

Domains in the practice of the football learning: comparative study among football athletes of junior category in Portugal and Brazil

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ABSTRACT

Koslowsky M, Botelho MFC. Domains in the practice of the football learning: comparative study among football athletes of junior category in Portugal and Brazil. *J. Hum. Sport Exerc.* Vol. 5, No. 3, pp. 400-410, 2010. This study aims to characterize the specific domains (SPD) and non-specific domains (NSD) of practice on the procedures of learning training in football, quantifying and identifying the experiences in order to find possible links between the estimates of accumulation of spent hours, relating them to the general aspects of practice. In this study, it was used a model of semi-structured interview. The sample (N=40), was composed of male subjects, athletes from junior category (u-20) from different populations - Portugal (pt=20) and Brazil (br=20), enabling comparative analysis of the results. After collecting the data, we analyzed the possible relationship between the profile of practice and the general aspects of training that each athlete analyzed. Regarding the discussion of the data, we made up comparisons of the results between the two clubs where the interviews were applied. The results are summarized having in mind the following aspects: (a) Portuguese Athletes (about 3000 hrs) have more experience in specific areas than Brazilian athletes (about 2600 hrs) up to 18 years old, (b) Brazilian Athletes (approx. 1600 hrs) have more experience in areas than non-specific athletes Portuguese (about 1000 hrs) up to 18 years old. **Key words:** VARIABILITY OF PRACTICE, DELIBERATE PRACTICE, SPECIFIC DOMAINS, MOTOR BEHAVIOUR, FOOTBALL.



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INTRODUCTION

"The practice is one of the most important variables in the learning process" (Godinho et al., 1999), and the performance improves individual benefits from the various organizations of the practice, particularly with developing the capacity to respond adequately to a later state-test (Magill, 2001). Tani (2005) claims "that the practice involves a conscious effort of organization, implementation, evaluation and modification of motor actions to each performance". Therefore, we can ask ourselves the following question, what kind of practice and nature of the context is involved in these performed practices? Accordingly, the structure of the variability of practice has been the subject of many investigations in the past two decades and has arisen some questions, particularly about the effect of contextual interference and the relationships between specific domains (SPD) and non-specific domains (NSD) of practice in sports learn training.

Based on the principles of motor learning that claims that the variability of stimuli includes the components of the acquisition of motor skills and the understanding the football as a sport where it is specifically required to acquire a solid fundament for a technical learning, questions regarding the most appropriate methods to provide effective training to the footballer arise. The point spread shown as a footballer, is not, however, the technical pure domain, but the application of the technical learning on the match, in their most intimate relations with the tactical modeling components of the game. This ability to use the technique is being studied in an attempt to understand the appropriate models to inspire the athlete to train the best way of learning the technique and not to lose the ability to create. But does this depend on it? Perhaps Valdano (2002) has summarized the explanation in the statement that "the neighborhood is the best school for a footballer." Does it really have logic? Now it appears that most of talented football players were experienced in informal football before or during their context of specific domains of the sport through standardized models in football clubs (Fonseca, 2006). Clubs that were concerned about these aspects of sports provision, provided for the detection and identification of talent for the training of athletes in football, from very early stage, providing models for standardized training of football. But to what extent is it interesting to implement such models, which specify of the practice since very early in children of 6 or 7 years old? Perhaps the 'neighborhood' maybe provides more concrete experiences from the viewpoint of variability of tasks and challenges, as Valdano (ibidem) said. It is important to mention that not always the informal football is a choice for the children, and but often it is the only means of initiation to football, for many of then. Even a non-specific environment of practice, based on the formality of football training, is perhaps one of the best ways to achieve a casual based learning in practice, which builds the foundation of the acquisition of technical skills and then, through the intervention of football clubs, to develop the necessary corrections, improvements and stoning as a contextualized approach in the specificity of sport.

The proposal of this research is not to exposed a model of learning that is more effective than another, because it would be something quite impossible, taking into account the differences in social conception of the game of football in different realities. However, quoting Ramos (2003), there is the importance of understanding the dynamics of self-organization of spontaneous football, taking into account the non-specific domains of practice to an optimized approach to complement the guidelines on the acquisition and improvement of football specific skills. The athlete must, individually, acquire the technology, and spontaneously play the best way to understand the necessity of it, and thus, thanks to the intervention of the right coach, and a formal environment, the providing the improvement of technical skills will be guaranteed.

