MODEL OF USING REAL-TIME DATA IN PROMOTING FOOTBALL PLAYERS, REGARDING THEIR CONDITIONING ATTRIBUTES

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Abstract. *The purpose of the paper is to establish a relationship between the real time data received during football matches and the promotion of a player to a higher level team, in the same club (academy). The study was carried on the 1st and 2nd team of a First Division Romanian football club, during the 2021/2022 season. The results were registered during official football games, 1st League for 1st team and 3rd League for 2nd team. There were counted 2 games for 1st team and 1 game for 2nd team. Our aim was to be able to establish a pattern regarding the physical conditioning for choosing players to promote to 1st team. Data received during games was selected and compared between players and teams. Even if data amount is not high, we consider that, in practical situations, decisions have to be taken regarding the data provided, and sometimes there could be no time to receive more data. Of course, for a more accurate study and better pattern establish, further research and data analyse is required. The results of our study shown that the promoted players from the 2nd team, regarding their physical conditioning attributes, well integrated in the 1st team and recorded further games in the team. Moreover, by time, they didn't played back in the 2nd team, appearing only for the 1st team.*

Keywords*: real time data, football conditioning, promoting, senior level;*

Introduction

Promoting to senior level could be challenging for both football clubs and players. Swainston et al (2020) carried out a study involving players promoted to first team of a English Football League club. They noticed that promoting to a senior team means, beside physical and mental attributes, accommodation to different styles of play and pressure to win. Also he remarks that this transition is difficult, correlated with small chances to play in a game and different loan strategies, could reveal different features of each player that will be used in future senior career. In football academies, the decision of promoting a player to a higher level is taken regarding more aspects. As Barnes et al (2014) underline, the football performance is a matter of prolonged aerobic activity with intermittent bouts of unpredictable actions done at high intensity (accelerations, decelerations, sprints, direction changes, tackles and jumps). Regarding all these, we consider that one of these aspects, that has to be regarded when promoting a player, is the conditioning level of the player.

To evaluate if a player matches the physical atributes of a higher level team, we consider that an objective evaluation could be done during the games and by comparing the results of the lower team players with the higher team players.

As Ade et al (2016) mentioned, contemporary motion-tracking technologies are now used to quantify the mechanical impacts and corresponding physiological responses of high-intensity actions and thus aid to quantify and monitor player's performance and fatigue. There are many devices that return real time data during games, each one having its own software to work with. The one that we used in the football club we analysed, during the 2021-2022, season was TEAM PRO produced by Polar Company. The battery used by the Polar Pro Sensor is 390 mAh Li-poly rechargeable battery, sensor's materials are ABS, ABS + 30% GF, PC, stainless steel, strap materials are polyamide, polyurethane, elastane, polyester and the operating temperature of the devices ranges between -10 to

+ 45 C. As described on the Polar website, the product is designed for professional team sport. It has two main components: one GPS wearable device, that is carried by player during all the game, attached to a band around his chest, and one real time software (could be used on any electronic device) that records varied parameters. The GPS has high precision, based on derived movement data, always connected to the heart rate monitoring system, and also having inertial sensor metrics. All these facts turn the system into a trustable, high precision, device.

There are 39 different parameters recorded, including: *session type, duration, HR min/ max/ average, time in HR zone 1/ 2/ 3/ 4/ 5, total distance covered, distance/ min, max speed, average speed, distance in each speed zone, training load score, recovery time, calories spent, accelerations and decelerations divided in 5 groups. The software of Polar Team PRO allows the user to adjust the heart rate zone. In our study we used the standard heart zones, as proposed by the producer of the software. This resulted in the following heart rate zones: Zone 5 171-190 bpm, Zone 4 152-171 bpm, Zone 3 133-152 bpm, Zone 2 114-133 bpm, Zone 1 104-114 bpm. The same point of view was applied regarding the speed zones. During the study carried out, we kept the speed zones designed by producer, resulting the speed zone 5 over 19km/h.*

In the matter of promoting a younger player to a higher group we consider relevant 4 of them: *maximum speed, distance in speed zone 5(>19.00 km/h), number of decelerations with high intensity (-50 - -3 m/s), number of accelerations with high intensity (3-50 m/s)*.

