CHARACTERISTICS OF LEARNING AND TRAINING OF ELITE ATHLETICS ATHLETES IN BRAZIL: THE PERSPECTIVE OF EXPERIENCED COACHES

CARACTERÍSTICAS DA APRENDIZAGEM E TREINAMENTO DE ATLETAS DE ELITE DE ATLETISMO NO BRASIL: A PERSPECTIVA DE TREINADORES EXPERIENTES

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RESUMO

O presente estudo buscou verificar a perspectiva dos treinadores em relação ao processo de ensino, aprendizagem e treinamento no atletismbrasileiro. Entrevistas semi-estruturadas foram aplicadas a seis treinadores brasileiros de atletismo com participação nos Jogos Olímpicos. Das entrevistas, foram definidas duas categorias: formação e desenvolvimento de atletas; talento e treinamento de longo prazo. Sobre a idade indicada para começar no atletismo, os treinadores relataram que o ideal (f = 56,90%) é que o atleta inicie no esporte na juventude. No entanto, eles optaram por não estipular uma única faixa etária para começar no esporte. Características que induzem a organização de um modelo de trabalho no atletismo (f=26,14%) foram frequentes nos discursos. Havia uma falta de parâmetros específicos sobre como o treinamento deve ser exercido - neste caso, o atletismo - é necessário ter estruturas que permitam o desenvolvimento da carreira de coaching. **Palavras-chave**: Atletismo. Treinadores Atletas Ensino. Esporte.

ABSTRACT

The present study sought to verify the perspective of the coaches regarding the teaching, learning and training process in Brazilian Athletics. Semi-structured interviews were applied to six Brazilian athletics coaches with participation in the Olympic Games. From the interviews, two categories were defined: formation and development of athletes; talent and long-term training. About the age indicated to start in athletics, the coaches reported that the ideal (f = 56.90%) is that the athlete starts in the sport in the youth. However, they chose not to stipulate a single age group to start in the sport. Characteristics that induce the organization of a work model in athletics (f = 26.14%) were frequent in the speeches. There was a lack of specific parameters on how the profession of coaching should be exercised - in this case athletics - it is necessary to have structures that enable the development of the coach's career.

Keywords: Athletics. Coaches. Athletes. Teaching. Sport.

Introduction

The formation and quality of coaches are fundamental for the development of sport in a country¹⁻⁴. The coach is responsible for organizing and evaluating the training process, based on the parameters of its sport and the athletes' performance factors^{5,6}. Studies seek to help how these professionals could act, both in sports initiation and in high performance^{4,7,8}. The need to identify and understand the daily work of the coach, as well as to contribute to the formation of the coaches themselves, has guided the research related to the professional intervention of the sports coach⁹⁻¹¹.

This study deals with Brazilian athletics coaches who work with elite athletes - participants of the Rio 2016 Olympic Games - in athletics. In Brazil, there is some research, which uses athletics as an object of study and can assist in different aspects of the work planning of coaches, both for those involved in sports initiation¹²⁻¹⁴ and in performance^{15,16}. However, studies in athletics dedicated to investigate the opinion of Brazilian coaches in elite sport, are nonexistent. Some authors affirm that in Brazil, studies on the pedagogical practice of coaches carried out mainly in collective sports still prevail^{1,6,11}. Coaches also need to know the processes of detection, selection and promotion of sports talents, since they are one of the

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factors within a sports organization, fundamental for understanding the development of a country's elite sport^{17,18}. Studies focusing on athletics such as those by Hollings, Mallett and Hume¹⁹ and Huxlei, O'Connor and Bennei²⁰ present aspects that have sustained the development of the athletic performance of young athletes until their arrival in the sports elite. The main points presented by the authors are the following: a) to practice other sports concomitantly to athletics; b) not participate when young in major adult events; c) to obtain international success only in the adult category.

De Bosscher, De Knop, Van Bottenbrug, Ingham² and Schiavon, Paes, Toledo, Deutsch³ understand that the higher the technical level of the athlete, the greater the need for coaches with international experience and knowledge about high performance. In order to contribute to the expansion of research on coaches in Brazil, the present study sought to answer: What is the perspective of the Brazilian athletics coaches, on the facilitating processes and barriers in this modality? In turn, the overall objective of the present study was to analyze the perspective of Brazilian athletics coaches - participants of the Olympic Games - on the facilitating processes and barriers regarding the process of teaching, learning and training in formation and high performance of this modality.