Furthermore, the research highlights above all, the sustainability of the influences of formal and informal practices of motor activity, of the football training programs, including as well; the understanding of these fundamental concepts of learning is crucial.

MATERIAL AND METHODS

Characterization of the sample

The population of this study were characterized by football practitioners, males, in the junior category. The sample comprised a total of forty individuals (N=40), selected through the intentional sampling technique (Cozby, 2003; Piccoli, 2003), with reference to the following key criteria for inclusion: (a) individuals who participated in modality football, at least 4 years of accumulated experience in practice, regardless of the period of staying at the club today (b) individuals who were regularly invited to official matches, of the principal team of the respective category. This criteria was established to highlight the status of each participant as elite sportman in football (Côté & Soberlak, 2003). Thus twenty individuals per club were intentionally selected in a balanced way, , divided in their respective groups in order to provide a comparison between the peculiarities of the training programs of the clubs belonging to two realities: (a) PT group - the FC PORTO (N=20) and (b) BR group - Grêmio Football Porto Alegre (N=20).

The interview

The study was used as a tool for collecting data, a model of semi-structured interview to record the longitudinal self-retrospective information, based on a interview model used by Côté, Ericsson & Law (2005). As a procedure for the translation of the original model which was in English (American English) to the Portuguese (Portugal) was applied the 'translate back-translate' procedure was applied (Hill & Hill, 2002).

From the second procedure was the adaptation of the original model of the interview, with a reconfiguration for football. Since the model of the original interview is based specifically on the collection of information related to the characteristics of practice in SPD and NSD, and their measurements were estimated and accumulated in hours of practice, there were subtle changes to adapt it for our proposes, for instance the confirmation of the existence of correspondence between the original instrument of appointment (Côté, Ericsson & Law, 2005) and their translation and adaptation to the football.

Procedures

We followed the same procedures in both clubs: firstly contacts with the managers of young football sector of the club were made, and after the institutional approval for it, the development of the data collection plan starts, making contacts for the subjects of the study and for the implementation of the interviews. The interviews in both clubs occurred between March and June 2008. The implementation of the interviews had the estimated average duration of 50 minutes per double; during the interviews, the coaches and the club representatives were not present, so that, in the same way, and trying to avoid any kind of embarrassment in the responses and in the aim of obtaining accurate results, for which obtain accurate results, the implementation of all the questionnaires were developed by the same researcher subject. Then, a record of the characteristics of experienced practice was used for the initial registration of information, being registered manually. The variables, which are found through normal range of exploratory data analysis and used as a reference to the degrees of normality Shapiro Wilks, allowed the application of T test for independent measures. Due to the fact that some variables that had not submitted the required guarantees of normality, the implementation of the non-parametric test Mann-Whitney was used as a statistical measure. As the study developed similar way to the context of sport, we used a degree of error probability

(p -value) ≤ 0.05 , which allowed the test to have significance of the figures relating to statistical techniques used.

RESULTS AND DISCUSSION

Realizing that the accumulation of hours in specific domains presents the differences between the two groups, one of the first weights on the balance of quantitative and qualitative factors in practice is the finding that the increase in learning over the years of practice doesn't necessarily represents the achievement of a gradual learning in a linear and progressive process. Therefore, it should be clear that the period of involvement in practice, as measured by hours accumulated, does not mean learning, but opportunities to learn. As we can see in the [Table 1](#) and [Figure 1](#), in both groups, the results obtained in the quantification of accumulation of hours in football in specific domains, as well as in other studies (Helsen, Stark, & Hodges, 1998; Helsen, Hodges, Van Winckel, & Stark, 2000; Soberlak, 2001; Baker, Côté, & Abernethy, 2003) does not fit with the value suggested by the studies of Ericsson, Kramp, & Tesch-Römer (1993), that show the need of a total of 10,000 hours spent in domain-specific. Thus, realizing that the study of accumulation of hours and keep peculiarities of practice, therefore, enables the achievement of different results from each sport modality. Thus, it is considered in our study, the average estimated in the pt group 3,000 hours and the br group 2,500 close to the accumulation in specific practice, to reach the stage of expertise.