Rhodes et al (2021) consider that high-intensity accelerations and decelerations are important match actions that allow players to adapt to tactical demands. Their study was carried on an English League Two team during a season, being, under the author's known, the first study to investigate the influence of high-intensity accelerations and decelerations on team performance over a competitive season. Previous studies were focusing only on the frequency, but not on the influences of the accelerations and decelerations to the performance outcome. He carried out the study on 26 elite field football players, managing their results regarding accelerations and decelerations in 45 games. Moreover, Rhodes et al (2021) conclude that significantly more high-intensity accelerations and decelerations were displayed when games were won, supporting the proposed hypothesis. Importantly, significantly more accelerations and decelerations were exhibited by the team when games were won compared to drawn or lost. The high intensity accelerations and decelerations are correlated with a high rate of force development (mostly the eccentric actions of the muscles) in relationship with rapid and high coordinated neural activations (Cohen et al, 2015). So, we consider that number of decelerations with high intensity (-50 - -3 m/s) and number of accelerations with high intensity (3-50 m/s) will be a good reference for the conditioning of a player related to promotion to a senior team.

Further more, in his study, Rhodes et al (2021) note that high-intensity decelerations were performed much more frequently than high-intensity accelerations in all matches regardless of the match performance outcome (i.e., win, draw, lost). These report was also supported by previous studies of Harper et al (2019), Akenhead et al (2013) and de Hoyo et al (2016). In this matter we consider also to regard the report between accelerations and decelerations at high intensity done by a player.

Gissis (2013) considers that between players of unequal levels of competition, there are significant differences regarding their speed, as higher the level, as grater the speed. As well, Cintia et al (2022) note that, over time, football players became faster. Or, in order to further improve the quality of a team, we will need to focus about players that could reach a higher top speed. In a study performed by Andrzejewski et al (2015), on 147 football players participating in the 2008/2009 and 2010/2011

Europa League, in 10 games, was 31.05 km/h.

Even if, under our known, were no studies carried out exactly on the limits of Team Polar PRO value for *"Distance covered in zone 5, >19km/h"* parameter, regarding football players performance Gaetano et al (2017) consider that total covered distance is an insufficient parameter to comprehend the physical requirements, and a more relevant indicator is the distance covered at high speeds. So, in our regard, we will consider relevant the distanced covered in zone 5, as described by Team Polar Pro software, >19km/h.

Problem statement

The tasks of this scientific approach were to highlight:

- the identification of real time physical parameters that are relevant for physical conditioning in matter of progress of a player to higher level team
- the comparison between parameters of different level players
- choosing the players that have the best physical attributes to fit in the higher level team

Research questions

- Which parameters are relevant for the physical conditioning of a football player, in matter of promoting to a higher level team?
- How physical attributes could recommend a player for promotion to a higher level team?

Purpose of the study

The research aims to find the best ways to choose a player, regarding his physical conditioning attributes, for promotion to a higher level team.

Material and methods

The research subjects were 10 players in the same football club, from Romania. The club had all children and junior age category groups for boys and some age categories for junior girls. Also the club has two senior male teams, playing in Romanian 1st and 3rd Divisions. Players in our study were part of the club's 1st team (playing in 1st Division – 5 players, average age 30.8 years) and 2nd team (playing in 3rd Division – 5 players, average age 19.0 years).

From all monitored players, under the necessity to find two players that could be promoted to 1st team for a defending position, we selected the players that played on the position of Central Back, Left Back or Right Back. For analyse we had two games of the 1st team and one game of the 2nd team. In both teams, from all players that activated on a defending position, there were five players used in the defence and not substituted during game.

The Team Polar Pro system that we used works at a frequency of 10Hz, always connected to GPS system, sending data in real time and saving it for further analyse. It returns 39 different parameters, including: *session type, duration, HR min/ max/ average, time in HR zone 1/ 2/ 3/ 4/ 5, total distance covered, distance/ min, max speed, average speed, distance in each speed zone, training load score, recovery time, calories spent, accelerations and decelerations divided in 5 groups.*

Regarding the scientific reviews and before mentioned, we considered relevant for the matter four of these parameters: *maximum speed, distance in speed zone 5(>19.00 km/h), number of decelerations with high intensity (-50 - -3 m/s), number of accelerations with high intensity (3-50 m/s).*

We grouped the results in tables, compared and analysed data returned.

