of the elite of tomorrow. This is why the installation of a cycle football to precise contents must take into account the physical preparation of speed quality among other paramount qualities. However, its duration can vary between the pupils according to the occupied poster during the play. Nevertheless, within all the school structures one of the questions is to know, among neces-

sary physical qualities at one learning, which are the best contents to develop "SPEED", in particular at the offensive attackers and mediums?

In Europe, the importance of physical quality "SPEED" explains the many studies which were interested on the impact of the physical preparation on quality "SPEED" (Bangsbo, 1994; Bangsbo, 1998; Gaarcia-Pallares & Izquierdo, 2011; Paavolaïnen et al., 1999). However, in Congo, no work was carried out on this subject in school context. Perhaps, this lack of data explains the performances in tooth of saw of the schoolboys at the time of the plays of the National office of the School and University Sport (ONSSU). In addition, speed quality is often requested at the attackers and the mediums of ground, through sprints of pace moderated with rapid. One can then emit the following principal interrogation: can the implementation of scientific approaches of the suitable contents of teaching improve physical quality "SPEED" in the schoolboys? From this principal question, three secondary questions rise which can be stipulated as follows: 1) Which is the type of work from speed to be set up for the schoolboys at the time of the football cycle in EPS? 2) Which is the impact of the physical preparation on speed in these young people? 3) How to evaluate it in the schoolboys?

By what precedes, our hypothesis can thus be formulated: A specific physical preparation founded on the races of sprint in straight line and with change of direction induces a notable improvement of physical quality "SPEED".

The aim of this study is thus to check this assumption with a view to to give some indications for the improvement of the contents of lesson y related. The Specific objectives of work were: 1) to evaluate the time of race, speed and the maximum alactic anaerobic power developed at the time of two types of tests of race speed (linear *versus* hook) before and after the cycle of football, focused on the development of speed quality; 2) to appreciate the test of race more adapted to improve this quality; 3) to identify the best results obtained according to the station occupied by the studied subjects.

2. Material and Methods

2.1. Type of Study and Tallies Space-Time

The study, of longitudinal type, was conducted from 05 January to the 21 February 2016 with the CEG Agostino NETO in Brazzaville, Congo. This college was selected in regards of the quality of the sporting installations (in particular that of football), the presence of the teachers of EPS holders of a diploma for the occupation of trainers in football and their seniority (8 years), the prize list of the team of the establishment to the plays of the Technical staff ONSSU.

2.2. Sampling

The subjects which were the subject of this study were old pupils from 14 to 17 years (mean age: 14.1 ± 0.3 years). Members of the school team, they took part in the plays of the ONSSU. The population targets were made up of 43 pupils footballers of the team of the establishment. As inclusion criteria, were male sex, absence of health problems after medical examination preliminary including/understanding of measurements an-

thropometric (size, height, weight, skin folds, percentage of grass, thin mass), hemodynamic (heart rate, blood pressure), respiratory (respiratory frequency, vital capacity, expiratory volume maximum second, expiratory flow of point, inspiratory capacity) and biochemical (glycemia, thick drop). The various examinations were carried out in the Centre Médico-Sportif of Brazzaville, complexe Alphonse MASSAMBA DÉBAT. So, a total of 20 pupils' footballers were recruited. All these subjects did not present a pathological state contra-indicating the practice of the sport at the level of the competition. The irregularity with the courses constituted the other criterion of exclusion. Being the station occupied by our subjects, the questionnaire emphasized the following distribution: two (02) guards; eight (08) defenders; four (04) mediums of ground; six (06) attackers. The number of years of practice of football within the establishment varied from 1 to 5 years (average: 3.9 ± 0.5 years). Table 1 indicates anthropometric data of the subjects.

2.3. Questionnaire for Pupils

Age:
Gender:
Height:
Body weight:
Duration of football practice:

2.4. Experimental Procedure

The specific physical preparation aimed at the development of: Rate of travel, Reaction speed, Speed of execution and, Speed of gestural frequency.

On the whole, 12 lessons comprising each one 6 topics were organized. Each topic, of duration 45 minutes, had a given specific aim. The diagram, the instructions and the material used were specific to each lesson. However, the heating rested in all the lessons on two (2) exercises. Two tests of 20 m sprint standing start (Figure 1) one in linear race (20 m linear) the other in hook race (20 m hook), tested the speed of the players before and after the physical program of preparation. They were elaborate according to protocol describes by Cazorla et al. (2004).