Table 1. Comparisons between the estimates of central tendencies of accumulation hours in specific domains, non-specific domains and general practice (mean, standard deviation, maximum and minimum):

		EAH-SPD	EAH-NSD	E AH-G	%SPD	%NSD
Pt	(M±SD)	2,975.3±697.98	961.15±614.02	3,888.4±756.77	77.41	22.59
	Range	1,884-4,212	120-2104	2,188-5,228		
Br	(M±SD)	2,534.64±700.88	1,604.96±590.28	4,139.6±947.45	61.64	38.36
	Range	882-3877.2	440-2971.2	1,926-5,816		
P		0.049	0.002	0.360		
Total	(M±SD)	2,754.97±725.58	1,259.03±699.29	4,014±855.87	69.53	30.47
	Range	882-4,212	120-2,971.2	1,926-5,816		

Pt=Portugal. Br=Brazil. EAH-SPD=estimates accumulation hours specific domains. EAH-NSD= estimates accumulation hours non-specific domains. E AH-G= estimates accumulation hours general practice. SPD= specific domains. NSD= non-specific domains.

Therefore, the data obtained from accumulations of hours in specific fields, using the averages estimated by Ward et al. (2004) in their study of English football players, show that the results also reached the 3,000 hours accumulated. These results seem to indicate the differences between Brazil and Portugal, in terms of opportunity for the structures of formal football learning. It is understood that Portugal may have a higher level of structuring of practices, and consequently a lower level of informal practices. The results show us, that the Brazilian athletes experience more hours of practice in non-specific domains, than the Portuguese ones. It is important to note that the informal practice is present in both groups, which may be an important factor influencing the construction and the motor repertoire of athletes in training, enriching the future possibilities in response to specific domains of practice. Ward et al. (2004) report through their studies, that average accumulation of hours in non specific domains in the elite football players are close to 1,000 hours accumulated. Accordingly, we find how high the levels of practice in non specific domains are for athletes in

Brazil, where there is the average value of approximately 1,600 hours in these activities, and while the Portuguese athletes presents the average value of 1,000 hours accumulated. In the same design, Baker, Côté, & Abernethy (2003) note the importance of deliberate practice, which also included a parallel complementary activities, especially bound by the aspect of fun activities at the start of practice.

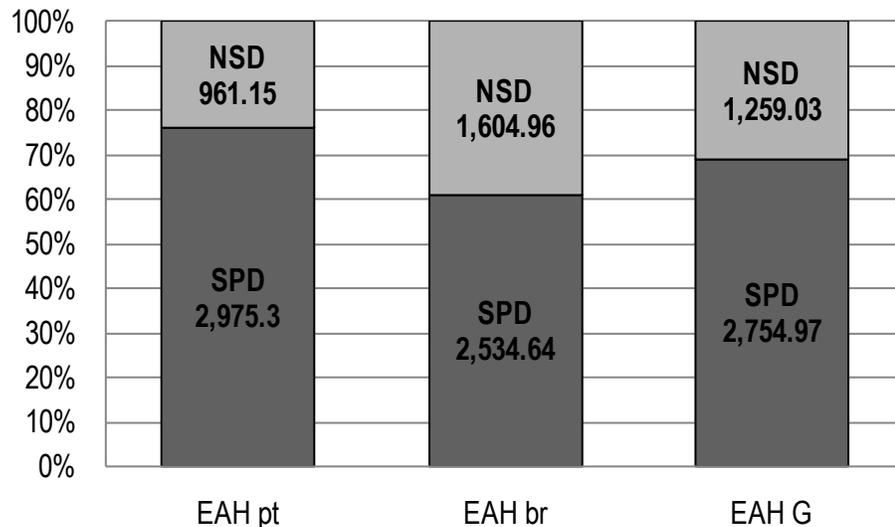


Figure 1. Comparing the mean estimate of accumulated hours (EAH) (Pt=Portugal; Br=Brazil) in specific domains (SPD), non-specific domains (NSD) and general practice per group.