Results

Table 1 – Raw data, sorted by name of players from both teams. 1st team (I), 2nd team (II)

Name	Max speed	Dist in speed zone 5	Decelerations (- 50- - 3m/s)	Acceleration (50 – 3 m/s)
A.F. (I)	29	507	18	16
A.M. (II)	29.4	280	14	18
A.B. (I)	33.5	597	23	18
A.B. (I)	29.4	507	28	22
C.I. (II)	31.2	629	26	26
D.I. (II)	27.9	314	30	14
G.P (I)	29.9	818	30	21
M.H. (I)	31.5	507	28	19
M.O. (II)	29.4	654	31	20
P.R. (I)	29.8	355	22	21
S.U (II)	30.7	697	35	17

As mentioned before, data from 10 players were recorded and part of the analyse. There are five players from each team. We notice that Player A.B. From 1st team is the only one that played both games for 90 minutes, so he is recorded with two different rows of data. Regarding this aspect, for his data we chose to use the average of the games when we compared the results. Another aspect that has to be mentioned, is that no player from first team played in second team or opposite. All players were over 18 years of age and the oldest player was 35 years of age. Players in the second team were all of them U23, youngest being 18 years old. Also their training was carried on separated, no player migrated during training from any team to other. The playing system requested by each coach was the same in both teams, being part of the club's philosophy. This was done also in the purpose to facilitate the transfer from a higher lower level team to a higher one, and also to help the juniors to promote to the senior teams and to integrate better.

Due to the sports activity contract, that players had signed up when turned 16, they got involved to assign to the club and coaches varied rights regarding training data, including physical parameters data. Regarding all these aspects, the ethical criteria were respected, all data being collected during training from players under contract.

Table 2 – Sort of players regarding their top speed (km/h)

Name	Max speed	Dist in speed zone 5	Decelerations (- 50- - 3m/s)	Acceleration (50 – 3 m/s)
M.H.(I)	31.5	507	28	19
A.B.(I)	31.4	552	26	20
C.I. (II)	31.2	629	26	26
S.U(II)	30.7	697	35	17
G.P(I)	29.9	818	30	21
P.R.(I)	29.8	355	22	21
A.M.(II)	29.4	280	14	18
M.O.(II)	29.4	654	31	20
A.F.(I)	29	507	18	16
D.I.(II)	27.9	314	30	14

In table 2, there are presented the top speed performed by each player. In table 1 we notice a top speed of 33.5km/h for player A.B., but, as mentioned before, for this player we will use his average of that when analysing. After excluding A.B.'s top speed of 33.5km/h and considering his average, the maximum top speed recorded in both teams was over 31km/h. The average for both teams was 30.2km/h. Regarding the data received, we notice player **C.I.** Form 2nd team has a top speed (31.2km/h) close to the maximum of the first team, only two players in the first team having a higher speed than him. Even so, about one of them is questionable because is player A.B. That reached, actually, only in one game a speed higher than C.I., 33.5km/h, in second game performing only 29.4 km/h. As well, it is remarkable that he was the 3rd overall. Another remarkable aspect, is about player **S.U.,** that has a speed over the average of the teams, with a top speed of 30.7 km/h. Even regarding the dispose of the data collected, players C.I. and S.U. are integrated between the results of the first team. Including them in the first team will be an increase in the top speed of the defenders, all of them four being over the present average of the team. On the other hand, we could notice a lack of performance regarding the achieved top speed in player D.I. from 2nd team, he is well situated under both the top speed reached by players in his team and under the average of both teams, as well. Analysing deeper the data, we notice that even player A.B., that was the only one playing full both games, has a lack of consistency. The speed recorded in second game, 29.4km/h is situated under the average of second team, 29.6km/h. So, we could notice that he is a top speed player, but not in all the games, but in some of them. Under the average of each of the team is situated also player A.F. From the first team. Actually, he is second weakest player from all of them, regarding the top speed.