Methods

Types of research and interview

This study used literature and document research and interviews²¹. As an instrument for data collection, the interview technique was used - through a semi-structured script.

Sample and criteria for sample selection

The sample of this study was composed of 6 Brazilian athletics coaches of different tests (speed, obstacle and relays races; middle-distance and long-distance; march; jumps; throws; combined tests), selected intentionally²². The coaches should have a professional connection with at least an athlete with an Olympic index for the 2016 Olympic Games.

The mean age of the coaches was 47.1 years (min 36/max $62, \pm 7.53$); the mean age of their inclusion in athletics was 19.5 years (min. 14/max $26, \pm 4.23$) for those investigated; for the athletics practice experience, the mean value obtained was 25.8 years (min. 7/max $36, \pm 10.49$). Four of the investigated ones began their trajectories being athletes and later coaches. Two of them also acted as referees. One coach entered the modality from an athletics project of one city hall and the other, entered by being professor of Physical Education of the state.

Collection, interpretation and processing of data

Three procedures were used to collect information from the interviews: dialogue with the interviewee to understand the study; defined the place of the meeting by the participant of the study and informing about the ethical aspects of the research (Institutional Research Ethics Committee - CAAE: 47607114.8.0000.0102); and finally, interviews recorded in audio by specialized equipment, later transcribed verbatim ²².

The interviews followed a script elaborated based on the specific literature^{2,20-23} of this thematic one and composed, basically, of 3 parts:

Participant characterization (age; academic background; sports trajectory; places of beginning and current work; time of professional activity); work organization (national plan for the modality; action methodology; support to the work of the coach; formation and selection of athletes; identification and detection of sports talent); Experiences with athletics (participation in projects; difficulties in formation and elite sports; relationship between national athletics entities).

The collected data were grouped according to the precepts of the "Content Analysis" method based on three stages²²: (a) pre-analysis: separation by excerpts of the interviews; (b) material exploration: categorizing elements of units of common records; (c) treatment of results: definition of harmonic categories and subcategories.

Considering the reliability, consistency and transferability criteria, the transcribed interviews were inserted into the QSR software Nvivo 11.4.3 to perform the quantitative analysis of the data, due to the ability of the software to operate and to group a series of data that may have similarities. In a complementary way, this study presents the frequency of appearance (f) of the categories and subcategories codes, presented as percentage (see Table 1).

Table 1. Categories and subcategories from coaches' speeches

Categories	Subcategories	
System of formation and development of	Pedagogical actions of the coach (<i>f</i> = 29.46%);	
athletes	letes organization of work from the stages of development	
(<i>f</i> =67.10%)	of the athlete (<i>f</i> =26.14%); poor basic formation	
	(f=22.25%); athletes in school $(f=12.55%)$;	
	devaluation of the base coach ($f=9.6\%$)	
Talent and long-term training (f= 32.90%	Ideal age (<i>f</i> = 56.90%'talent + training (<i>f</i> =43.10%)	

Source: Authors

The categories and subcategories of analysis emerged from the interviews and guided the continuity of this study. That this methodology is used in several sports studies that adopt the interviews as a methodological support^{5,19,20}.

In the results of this study, we decided to present and discuss the categories of Table 1 in topics. On average, six questions were related to each category. Each interview had an average duration of 56.5 minutes (min 43 min./max 69 min). In the course of the text, the reports referring to coaches are presented by the abbreviations: C1, C2, C3, C4, C5, C6.

Results

Talent and long-term training

About the age indicated to start in athletics, the coaches reported that the ideal (f = 56.90%) is that the athlete starts in the sport in the youth. However, they chose not to stipulate a single age group to start in the sport. All the interviewees related the age of start in athletics with the question of evolution (or not) in sport.

For the interviewees, the age of start is relative in the case of athletics: "... if it is a under-16, under-18, careful to say that the athlete champion of the race will be the highlight in the future, because this athlete can be mature ... will not advance" (C3). Coach C2 also added that "... this is what happens most in Brazilian athletics ... the athlete already developed physically has a good chance of winning the race". Coach C4 reported that - for him - there is a need for the "... coach to wait for the less mature" and also stressed that "... athletics is full of people with advanced maturation".