The results obtained in our study, correlate with the findings of, Baker, Côté, & Abernethy (2003) when considering that the greater the amount of hours in non-specific domains, the higher levels of quantity of general practice. Although they perceive significant differences in specific domains of practice within both groups, there is also a significant difference in hours spent in non-specific domains among Brazilian and Portuguese athletes. Therefore we can see a greater number of hours accumulated in general practices in the group br, although they can not be considered as a significant difference to the group pt. Still considering, Baker, Côté, & Abernethy (2003). Here they mention the complementation between the specific and non-specific domains of practice when stress the improvement of expansion of experience in the practice in non-specific domain, before reaching expertise in the sport. According to Tani (2005), the decrease of various stimuli during the process of learning can be interpreted as problematic in the order of perceptual-motor systems, which are expressed in open systems, while they are friendly to the high control gestures engines obtained, but at the same time, may limit the ability to create and adaptability of gestures to unusual situations.

From the observation of longitudinal estimates of accumulation of hours in SPD, we can make the comparison between central trends and the variables up to 18 years old; as it is observed in Table 2 and Figure 2, the results obtained in our study pointed out that until 12-year-old, Portuguese athletes accumulate more hours in specific domains than Brazilian athletes, and up to 15 years old, remain significant differences in accumulation of hours between the two groups. Since the age of 15 years old, the Brazilian athletes have achieved a higher accumulation of hours in comparison to those in group when with 12 years old. However, differences in accumulation of hours remains constant during the 12 years old up to 18 years old.

Table 2. Comparisons between estimates of central tendencies of longitudinal accumulation of hours in specific domains.

Longitudinal EAH-SPD				
		<i>up12</i>	<i>up15</i>	<i>up18</i>
Pt	(M±SD)	1,166.82±489.34	1,925±681.59	2,975.3±697.98
	Range	238-1968	714-3020	1,884-4,212
Br	(M±SD)	697.7±380.18	1,356.82±597.28	2,534.64±700.88
	Range	36-1,468	122-2,446	882-3,877.2
P		0.005	0.008	0.049
Total	(M±SD)	774.98±575.33	1,640.91±694.92	2,754.97±725.58
	Range	36-1,968	122-3,020	882-4,212

Pt=Portugal. Br=Brazil. EAH-SPD=estimates accumulation hours specific domains.

The studies of Wilkinson (1997), mention that in a period close to 9 to 11 years of age, there is a gradual increase of hours of practice, and this assertion is supported by the data obtained in our study. When comparing these data also with the studies of Ward et al. (2004), we can partially realized similarities. In the study made by Ward et al. (2004), it is shown that in the age of 12 years, football players who reached an elite level in English football, have approximate values of 1,400 hours of practice in specific domains. These values are very close to those found in the Portuguese athletes' (approximately 1,200 hours), Nevertheless they differ considerably when compared to the average values accumulated by Brazilian athletes' (approximately 700 hours), showing a difference of approximately twice of the hours accumulated between the group br and the subjects of the study of Ward et al. (2004). With regard to specific domains of practice, at 15 years old this trend is maintained. It can be noticed in our study that the Brazilian athletes get approximate values of 1,400 hours accumulated, and the Portuguese approximate values of 1,900 hours, while British athletes reach the approximate value of 2,000 hours, similar to the values obtained in the group pt. Taking into account the statements of Chase and Simon (1973) about requiring 10 consecutive years of practice in specific domains (Deliberate Practice) so that it can to reach the stage expertise, there are strong similarities with the results obtained in our study. In view of the way football formation, and understanding that the period of training classes usually finishes between nineteen (Portugal) and twenty (Brazil) years old, it is understood that the age of onset should be ten years before to complete these ages, now which is precisely what is perceived in the results obtained in our study.