Table 3 - *Sort of players regarding the distance covered in speed zone 5 (>19km/h)*

Name	Max speed	Dist in speed zone 5	Decelerations (- 50- - 3m/s)	Acceleration (50 – 3 m/s)
G.P(I)	29.9	818	30	21
S.U (II)	30.7	697	35	17
M.O.(II)	29.4	654	31	20
C.I.(II)	31.2	629	26	26
A.B.(I)	31.4	552	26	20
A.F.(I)	29	507	18	16
M.H.(I)	31.5	507	28	19
P.R. (I)	29.8	355	22	21
D.I.(II)	27.9	314	30	14
A.M. (II)	29.4	280	14	18

As proposed by the owner of the software, and mentioned before, in this study, we kept the speed zone 5 over the limit of 19 km/h. From the first sight we notice a wide range of the results. The distances covered are situated between 818m for the best player and 280m for the weakest. The average of both teams is 529.3m. This places 5 players over the average and 5 under. Remarkable for players in second team is that 3 of 5 are over the average. On the other hand, for the second team, we notice that from all the results, the last two performances are coming from players in second team. Players **S.U, M.O.,** and **C.I**. Are in top 4 from both teams regarding the distance covered in the high speed. As well, they are over the average of 529.3m of the teams. The other two players of the 2nd team are well under the average distance, being situated on the last two places. We have to notice that

the average of the first team is 543.8 m and for second team is 514.8m, so, not a so high difference between the two teams. In the mean time we remark close values for three of the second team players (600+m), the team being downed by player D.I. with 314m covered. In first team we notice the peak of player GP with 818m, but all the other players have lower values than first three players of second team. Similar to the table of maximum achieved speed, the players in the second team are integrated between the ones in the first team. We could notice, as well, a gap of +150m between the 7th player, A.F. from first team and P.R., ranked 8, also from first team. As well in this table, the name of players S.U. and C.I. Could be noticed regarding the physical attributes. If in the maximum speed evaluation, C.I. was first, at distance run in speed zone five, S.U. is first. In both situations, the difference between the players is not so high. The average of distance covered is 547.8m for the first group and 514.8m for second.

Table 4 - *Sort of players regarding the number of decelerations at high intensity (-50 - -3m/s)*

Name	Max speed	Dist in speed zone 5	Decelerations (- 50- - 3m/s)	Acceleration (50 – 3 m/s)
S.U(II)	30.7	697	35	17
M.O.(II)	29.4	654	31	20
D.I. (II)	27.9	314	30	14
G.P(I)	29.9	818	30	21
M.H. (I)	31.5	507	28	19
A.B. (I)	31.4	552	26	20
C.I.(II)	31.2	629	26	26
P.R. (I)	29.8	355	22	21
A.F.(I)	29	507	18	16
A.M.(II)	29.4	280	14	18

As mentioned before, when we will consider the physical evaluation in matter of decelerations, we will take into account their number, not the distance of. At present criteria, is the first one where players from second team are higher ranked that the players from first team, two of the players from 2nd team are first two in the whole ranking. Even regarding the third place in the table is about a player in the second team, that is equal to the best in the first team (G.P. From first team and D.I. From second team, with 30 decelerations each). Regarding the averages of the performance, player **S.U.** that has clearly the highest number, is well situated over the average of 26. **M.O.** has also a result higher than the best player from the 1st team (31 vs 30) The top three players in the second team are situated, as well, over the average of groups. Player C.I. Is exactly on the average, with 26 negative accelerations. The weakest player, regarding this criteria, is A.M. from the second team. His number of 14 has a low value and is 2.5 times lower that the value reached by first player. Regarding the first team, we notice that the number of decelerations is not so wide ranged (only from 30, the highest value, to 18 the lowest). Even so, regarding the total performance of the two teams, from last four players, three are part of the first team. We could consider this criteria, first one where players from the second team have better results. Here could be mentioned the name of players **D.I.** and **C.I.**, also having higher or equal results than the average of both teams. If we consider to compare only with the average of the first team (24.8), the 2nd team players' results, is even better.

Regarding the names of the players involved in the top of the list, we mention again the name of S.U. that was first regarding the distance covered in speed zone 5 and second in matter of the top speed reached. M.O. is second, as in the perspective of distance covered in zone five. C.I., the player

that reached the highest top speed in second team is ranked 4th, but even so, his result is equivalent with the average of the two teams.