In both cases, the test proceeded on a track arranged within the establishment. Two teachers of EPS (trainers of football) were placed on departure and arrival for the linear test, six (6) others (E1, E2 … E6) for the test in hook. The teachers E2, E3, E4, E5 and

Table 1. Anthropométric characteristics of subjects.

	Mean ± DS	x_{max}	x_{min}
Height (m)	1.66 ± 0.21	1.80	1.57
Weight (kg)	51.5 ± 0.6	70.0	39.0
BMI (kg/m^2)	18.5 ± 1.2	21.6	14.0
H (cm)	1.04 ± 0.3	1.20	0.96

Abbreviations: DS, Deviation Standard BMI, body mass index; H, height of gravity mass center.

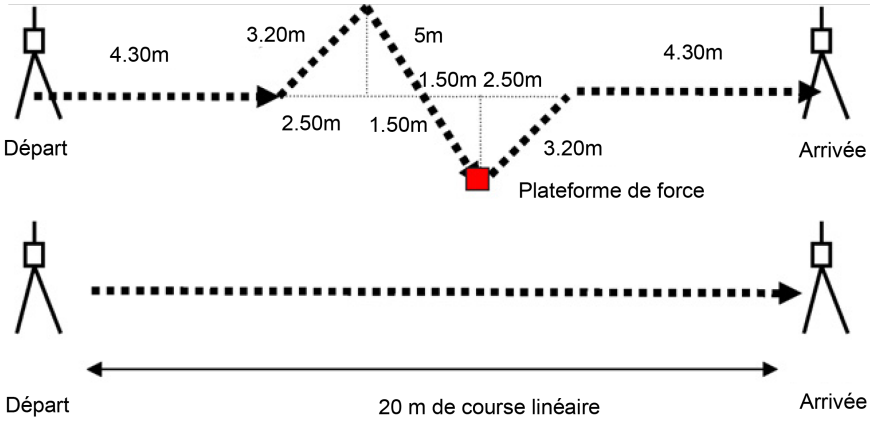

Figure 1. Chart of the two tests of sprint of 20 m (linear and in hook) according to Cazorla et al. (2004).

E6 raised the times put on each course, while starting another stop watch (RAIBEX 600, Brussels, Belgium).

The test in hook took consequently account of the durations of braking, support, pushed foot right committed in the third hook as well as maximum force of the push. The maximum force of the lower limbs was obtained by a complete extension of the lower limbs starting from a starting position knees bent than 90˚. The making of the two tests was separated one day to avoid problems of muscular tiredness.

2.5. Studied Variables

They were summarized at times of race put in each test, at the mean velocity of race, the maximum alactic power anaerobic (PAmax) absolute (in watts) and brought back to the body weight (watts per kilogramme). The absolute maximum alactic power anaerobic (PAmax in watts) was given using the formula of Vandewalle et al. (2001):

$$\text{PAmax}\left(\text{in watts}\right) = 1/2\left(\text{mv}^2 + \text{mgH}\right)$$

where m is the body weight of the subject, the v speed of race. Value of the acceleration of terrestrial gravity, g, on the level of Brazzaville is equal to 97,804 m/s^2; the height of the center of gravity (or mass) of the same subject compared to the ground. The values of these variables were recorded before and after the physical program of preparation for the two tests.

2.6. Statistical Analysis

The data were expressed in the form of average accompanied by the standard deviation. In addition, the differences in time of race, speed and PAmax between the two tests and attacker, mediums of ground were examined using the test t of Student ($n \leq 30$). The statistical threshold of significance of the test was fixed at 5%.

3. Results

The linear comparison of the data obtained during the tests of races and in hook (T, V,

PAmax) before the cycle is the subject of Table 2.

The times put at the time of the linear race by the subjects before the cycle significantly proved ($p < 0.001$) shorter than those noted at the time of the race in hook running: 3.71 ± 0.20 S *versus* 5.81 ± 0.43 s. In addition, the mean velocity of the subjects during the linear test of race was higher than that recorded during the race in hook (5.39 ± 0.17 m/s against 3.44 ± 0.15 m/s). The report was identical for PAmax absolute: 1010.0 ± 31.3 watts into linear against 828.53 ± 30.12 watts in hook race ($p < 0.001$).

The linear comparison of the data obtained during the tests of races and in hook (T, V, PAmax) between attackers and mediums of the ground is indicated in Table 3.