It was possible to realize that the coach, besides the biological and chronological ages, must take into consideration the age of training of the athlete. Thus, the reasons for the achievement of these athletes are basically due to the time and experience of training and competition, which are much higher when compared to students who develop some sport activity in the Brazilian school context.

Regarding the training process "the ideal for athletics would be for the coach to think about a long-term process, without hurrying for results ..." (C2). In this respect, coach C1 presented the case of an athletics project thought from the long-term: The Future Project

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(Center of Excellence of Sport).

In other discourses, it became possible to identify the constancy of the relationship between the theme "sports talent" (f = 43.10%) and "long-term training". According to C2: "... the ideal would be if we had this idea of long-term training well established among the coaches, coupled with talented athletes". With this, "...without a doubt, Brazil could be a world reference in athletics ..." (C5). In the opinion of C6, such a question "... is the secret of some countries, like Jamaica, the United States ... they get a lot of participation and the main thing is to absorb the young talents, so every moment appears a young talented athlete". The C3 complements saying that, "... unfortunately, the universe of talented athletes of the great powers of world athletics is much larger than the Brazilian".

In the speeches of the coaches, it was possible to identify some behavioral characteristics of the Brazilian athlete. For C2, for example, the Brazilian athlete needs to "... want to train, there is a lot of talents that does not want to train hard ... I see young athletes with a very low commitment to sports ..."; in the same way, C1 reported that "... I am old, we had few resources, but a lot of commitment to athletics, so athletes like André Domingues, Claudinei Quirino, Olympic medalists have left here".

The coach C4 reports other interesting points, demonstrating that in Brazil there is "... a culture different from other countries in relation to the training process, if you tighten the training a lot, your athlete can quit, there is a lot of athlete who does not support suffering in training ...". C3 states that: "... I'm tired of losing a talented athlete who did not want a hard training, to train twice a day, but we know that some places in the world are training very hard and the athlete respects, he understands that he is the best for him". Finally, C6 underpins that "... it is difficult to find in Brazil the talented athlete who likes to train hard, focused".

Such a problem can be observed in the speech of C1, when he says that "... there is athlete in athletics that does not have much talent, but supports the intense training and manages to be very constant in the season, this athlete easily surpasses the talented one who does not like to train".

System for formation and development of athletes

Characteristics that induce the organization of a work model in athletics (f= 26.14%) were frequent in the speeches. According to the interviewed, there is a traditional training for athletics, composed of warm-up, stretching, motor coordination exercises - in which the athlete performs similar motor gestures to the athletics tests - and the specific work according to the tests of the modality. For C3, "... a lot of coaches still use this sequence".

In this sense, it was possible to identify of how training in sports initiation should take place (f=29.46%): "... during the practice, the beginner must learn the basic techniques of all athletics competitions ..." (C2), through a "multilateral work, in which the coach can transmit general experiences of movement to the athletes, a broad motor training, that he can do in the future various sports ..." (C3) and work "... with beginners up to 12 years old, with sports games, recreational activities and adapted competitions" (C5). The C1 complements: "... the athletic formation of athletics in Brazil should be more played, why not do activities with balls? young people like ...". For C4, which states that the coach must also pass "...well-grounded games for the young people and spend half an hour looking at them ... the clinical eye is the best form of talent identification...".

In following this logic, C2 points out that, currently, Brazil needs to focus on "... the formation of new athletes...until we cannot increase the number of players, we will have difficulties with results in the future, we will have athletes with no medal potential".

It is worth mentioning that coaches C4, C1 and C3 mentioned the Kids Athletics¹ as "... a pedagogical action that has recently been disseminated to facilitate the development of athletics in several countries" (C4), since it is a methodology that "...leaves nothing to be

desired for any collective modality in terms of attractiveness" (C1).

The sports initiation is "... the first phase of construction of the athlete, then after it, in the competitions, it is indicated that the athlete does different athletics tests" (C4). For C1, this is "... the time of multiple tests". At this stage, according to C3, the athletic coach "... must know the basic operation of all the tests ...". The coach can already seek to refine better the techniques seen in the initiation. Coach C1 reports on the possibility of the coach "...defining the group of tests that his athlete will participate and start individual programs and simulate competitions...". Therefore, formal competitions must be present at these ages, and according to interviewee C4, the coach must "...require a good behavior of the athlete in the competitive period, as mental, physical preparation, so that the young athlete seeks to do his or her best independently of results".