Table 5 - *Sort of players regarding the number of accelerations at high intensity (3 – 50m/s)*

Name	Max speed	Dist in speed zone 5	Decelerations (- 50- - 3m/s)	Acceleration (50 – 3 m/s)
C.I. (II)	31.2	629	26	26
P.R. (I)	29.8	355	22	21
G.P (I)	29.9	818	30	21
A.B. (I)	31.4	552	26	20
M.O. (II)	29.4	654	31	20
M.H. (I)	31.5	507	28	19
A.M.(II)	29.4	280	14	18
S.U (II)	30.7	697	35	17
A.F. (I)	29	507	18	16
D.I. (II)	27.9	314	30	14

Similar to negative accelerations (decelerations), in the analyse of accelerations, we kept in our study the values set up by the producer of the software, from 3 to 50m/s. As in the matter of decelerations, 1st place in the raking is taken by a player from the 2nd team, **C.I.**. Remarkable is, as in the previous table of decelerations, that his value is some points over the top value of the 1st team (26 to 21 accelerations and 35 to 31 decelerations), their values not being next to each other. The average of all study group is 19.2 accelerations, so player **M.O.** has a result higher than the average, 20 vs 19.2. Comparing to number of decelerations, only two players in the second team are over the average number. As mentioned before, these players are C.I and M.O., their names being correlated with the performance in the decelerations matter, where both of them had some good performances, M.O. Having a performance higher than all players from the first team. On the other hand, S.U., the player with the highest value off decelerations, is situated just 8th out of 10 players, with a value under the average. Analysing as well, the report between accelerations and decelerations, all players from 2nd team team, excepting A.M., have at least equal numbers. As quoted before, the number of decelerations should be higher than the number of accelerations. Actually, A.M. Is the player with the lowest decelerations result and his record in the accelerations is under the average of the group. So, there could be an association with the low numbers and the dispose of positive and negative accelerations. Even if D.I. has a low number in accelerations, his decelerations are higher than the average of the group and with a higher value than positive accelerations, so, as recommanded by scientists.

Matching all the table data of the analyse, we notice that names of the same players appear constantly in the top of the lists, with small exceptions, players **C.I, M.O.,** and **S.U**. appearing constantly in the tops of the rankings.

C.I. has the best top speed in his team, and also the highest number of accelerations, he is situated third and over average distance covered in speed zone 5, but he has a lower position, being forth regarding the number of decelerations. In overall counting, player C.I. Never has a position lower than 6, this has been recorded regarding the number of decelerations, even so, he has a result equivalent to the third performance in the first team (26 decelerations for each athlete). Comparing to the first team, his results are always in the top third. Beside the number of decelerations he is third

into the first team regarding the maximum speed. His remarkable performance is about the number of accelerations, where he is placed first, no matter the team that is compared with. His result is clearly higher than all other results recorded during the analyse.

S.U. is another player top ranked in the tables, with very good performances comparing his results with the recorded numbers of the players in the first team. He was placed first and he has the highest distance covered in high speed into all recorded players. Compared only to his group, he has the highest number of decelerations. This result is also remarkable because compared is second in the first team. So, we could affirm about player S.U. that he has, regarding all the results, two criteria out of four, where he is at least second player in the field. Regarding the top speed criteria, he has also very good results, being forth in overall ranking and third compared with the results in the first team. On the other hand, as well he is ranked 2nd regarding the top speed, he has a lower performance regarding accelerations, being place forth into his group. Actually this is his weakest performance, being situated only the 8th by this criteria overall. Even so, he is not the weakest in the first team, player A.F. recording fewer accelerations than him.

The third player that has to be taken in account is player **M.O.** Comparing his results into his team, he has second place regarding three aspects: distance covered in top speed, accelerations and decelerations. The forth criteria compared places him 3rd, with the result regarding the top speed. Including his results beside the first team recordings, we notice that in three criteria he is well integrated. He is placed second regarding the distance covered at high speed and number of accelerations. In the table about recorded decelerations he is ranked third compared to the first team results. The criteria where he has not got such a high performance is the top speed, being placed on seven place over all and having an equivalent performance of 5th in the first team. As in the case of player S.U., even if he is placed 5th regarding one criteria, this is not equal (is higher) that the result of the last player in the first team. As well, comparing his results with the performances of decelerations number, he is placed third, being, as said before, well integrated.

In the matter of choosing players for promotion, comparing their performances with the results recorded by both teams, and integrating them into the results of the first team, our conclusion that the conditioning of players S**.U., M.O. and C.I.** would fit the best for the first team. There is no criteria where they were placed lower than the last performance of the first team, but there are two (out of a total of 15 added criteria) where they were the best, four criteria where only one player in the first team has a result better than them, and other three tasks where two first team players scored better than them.

Because, In the matter of practical aspects, and because there should be promoted only two players to the first team, and player S.U. was still available for the U19 age group, the management of the club had considered, that player S.U. to stay and play for both U19 and second team further more, his change to the 1st team being a too big loss for the U19 team, this team being also involved into a powerful championship in its' age group.