Compared to the linear test of race, no significant difference was observed between attackers and mediums of the ground before the cycle, those whatever the studied variable. On the other hand, on the level of the test of race in hook significant differences were found between the players of two compartments, in favour of the attackers for speed (v = 3.61 ± 0.02 m/s; $p < 0.05$) and of the mediums of ground for the time of race (5.53 ± 0.04 S *versus* 5.83 ± 0.14 s) and PAmax absolute (906.61 ± 12.13 w against 826.75 ± 31.43 w).

The comparison of the data obtained at the linear end of the cycle during the tests of races and in hook (T, V, PAmax) been the subject of Table 4.

Table 2. Comparison of time T of race, V and anaerobic alactic maximal power (PAmax) noted in different tests before program.

	Linear race (n = 20)	Hook race (n = 20)	*p*
T (s)	3.71 ± 0.20	5.81 ± 0.43	<0.001
V (m/s)	5.39 ± 0.17	3.44 ± 0.15	<0.001
PAmax (w)	1010.0 ± 31.3	828.53 ± 30.12	<0.001
PAmax (w/kg)	19.61 ± 5.2	16.08 ± 0.24	NS

Abbreviations: T, time of race; V, speed; PAmax, anaerobic alactic maximal power; NS, no significant difference.

Table 3. Comparison of time T of race V and anaerobic maximal power (PAmax) noted before program for the two tests between midfielders and offensive players.

	offensive players (n = 6)	Midfielders (n = 4)	*p*
Linear race T (s)	3.69 ± 0.07	3.70 ± 0.05	NS
V (m/s)	5.42 ± 0.08	5.40 ± 0.06	NS
PAmax (w)	1371.8 ± 90.3	1274.65 ± 40.13	NS
PAmax (w/kg)	25.25 ± 4.03	24.75 ± 3.12	NS
Hook race T (s)	5.53 ± 0.04	5.83 ± 0.14	<0.01
V (m/s)	3.61 ± 0.02	3.43 ± 0.15	<0.05
PAmax (w)	906.6 ± 12.1	826.7 ± 31.4	<0.01
PAmax (w/kg)	16.68 ± 7.07	16.05 ± 4.10	NS

Abbreviations: T, time of race; V, speed race; PAmax, anaerobic alactic maximal power; NS, no significant difference.

The times put at the time of the linear race by the subjects after the cycle once more proved significantly ($p < 0.001$) shorter than those recorded at the time of the race in hook: 3.57 ± 012 s *versus* 5.49 ± 0.21 S. Therefore, the mean velocity of the subjects during the linear test of race was higher than that noted during the race in hook (5.60 ± 0.07 m/s against 3.04 ± 0.08 m/s). The report was contrary for PAmax absolute: 1748.8 ± 36.4 watts in hook ($p < 0.01$) against 1345.5 ± 43.7 watts into linear. It the same for PAmax per weight, value were brought back. The linear comparison of the data obtained during the tests of races and in hook (T, V, PAmax) between attackers and mediums of the ground at the end of the program is indicated in Table 5.

Table 6 brings back the compared data of the time of race, the speed and PAmax noted before and after the program according to the test of evaluation used.

A significant superiority of the values was noted after the program at the attackers and mediums of ground, whatever the type of test, on the level of times of race, absolute speed and PAmax. The data of the influence of the station occupied by the player (attackers *versus* mediums of ground) were reported in Table 7 and Table 8.

Compared to the attackers, the variations raised before and after the program were −31.3% ($p < 0.01$). For time of race, variation was +31.3% ($p < 0.05$) for speed. If one refers to the power developed by the lower limbs, the higher values were recorded after the program with variations of +18.0% ($p < 0.02$) for PAmax absolute and +10.2% ($p < 0.05$) for PAmax per weight. The values T were significantly lower at the attackers

Table 4. Comparison of time T of race, V and anaerobic alactic maximal power (PAmax) noted in different tests after program.

	Linear race (n = 20)	Hook race (n = 20)	*p*
T (s)	3.57 ± 0.12	5.49 ± 0.21	<0.001
V (m/s)	5.60 ± 0.07	3.64 ± 0.08	<0.001
PAmax (w)	1345.5 ± 43.7	1743.8 ± 36.4	<0.01
PAmax (w/kg)	25.8 ± 6.4	33.5 ± 0.4	<0.05

Abbreviations: T, time of race; V, speed; PAmax, anaerobic alactic maximal power; NS, no significant difference.

Table 5. Comparison of time T of race V and anaerobic maximal power (PAmax) noted after program for the two tests between midfielders and offensive players.