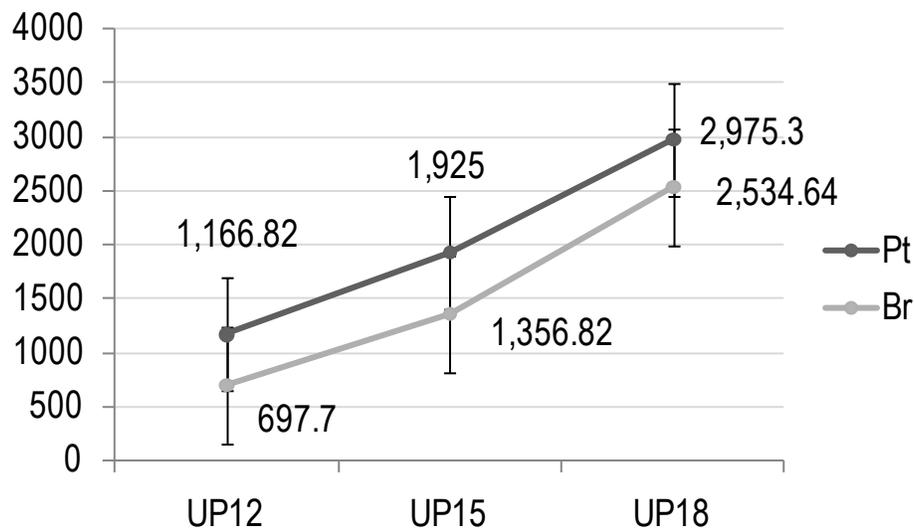


Figure 2. Comparing the mean estimate of longitudinal accumulation of hours in specific domains of practice by group (Pt=Portugal. Br=Brazil).

From the observation of longitudinal estimates of accumulated hours in specific domains of practice, we can compare the trends between the central variables in the [Table 3](#) and [Figure 3](#), and realize that the results obtained in our study point to considerations that up to 12 years old, Brazilian athletes accumulate more hours in non-specific domains than Portuguese athletes. Also, the differences between the accumulated hours until the 15 years old increase significantly, and remain up to 18 years old, and the Portuguese athletes, even at this age, have an average accumulation of hours in non specific practice lower than the cumulative average of Brazilian athletes, with 12 years old, even surpassing the accumulation of hours in specific domains not already obtained early by the Brazilian athletes. This statement points out that the Brazilian athletes experience since they are very young present high levels of informal football practice and casual activities, and that they possibly contact with other motor sports activities and probably within a playful environment.

Table 3. Comparisons between estimates of central tendencies of longitudinal accumulation of hours in non-specific domains.

		Longitudinal EAH-NSD		
		up12	up15	up18
Pt	(M±SD)	728.33±487.19	893.57±604.48	961.15±614.02
	Range	64-1,592	120-2,040	120-2,104
Br	(M±SD)	1,136.2±461.96	1,474.48±487.45	1,604.96±590.28
	Range	204-2,080	440-2,304	440-2,971.2
P		0.012	0.002	0.002
Total	(M±SD)	895.85±539.6	1,161.69±635.77	1,259.03±699.29
	Range	64-2,080	120-2,304	120-2,971.2

Pt=Portugal. Br=Brazil. EAH-NSD=estimates accumulation hours non-specific domains.

And according to Vygotsky (1991), the game is the main activity performed during childhood, and it is characterized not only by the accumulation of time in which children are involved in this, but mainly, by the influence that it exerts in child development. Perhaps these experiences strongly indicate the neuro-motor bases and emotional achievement for a rich repertoire engine.

These data confirm the studies of Ward et al. (2004), when comparing the values of accumulated hours in non-specific domains. It was observed that in our study, the Brazilian athletes accumulated approximately 1,100 hours of practice in non-specific domains up to the 12 years old, and the Portuguese athletes, accumulated about 700 hours in non-specific domains. When compared to the results obtained by Ward et al. (2004), see results below the Portuguese, especially below the Brazilians, to obtain approximately 500 hours of practical activities of the casual football "playful activities" by British athletes.

Even on the distribution of practice over the ages, our study also showed similarities with the results obtained in studies of Soberlack and Côté (2003), showing that, when in the sample aged between 6 and 12 years old, athletes have high levels of involvement in non-specific domains. In the sample of ages between 13 and 15 years old there is a significant decrease of practice in non-specific domains, following the trend until the ages of 16 years old, featuring a progressive increase in practice in specific domains. It is perceived that by the age of 15 years old, the Brazilian athletes still maintain a higher value in non-specific domains than in specific domains. Only at the age of 18 years old the values of non-specific domains exceed, the accumulation of hours in specific domains, noting that this practice covers a considerable part of the hours spent by Brazilian athletes. It was observed also that the Portuguese athletes, since the age of 12 years old, accumulate more hours in specific domains, and this value increases gradually over the years.