According to the interviewees, as the athletes progress, they enter the development stage of the test group. For coaches, improving this grouping would be an important stage of initial specialization.

Table 2. Organization of the phases and ages of development of the athlete from the coaches' speech

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	Phases	Iniciation	Multiple	Test group	Initial	High
			tests		Specialization	Performance
	Age	6-12	12-14	15-16	17-18	18-20+
	Proposal	Kids	Practice	Speed/obstacles/	Master the	Improving
		athlettics	various types	relays; jumps; Shot	technique of a	and evolving
			of athletics	Throws Middle	speciality	
				distance, Long-		
				distance, march		

Source: Authors

The coaches pointed out that usually the athlete - due to deficiency in basic sports formation (f= 22.25%) - stay longer in some of the above phases. What for the coaches, can delay the training process of the athlete and the evolution can occur in more advanced ages, around the 22 - 23 years.

So, it makes sense for coaches to consider that the top clubs in Brazil have only the adult category as a barrier to the athlete's development process. As reported by C3, "... most of my athletes represent clubs that only have the adult category and do not have the initial and intermediate phases of development".

For coach C6, "...unfortunately, there are few athletic programs in Brazil that have all these clear and well-defined phases... from talent detection to high performance, with short, medium and long-term objectives".

In the view of some coaches, if "... they (CBAt, or sports organizations) defined a national model of how the athletic coach should work... interlinking the ages... (C3)" in that "...coaches had certainty and clarity of their role within their institution, whether in formation or in high performance" (C6), would be fundamental elements in the better definition of the coach's function within the structure of Brazilian athletics.

The pedagogical actions (f=29.46%) of the coaches should be part of the sports program to which the coach belongs. Some coaches have reported on methods of athletic training pedagogy: "For young athletes, the interesting thing is to go from the global to the specific" (C1).

The way the athletic training happens seems to vary according to the ages of the athletes, as well as the number of athletes present in the training. For C2, "... it is hard to say that there is a unique athletic training model". On this, C6 states: "... it depends a lot on the coach, whether he updates himself or not ...", "... you cannot say that there is a correct

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model".

According to what C3 reported, "... it is difficult to create a model when there is little documented information, studies on the modality ...". According to C2, "... little is known about the style, or Brazilian technique of the relay, a test in which Brazil is recognized worldwide ...".

When mentioning the difficulty a coach has in working with 20 pupils at the same time, it was unanimous among coaches that annual training is based on what the athlete needs to perform in the test - both physically and technically.

On the ways to monitor the athlete, the coaches pointed out fundamental characteristics for the process as results in competitions, body composition, heart rate, medical, psychological evaluation and motor tests.

It was identified in the research that Brazilian athletics coaches usually do physical tests in the day to day training, in the selection of athletes and that these are not nationally standardized. These are tests to "... identify and measure the skills and abilities of potential talents ... vertical, horizontal thrust, upper limb force, speed, endurance, body composition" (C5). Coach C2 has stated that he often uses the tests to "...have a notion in which test the athlete can stand out, or have a facility to perform".

Regarding the valuation of coach, C3 emphasized that every coach "... dreams of having an athlete in the Olympic Games, so that one who works in formation and loses the athlete to another city, or club, often feels devalued (f=9.6%)", for C5, the forming coach "... most of the time is not recognized when an athlete who started with him, gets international prominence".

Another issue, listed from the coaches' discourse, was the little incentive that athletics has in schools (f= 12.55%), mainly as an element of the school curriculum. For coach C1, Physical Education at school "... does not contribute to the coach who works with young athletes...", according to C5, "...if we had a good physical education, our athlete, aged 17 or 18, could have a motor repertoire and would enter more easily into high performance".

Coach C1 reports the case of Japan's athletics where "... all schoolchildren are obliged to go through athletics and all schools participate in competitions ...those who excel at around 15, 16 years go to specific athletic schools". In Jamaica, according to C6: "... the main competition of base athletics is school ... it's a cultural issue, everyone wants to be an athletics athlete".

Therefore, the deponents reinforced that the base teams of Brazil, need to approach the schools. For C2, generally, "... a good base project in athletics is one that can be linked to some school, where some students are invited to participate in athletics projects" (C3).