	Attaquants (n = 6)	Milieux terrain (n = 4)	*p*
Linear race T (s)	3.58 ± 0.04	3.72 ± 0.02	<0.05
V (m/s)	5.36 ± 0.01	5.40 ± 0.03	<0.05
PAmax (w)	914.9 ± 12.5	1259.9 ± 2.02	<0.001
Hook race T (s)	5.30 ± 0.07	5.06 ± 0.2	<0.05
V (m/s)	3.77 ± 0.12	3.27 ± 0.15	<0.05
PAmax (w)	925.2 ± 15.1	1288.1 ± 16.4	<0.001
PAmax (w/kg)	18.7 ± 0.5	24.8 ± 0.3	<0.05

Abbreviations: T, time of race; V, speed; PAmax, anaerobic alactic maximal power.

Table 6. Comparison of time T of race V and anaerobic maximal power (PAmax) noted after program for the two tests between midfielders and offensive players combined.

	Before program (n = 10)	After program (n = 10)	*p*
Linear race T (s)	3.69 ± 0.07	3.41 ± 0.13	<0.01
V (m/s)	5.42 ± 0.08	5.86 ± 0.15	<0.01
PAmax (w)	971.8 ± 90.3	1028.53 ± 30.12	<0.02
Hook race T (s)	5.53 ± 0.42	5.81 ± 0.31	<0.01
V (m/s)	3.61 ± 0.2	3.44 ± 0.10	<0.02
PAmax (w)	906.6 ± 12.1	1207.4 ± 30.3	<0.01

Abbreviations: T, time of race; V, speed; PAmax, anaerobic alactic maximal power.

Table 7. Comparison of tome T of race, speed V of running and anaerobic alactic maximal power (PAmax) noted during linear test among midfielders before and after program.

	Before program (n = 6)	After program (n = 6)	*p*
T (s)	3.69 ± 0.07	2.81 ± 0.43	<0.02
V (m/s)	5.42 ± 0.08	7.12 ± 0.15	<0.01
PAmax (w)	871.8 ± 10.5	1028.5 ± 6.1	<0.05
PAmax (w/kg)	25.5 ± 2.0	28.1 ± 0.5	<0.05

Abbreviations: T, time of race; V, speed; PAmax, anaerobic alactic maximal power.

Table 8. Comparison of tome T of race, speed V of running and anaerobic alactic maximal power (PAmax) noted during hook test among midfielders before and after program.

	Before program (n = 6)	After program (n = 6)	*p*
T (s)	3.71 ± 0.20	2.81 ± 0.43	<0.05
V (m/s)	5.39 ± 0.17	7.44 ± 0.15	<0.02
PAmax (w)	1010.0 ± 31.3	1128.53 ± 30.12	<0.05
PAmax (w/kg)	19.3 ± 0.8	22.1 ± 1.5	<0.02

Abbreviations: T, time of race; V, speed; PAmax, anaerobic alactic maximal power.

after the program: −32.0% for T. For the other parameters of interest (V, PAmax), the variations perceived before and after the program were respectively +36.1% ($p < 0.02$); +11.6% ($p < 0.05$) and +18.4% ($p < 0.02$).

4. Discussion

The results of this study show that at the wire of our cycle of football specific to the development of speed quality, the two tests of ground do not have the same sensitivity to the awaited variations. Even if progress were significant as well in the linear test of race as this race in hook, the times put during the first test are shorter than those noted during the second test (Table 4). By corollary, associated speeds prove higher. On the other hand, the force developed by the lower limbs, by the means of the values of PA-

max (absolute and paid to the weight), is higher at the time of the implementation of the test of race in hook. As the whole of the pupils did not present a difference significance at the level of the stoutness (**Table 1**), we can estimate that speeds and the PAmax high are of not to be doubted due contents of the cycle associated with the physical preparation.

Our structuring of the cycle, inspired by Behm et al. (2008), comprised phases of training, improvement and repetition adapted of a whole of exercises of toning up of the lower limbs; what allowed a considerable saving of time for their later physical drive. The post-puberty period, 15 - 17 years, is one optimal period for this work presents. The development of the contents of the lessons of the cycle, in conformity with the literature, respected the principles: an unlimited number of the appropriate exercises at the speed of the body schoolboy, his level of conditioning and with its lived of the techniques of football (Malina, 2006).