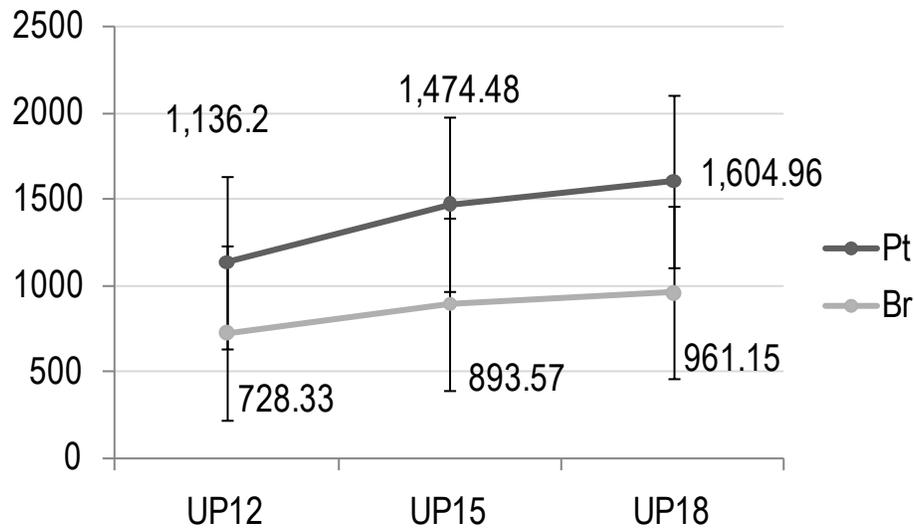


Figure 3. Comparing the mean estimate of longitudinal accumulation of hours in areas not specific to a group practice (Pt=Portugal. Br=Brazil).

Stevenson (1994) believes that the processing of information in motor learning is based on the stages of assimilation, condensation, automation and refinement of motor standards. In this sense, he suggests that the practice of correction of erroneous patterns, and biases of hand technique, are developed before the stages of automation and refinement, featuring from that, the increase in structured practice in specific domains: just what is observed in the results obtained in our study, with the gradual increase in the specific fields of practice. Baddeley (1998), emphasizes that the act of using information already recorded similar to an improvement of specific tasks, and characterized in a longitudinal, subsequent increases in the accumulation of hours in practice structured, are used as the basis for the construction of effective solutions, giving considerable importance in to the experience of hours of practice in non-specific domains.

CONCLUSIONS

Analyzing the following results:

- Portuguese athletes (about 3,000 hrs.) have more experience in specific domains than Brazilian athletes (about 2,500 hrs.) up to the age of 18 years old;
- Brazilian athletes (about 1,600 hrs.) Have more experience in non-specific domains than Portuguese athletes (about 1,000 hrs.) up to the age of 18 years old;
- Both Brazilian and Portuguese athletes present similar values in general practices, added the values of specific areas and non-specific domains (about 4,000 hrs.).
- Portuguese and Brazilian athletes present differences in the estimates of longitudinal accumulation of hours in specific domains from 12 to 18 years old;
- Portuguese and Brazilian athletes present differences in the estimates of longitudinal accumulation of hours in non-specific domains from 12 to 18 years old;

- Brazilian athletes (about 1,100 hrs.) experience early high levels of practice in non-specific domains, before the 12 years old, compared with Portuguese athletes (approx. 700 hrs.)

We can conclude the following ideas:

1. Therefore, if we consider in any way, that the informal practice of football, or the multi-sport training could be better to improve the motor abilities, or improve the technical capacity of the athletes in their development, we can say that the Brazilian athletes present advantages comparing to the Portuguese athletes. However, if considering the deliberate practice, of the highly formal specific-domains like the most effective in way in the technical football learning, we can consider that the Portuguese group would provide advantages to the Brazilian group.
2. This study reinforces the use of self-reminder interview procedures, suggesting the use of this interview model to future studies for analysis of learning methods in football, because it is important to understand the formal and informal football dynamics.
3. We can suggest the application and comparison of these results in other populations.
4. Through the results presented in the study, we can promote the understanding of practice accumulation in the aspects of the method construction of the learning football process.

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