Discussion

In the understanding of the coaches participating in the present study, athletics in sports initiation would be practiced through innumerable motor situations, of various sports activities^{23,24} being a more attractive practice - which, according to the investigated coaches, would reduce the cases of abandonment in this sport. This logic can be seen in studies such as those by Greco, Memmert and Morales⁷ and Côté and Hancock²⁵, in which the authors develop the idea of deliberate practice vs. deliberate play as a form of sports initiation more interesting for the insertion of young people in the sports universe.

There are studies that are concerned with the phases of transitions in the athlete's career, for example, from the base categories for success in major international competitions^{19,20,23,24,26}. In this research, it was clear that the youth coach has to know the stages of development of the sportsman, because the Brazilian athlete still needs to evolve the performance when reaching professional athletics.

On these phases, a definition for the terminology "multiple tests" cited by the investigated coaches was not found in the Brazilian literature. From the discourses, "multiple tests" - in athletics – it means that the athlete will perform a mix of disciplines of races, jumps and/or throws. Although the terminology "multiple tests" is not found in scientific writings, some authors suggest that in the stage of development of the athlete, young people should experience all the tests in their training process^{10,13,25}. In the opinion of the coaches, athletics could be more present in schools, mainly because the modality involves a large number of people, being able to influence them greatly during the life - as it happens in other countries²⁷. Ideally, if this were a priority in Brazil's sport, it could help in the formation, recruitment and selection of athletes in the future²⁷. However, it seems that the CBAt and national federations understand that it is not up to them to develop the sport at school.

Another issue worth mentioning is that junior coaches in Brazil should not rely solely on the athlete's performance. Despite this, studies point out that this goes contrary to what currently prevails in sports formation, in which the results guide the work of the young coaches.

In this sense, the formation of athletes in athletics can often reproduce or suffer from the characteristics of the current culture²⁸ - in which it has the main objective focused on results and victories²⁹. Several authors affirm that sports initiation that aims at performance, by itself, does not constitute a problem. What may become a problem are certain methodologies that treat young people as adults or that are permeated by overcharges in terms of outcomes^{5,9,19,20,30}.

It is evident from coaches, especially of young athletes, should seek more knowledge. In this way, the importance of the qualification of the athletic coach³¹, is perceived, considering that it plays a determining role in the training process of athletes. According to Sherwin et al³², the coach must be able to adapt his work according to the level of each athlete, since a wrongly planned work can cause the athletes to give up. Therefore, the training of the coach must consider all these factors. For Wright, Trudel and Culver³³, specializations, national certification courses, clinics, seminars, books and exchanges of experiences have been considered by coaches as a method of training.

Some studies, involving young athletics athletes, mention that the increase in motor performance, together with the advancement of maturation and physical growth, may help to understand some particular performances of athletes during training periods^{23,34}. For Thompson³⁵ and Gould²⁸, chronological age orders people according to their date of birth. While the individual biological age corresponds to the age group that the organism appears on the basis of its biological conditions. Thompson³⁵ argues that there may be physical difference, for example, up to 4 years in the development of young people. Suslov³⁶ points out that there are age groups of sports outcomes for different sports. In the high jump and 100 meters races, the first results appeared in men between the ages of 17 and 21 and women between the ages of 16 and 19. Thus, the question of chronological and biological age^{29,35,36} is a variable that can also confuse whether a young man is talented or not and influence the evolution of athletes, since coaches have reported that many expressive - or not – results of young athletes can be explained by the advanced biological age in relation to chronological age.

In the study on "What Makes Champions?" by Tucker and Colins³⁷, the authors identified that an ideal combination for sporting success would be the importance of a sports project that aims at long-term results, but that this project works with diverse sport talents For the coaches of the present study, this must be added to the fact that the athlete really wants to dedicate himself to the daily training, which - for them it is increasingly difficult in the Brazilian case. The study by Johnson, Castillo, Sacks, Cavazos Jr, Edmonds, Tenenbaum⁹

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suggests that hard work in daily training can distinguish performance and high-performance athletes in swimming.

The study by Hollings, Mallett, Hume¹⁹, through interviews with New Zealand athletes, junior world athletics championship finalists, sought to establish the reasons why junior athletes with athletic performance made the transition to become internationally successful adult athletes. Thus, the authors highlighted the main factors that caused 5 of the 11 athletes investigated to progress in the international career: they had a significant commitment to training and a clearly defined and realistic goal; the initial international success of the five athletes was achieved only in the adult category; had strong identity and a lot of willpower to continue in the sport.