The young schoolboys who practiced football themselves at the speed must choose exercises which correspond to their capacities. This is why it is reasonable to start with simple exercises and to progress gradually worms of the more complex exercises. Our cycle obeyed this principle. Moreover, it is known that the intensity and the volume of the repetitions at the time of the trainings have a direct effect on the adaptations and depend on other factors like the order of the exercises, the speed of the repetitions and the duration of the period of rest (Hoff & Helgerud, 2003).

In the current publications, one in general reconnait that the pupil of this age bracket in EPS must adapt to the exercises speed with an intensity varying of moderate with intense, 2 or 3 times per week while jumping the days, while carrying out of one to four series from 6 to 20 repetitions from 6 to 12 exercises and by in general carrying out movements of a complete amplitude.

In addition, we noted that the progress noted in fine of cycle in the tests of race in hook was inferieurs that those established during test in linear race: variations of −53.7% for put times and −82.4% for speeds (**Table 4**). This report is related to the fact that the first test implies only one race of dash whereas the second is characterized by changes of direction. This execution is rather close to the situation of play to football at the mediums of ground compared to the attackers. In this connection, it is recognized that a protocol must be reserved to the sportsmen accustomed to the type of exercise (Bongbele et al., 1999; Vandewalle & Friemel, 1989).

However, in the test in hook, a high level of performance in PAmax (1743.8 ± 36.4 w *versus* 1345.5 ± 43.3 w) testifies to a report/ratio fast fibres/slow fibres all the more significant. These results were confirmed by Cazorla et al. (2004). It is the case of our study. Indeed, the test in hook brings into play the energy accumulated in the elastic elements in the eccentric phases which are used at once in the concentric phases. Since elasticity is limited in the linear test of race, it is the myotatic speed of release of the reflexe which is significant in the linear test of cause. Moreover, the importance of myotatic elasticity and the reflex is shown effective in footballers juniors by various nationalities (Stolen et al., 2005).

The muscles are bases of a solid athletic construction in any footballer who in a need in any action for play. However, data of Chlif et al. (2010) report/ratio a performance definitely better in sprint upright (linear race) of 3.03 ± 0.10 seconds for a distance from 20 m compared to those recorded at our subjects. These differences can be explained by the more significant duration of the physical period of preparation (2 months and the exercises used in the study of Chlif et al.). As for the data of **Table 3** and **Table 5**, they pay more significant at the mediums of ground in comparison with the attackers in the tests in hook, particularly for PAmax: +23.3% *versus* +11.6%. These observations reveal the importance of the individualization of the physical preparation in football, moreover unanimously recognized today by the trainers (DiSalvo & Pigozzi, 1998; Muyïka, 2007). The high level performance, increasingly more refined, cannot be conceived without it. It acts, in other words, of a drive differentiated the personal capacities and needs of the players for the improvement for the assets and the continuation for specific objectives for drive.

Individualization takes all its value at the time of specific drives by station. The improvement of the performance or level of the force developed by the lower limbs at the mediums of ground can be explained by the role of distributor of the balloon which falls to them. To distribute it, it should initially be received and that implies much to run to intercept it or tear off it with the adversary. It follows without any doubt a great expenditure of energy. It was brought back on this subject that the forces developed by the lower limbs are more marked at these stations or spends energy is high (Bongbele et al., 1999).

Lastly, an offensive medium, according to the system of play, must from time to time go up until in attack. The best progress noted on the level of the time of race and speed found at the attackers (**Table 2** and **Table 4**) can then be allotted partly to many long displacements of the libéro.

5. Conclusion

Our study, as majority of those which related to the impact of a cycle of football whose contents are based on the improvement of speed quality, showed: 1) effectiveness of good contents of the physical preparation to maximize the performances in sprint; 2) the influence of the type of test of evaluation on noted progress; 3) improvement speed at the pupils in relation to a physical preparation individualized by station. Being given work technico-tactic in the schoolboys to football, a specific physical preparation constitutes an effective strategy to improve the performance of speed quality, without problem of interference between the development of qualities of force and endurance.

References

Babyak, M. et al. (2000). Exercise Treatment for Major Depression: Maintenance of Therapeutic At 10 Months. *Psychosomatic Medicine, 62,* 633-638. http://dx.doi.org/10.1097/00006842-200009000-00006

Bandura, A. (2005). The Primacy of Coil-Regulation in Health Promotion. *Applied Psychology*

International Year Review, 54, 245-254. http://dx.doi.org/10.1111/j.1464-0597.2005.00208.x

Bangsbo, J. (1998). Science and Football. *Journal of Sports Sciences, 17,* 745-746.