In matter of a deeper data analyse, and for a better view about the players, we chose to extend our statistical research including a t-test (student test). We made two statistical groups of 5 players: first of them including players that played in the first team, and in second group we replaced the players A.F. and P.R. (from 1st team) with players C.I. and M.O. (from 2nd team). We tested the null hypothesis, if the average difference is statistical relevant for the groups.

We had the t-test in 4 situations, for each analysed parameter (Table 6)

Table 6. *Data values tested by t-test*

	First team	Skewness	Kurtosis	New team (with replacements)	Skewness	Kurtosis
Max speed (mean)	31.5 31.4 29.9 29.8 29 (30.32)	0.13	-2.29	31.5 31.4 31.2 29.9 29.4 (30.68)	-0.7	-2.4
Covered distance (mean)	818 552 507 507 355 (547.8)	1.08	2.42	818 654 629 552 507 (632)	0.97	1.09
Decelerations (mean)	30 26 28 22 18 (26.5)	-0.6	-0.95	31 30 28 26 26 (28.2)	0.23	-2.51
Accelerations (mean)	21 21 20 19 16 (19.4)	-1.45	1.93	26 21 20 20 19 (21.2)	1.88	3.77

In the matter of data asymmetry and frequency distribution, regarding the validity of t-test, we calculated the skewness and kurtosis parameters as in the table. In the matter of maximum speed and decelerations in both groups the values provide a right data distribution. Regarding the covered distance in first group the skewness is over +1 value (+1.08) providing a moderated skew data. In the mean time, the data for accelerations in the second group is heavy tailed (Kurtosis 3.77). This values could be a limitation of the study, also being correlated with the small amount of participants.

The size effect calculated using the Cohen's *d* was: 0.35 for maximum speed (providing a small effect size), 0.57 for covered distance (providing a medium size effect), 0.45 regarding the decelerations (close to medium effect size), 0.73 for accelerations (a medium, close to strong effect size).

The tested p-value was 0.1087 for max speed, 0.01851 for distance covered at top speed, 0.03605 in decelerations matter and 0.07616 regarding the accelerations. Analysing these values we could affirm that, separate, in any of the matters the improvement of the average will be statistically relevant in up to 90% of the situations. The highest probability for a statistical relevance of the average is regarding the distance covered at top speed, with + 98%.

So, the final proposal for promotion were players **C.I. and M.O.**

During the training with the first team their conditioning level was fair, and up to now, each of them has at least one game started in the first 11 for the 1st team.

Discussion and Conclusions

Regarding the previous studies, heart rate (HR) monitors are used among coaches as a method for gauging the exercises intensity in athletes (Esco et al, 2012). Compared to the first laboratory heart rate monitors used in sports in the 1960s` (Matthews et al, 1996), more and more advanced features were added to this HR monitors (Esco et al, 2012). Also, Polar HR monitors are used to predict the VO2 max (Lowe et al, 2010).

Although there are no studies to provide which of all Polar Team Pro monitor are the most relevant regarding the football fitness. This decision has to be taken by each coach, in the specific matter of the training or of the purpose.

As well, the conclusions drawn from this study highlight a number of aspects, the most important being:

- The best parameters provided by Team Polar Pro system, in matter of promoting a player to a higher level team, regarding the physical conditioning, are maximum speed, distance covered at high speed (>19km/h), number of decelerations with high intensity (-50 - -3 m/s), number of accelerations with high intensity (3-50 m/s).
- The results of the players that could promote to the higher level team should be compared to the results of the players in the aimed team.
- The promotion of the players will not limit only to conditioning attributes, these should be some recommendation, and the final decision should be taken by all the staff regarding all the aspects.
- A higher quantity of data will provide more accurate results and more conclusions could be underlined further. There is a limitation of this study, revealed also by the skewness and kurtosis parameters, in the matter of small amount of participants.

Comparing to the previous data we found, we weren't able to identify any studies regarding the promotion to a higher level team, including the physical aspects of the players. We consider that our point of view is a new approach, and a matter that has to be taken into account by coaches. Of course there are some limitations of the study, and of the method, because of the small amount of data. Because the structure of a football team, there couldn't be a high number of players to be compared. Even so, as proven before, the statistical data are relevant and a pertinent conclusion could be stated.

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