The study conducted by Huxlei, O'Connor, Bennei²⁰ from interviews with Australian athletes, athletics juniors who transitioned to the elite, identified that the main findings for their entry into the sporting elite were: until around age 16, athletes practiced various sports, including athletics; were considered as late specialists; and were not ready (physically and psychologically) for specialized training until the age of 16.

It was possible to notice that the coaches take into account the talent, the behavioral characteristics of the athlete, the characteristics of the sport, the forms of performance according to age, as well as the organizational and social issues of athletics. In Brazil, there is a governmental support to sports, through the Ministry of Sports, responsible for developing the sport of performance³⁸.

And, also, the CBAt is the organizer of national athletics. Despite of this, there is no joint action concerned with systematizing the formation and development sites of this sport. In the present study, the interviewed coaches are concerned about the lack of an athletic program for athletics that interlinks the ages. This happens only in some Brazilian athletics teams, with a wide structure to meet what the coach wants and also to meet the needs of the athletes¹⁵.

Specifically on athletics, Truyens, De Bosscher, Heyndels, Westerbeek²⁶ identified that each nation develops its own model for athletics and this is also highly influenced by financial support (entry) and culture of the country. Within this model, several factors of sports development are pointed out as fundamental. Some of them are related to the results of the present study: management and organization of sports policies; sports participation; identification and development of talent; support for the athlete's career; formation and qualification of the coach; support of science; and culture of the sport.

In countries such as Australia, Ukraine, Japan and Germany, sport organizes itself and moves towards a centralized way, as young people develop in the sport in various schools and sports clubs. But if they can be highlighted, they are referred to specialized centers, controlled by the government or national sports entities^{27,39}.

In Brazil, the monetary factor has been a reason for abandoning this sport, hindering the transition from the Under-20 category to the adult, because this transition is full of new responsibilities and social challenges²³. According to Jarvier and Sikes³⁸ for some African countries, prominent in athletics, such as Kenya and Ethiopia, the social question is a reason to seek and practice athletics - once athletes seek in sports to improve living conditions. In the study by Onywera, Scott, Boit, Pitsiladis⁴⁰, the authors emphasized the importance of environmental and social factors in the success of Kenyan runners. For example, a common question for most of the world-class athletes investigated is that they traveled - through the race - long distances daily to go to their schools.

Another issue identified herein is that coaches of young athletes are not valued and recognized in the middle for their work in the training of athletes in athletics. Green and Houlihan²¹ - in a study in Australia and the United Kingdom - point out that although there is a financial incentive to amateur athletic coaches (of young athletes), they do not view the

occupation as a full-time career. Thus, based on the reports, the way for a base coach to reach the elite can be difficult and slow.

Lastly, Brazilian athletics coaches need to be "multitasking", that is, to understand nutrition, psychology and physiotherapy. Stavropoulos, Tripolitsioti, Giakoumatos, Stergioulas⁴¹ point out that coaches to work in athletics need to master different areas of knowledge, such as: human anatomy, sports medicine, nutrition, sports psychology, prevention and rehabilitation of injuries.

Conclusions

From the coaches' speeches, we identified a tendency of athletics initiation by means of a more attractive practice, facilitating maintenance in this sport, in which the beginner experiences the different modalities that make up athletics. In this pedagogical process, coaches understand that this could improve the sports formation of practitioners.

It should be noted that an organized national system for selection and detection of athletes was not identified. This issue is up to the coach - or from every entity that develops athletics, that is, the carelessness, improvisation and luck prevail in Brazilian athletics. The coaches emphasized that they receive the young athletes with a motor formation, a deficit base work, which delay or impede the transition of the athlete to the high performance. In this way, it can be affirmed that there is still no model of work to be followed by trainer coaches, which may be one of the reasons why these coaches do not form athletes as they should, and thus attention is needed especially, of the organizers of Brazilian athletics, in their continued formation and valuation.

Another element found is that it was not identified that Brazilian athletics has a project that helps the athlete's pathway, in the beginning, middle and end in the sport. In order to do so - with the help of the statements -, it is proposed to start the discussion on the different possibilities, such as: creation of specific centers (regional and national) that would receive young potential athletes and would be responsible for developing them from a unique methodology (not yet existent) for training, applied by skilled professionals.