Bangsbo, J. (1994). Energy Demands in Competitive Soccer. *Journal of Sports Sciences, 12,* S5-S12.

Bangsbo, J., Norregaard, L., & Thorso, F. (1994). Activity Profile of Competitive Soccer. *Canadian Journal of Sport Sciences, 20,* 110-116.

Behm, D. G., Fagenbaum, A. D., Falk, B., & Klentrou, P. (2008). Standpoint of the Canadian Company of Physiology of the Exercise: Entrainment at the Speed at the Children and the Teenagers. *Applied Physiology, Nutrition, and Metabolism, 33,* 1-2.

Bizid, R., & Paillard, T. (2006). The Postural Activities Footballers of National Level Differ between the Attackers and the Defenders? *Science and Sports, 21,* 23-25. http://dx.doi.org/10.1016/j.scispo.2005.12.003

Bongbele, J., Massamba, A., Mboussa, A. Kiori, R. et al. (1999). Influence Test on the Alactic Anaerobic Power in the Players of Elitesmélano-African. *STAPS, 19,* 49-53.

Cazorla, P., & Buchheit, M. (2004). Which Tests of Ground for the Follow of the Performance in Sprint to Football by Station.

Chlif, M., Jullien, H., Temfemo, A., Mezouk, A., Manouvrier, Ch., & Choquet, D. (2010). Physical and Physiological Follow-Up Footballers Semi-Professionals: Towards a Drive Individualized by Station. *Science and Sports, 25,* 132-138. http://dx.doi.org/10.1016/j.scispo.2009.11.005

DiSalvo, V., & Pigozzi, F (1998). Physical Training of Football Players, Based on Their Positional Rules in the Team. Effects on Performance-Related Factors. *The Journal of Sports Medicine and Physical Fitness, 38,* 294-297.

Gorostiaga, E. M., Granados, C., Idanez, J. et al. (2006). Effects of Physical Training on Speed Changes in Young Football Players. *Medicine & Science in Sports & Exercise, 38,* 357-366. http://dx.doi.org/10.1249/01.mss.0000184586.74398.03

Gaarcia-Pallares, J., & Izquierdo, M. (2011). Strategies to Optimize Concurrent Training of Velocity Running and Anaerobic Fitness for Soccer. *Sports Medicine, 14,* 329-343. http://dx.doi.org/10.2165/11539690-000000000-00000

Gravel, E., & Blessing, S. M. (2000). Validity of Simple Field Tests as Indicators of Match-Related Physical Performance in Top-Level Professional Soccer Players. *International Journal of Sports Medicine, 21,* 228-235.

Hoff, J., & Helgerud, J. (2003). Maximum a Peed Training Enhance Running Economy and Aerobic Endurance Performance. In J. Hoff (Ed.), *Football. New Developments in Physical training Research* (pp. 37-53). Trondheim: Norwegian University of science and Technology.

Khanfir, B., Caron, O., Gelat, T., Rougier, P., & Blanchi, J. P. (2013). A Comparative Analysis of the Center Of gravity and Center of Pressure Trajectory Path Lengths in Standing Posture: An Estimation of Active Stiffness. *Journal of Applied Biomechanics, 29,* 234-247.

Malina, R. M. (2006) Velocity Training in Youth-Growth, Maturation and Safety: An Evidence-Based Review. *Clinical Journal of Sport Medicine, 16,* 478-487. http://dx.doi.org/10.1097/01.jsm.0000248843.31874.be

Muyïka, I. (2007). Individualized Anaerobic Power Training in an Underperforming Youth Elite Association Football Player. *International Journal of Sports Physiology and Performance, 2,* 332-335. http://dx.doi.org/10.1123/ijspp.2.3.332

Paavolaïnen, L., Haïkkinen, K., & Hämäläinen, I. (1999). Explosive-Strength Training Improves 5-km Running Time by Improving Running Economy and Muscle Power. *Journal of Applied Physiology, 86,* 1527-1533.

Stolen, T. et al. (2005). Physiology of Soccer: An Update. *Sports Medicine, 35,* 501-536. http://dx.doi.org/10.2165/00007256-200535060-00004

Vandewalle, A., & Friemel, P. (1989). Intermittent Fitnesstest: Accuracy For Individualising Interval Training of Young Intermittent Football Players. *The Journal of Strength & Conditioning Research, 3,* 345-349.