It was found that the coach understands the basic needs that the athlete needs to have to reach the sports elite. This consolidated vision is not yet established for the Brazilian athletics coach, who also requires a certain support to work with consistency in the high performance of this modality.

Finally, based on the statements, the work environment of the athletics coach and the way he needs to get involved in the innumerable actions of everyday life, generates a very particular demand for this activity. There was a lack of specific parameters on how the profession of coaching should be exercised - in this case athletics - and it is necessary to have structures that enable the development of the coach's career.

The present study takes on that the number of respondents is characterized as a limitation for the accomplishment of more comprehensive analyzes at the international level, therefore, it aims to encourage the realization of new studies that will fill this research gap.

References

- 1. Trudel P. What the coaching science literature has to say about the roles of coaches in the development of elite athletes. Int J Sports Sci Coach 2006;1(2):127-130. Doi: 10.1260/174795406777641221.
- 2. De Bosscher V, De Knop P, Van Bottenbrug S, Ingham J. Explaining international sporting success: an international comparison of elite sport systems and policies in six countries. Sport Manage Rev 2009;12:113-36. Doi: 10.1016/j.smr.2009.01.001.
- 3. Schiavon LM, Paes RR, Toledo ED, Deutsch S. Panorama da ginástica artística feminina brasileira de alto rendimento esportivo: progressão, realidade e necessidades. Rev Bras Educ Fís Esporte 2013;27(3):423-436. Doi: 10.1590/S1807-55092013005000018.

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4. Yardley J, Hay J, Sedgwick W, Baker J. An exploratory examination of the coaching behavior scale for sport. Avante 1999;5(3):82-92.

- 5. Gilbert WD, Trudel P. Validation of the Coaching Model (CM) in a team sport context. Int J Sports 2000;4(2):120-128.
- 6. Côté J, Gilbert W. An integrative definition of coaching effectiveness and expertise. Int J Sports Sci Coach 2009;4(3):307-323. Doi: 10.1260/1747954097896223892.
- 7. Greco P, Memmert D, Morales JC. The effect of deliberate play on tactical performance in basketball. Percept Mot Ski 2010;110(3):849-856. Doi: 10.2466/PMS.110.3.849-856.
- 8. Brasil VZ, Ramos V, Milistetd M, Culver DM, Nascimento JV. The learning pathways of Brazilian surf coach developers. Int J Sports Sci Coach 2018;13(3):349-361. Doi: 10.1177/1747954117739717.
- 9. Johnson MB, Castillo Y, Sacks DN, Cavazos Jr J, Edmonds WA, Tenenbaum G. "Hard Work Beats Talent until Talent Decides to Work Hard": Coaches' perspectives regarding differentiating elite and non-elite swimmers. Int J Sports Sci Coach 2008;3(3):417-430. Doi: 10.1260/174795408786238579.
- 10. Côté J, Baker J, Abernethy B. Practice and play in the development of sport expertise. Handbook of sport psychology 2007;3:184-202.
- 11. Gilbert W, Rangeon S. Current directions in coaching research. Rev Iberoam Psicol Ejerc Deporte 201;6(2):217-236.
- 12. Ginciene G, Matthiesen SQ. O sistema de partida em corridas de velocidade do atletismo. Motriz J Phys Educ 2012;113-119. Doi: 10.1590/S1980-65742012000100012.
- 13. Matthiesen SQ, Silva MFG, Silva ACL. Atletismo na escola. Motriz J Phys Educ 2008;14(1):96-104.
- 14. Prado VMD, Matthiesen SQ. Para além dos procedimentos técnicos: o atletismo em aulas de Educação Física. Motriz J Phys Educ 2007;13(2):120-127.
- 15. Prudencio N. Salto triplo: o sistema de preparação do desportista: da detecção a promoção do talento. [Tese de Doutorado em Educação Física]. Campinas: Universidade Estadual de Campinas; 2006.
- Moura NA, Borin JP, Padovani CR, Gomes AC. Relação entre as distâncias parciais no salto triplo e o desempenho competitivo em atletas brasileiros. Rev Bras Ciênc Mov 2016;24(3):35-44. Doi: 10.18511/rbcm.v24i3.6510.
- 17. Green M, Oakley B. Elite sport development systems and playing to win: uniformity and diversity in international approaches. Leisure Studies 2001;20(4):247-267. Doi: 10.1080/02614360110103598.
- 18. Green M, Houlihan B. Governmentality, modernization, and the "disciplining" of national sporting organizations: Athletics in Australia and the United Kingdom. Sociol Sport J 2006; 23(1):47-71. Doi: 10.1123/ssj.23.1.47.
- 19. Hollings SC, Mallett CJ, Hume PA. The transition from elite junior track-and-field athlete to successful senior athlete: why some do, why others don't. Int J Sports Sci Coach 2014;9(3):457-471. Doi: 10.1260/1747-9541.9.3.457.
- 20. Huxley DJ, O'Connor D, Bennie A. Olympic and World Championship track and field athletes' experiences during the specialising and investment stages of development: A qualitative study with Australian male and female representatives. Qual Res Sport Exerc Health 2017;10(2):256-272. Doi: 10.1080/215967X.2017.1393452.
- 21. Gil AC. Métodos e técnicas de pesquisa social. 6. ed. Editora Atlas SA; 2008.
- 22. Bardin L. Análise de conteúdo. São Paulo: edições 70; 2011.
- 23. Vieira LF, Vieira JLL. A relação entre timing vital e social de talentos esportivos: Um estudo com atletas paranaenses do atletismo. J Phys Educ 2000;11(1):119-128.
- 24. Green BC. Building sport programs to optimize athlete recruitment, retention, and transition: Toward a normative theory of sport development. J Sport Manage 2005;19(3):233-253, Doi: 10.1123/jsm.19.3.233.
- 25. Côté J, Hancock DJ. Evidence-based policies for youth sport programmes. International Journal of Sport Policy and Politics 2016;8(1):51-65. Doi:10.1080/19406940.2014.919338.
- 26. Truyens J, De Bosscher V, Heyndels B, Westerbeek H. A resource-based perspective on countries' competitive advantage in elite athletics. Int J Sport Policy and Politics 2014;6(3):459-489. Doi: 10.1080/19406940.2013.839954.
- 27. Digel H. The context of talent identification and promotion: a comparison of nations. New Studies in Athletics 2002:17(3/4):13-26.
- 28. Gould D. The professionalization of youth sports: it's time to act! Clinical Journal Sports Medicine. 2009;19(2):81-82. Doi: 10.1097/JSM.0b013e31819edaff.
- 29. Brito N, Fonseca A, Rolim R. Os melhores atletas nos escalões de formação serão igualmente os melhores atletas no escalão sénior? Análise centrada nos rankings femininos das diferentes disciplinas do atletismo ao longo das últimas duas décadas em Portugal. Rev Port Ciênc Desporto 2004;4(1):17-28.
- 30. Nunomura M, Oliveira MS. Centro de excelência e ginástica artística feminina: A perspectiva dos técnicos brasileiros. Motriz J Phys Ed 2012;18(2):378-392. Doi:10.1590/S1980-65742012000200018

- 31. Sáenz-López Buñuel P, Mateos Carreras MJ, Almagro Torres BJ, Conde García C. Apoyo a la autonomía, creencias implícitas de habilidad y metas de logro en jugadoras de baloncesto en formación. Cuad de Psicol del Deporte 2017;17(3):199-206.
- 32. Sherwin I, Campbell MJ, Macintyre TE. Talent development of high performance coaches in team sports in Ireland. Eur J Sport Sci 2017;17(3):271–78. Doi: 10.1080/17461391.2016.1227378.
- 33. Wright T, Trudel P, Culver D. Learning how to coach: The different learning situations reported by youth ice hockey coaches. Phys Educ Sport Pedagogy 2007;12 (2):127–144. Doi: 10.1080/174089807012822019.
- 34. Vandorpe B, Vandendriessche J, Vaeyens R, Pion J, Matthys S, Lefevre J, Lenoir M. Relationship between sports participation and the level of motor coordination in childhood: A longitudinal approach. J Sci Med Sport 2012;15(3):220-225. Doi: 10.1016/j.jsams.2011.09.006.
- 35. Thompson P. Introdução à teoria do treino. IAAF;1991.
- 36. Suslov F. Current problems in the development of young athletes. New Stud Athlet 2008;23(3):19-25.
- 37. Tucker R, Collins M. What makes champions? A review of the relative contribution of genes and training to sporting success. Br J Sports Med 2012;46(8):555-561. Doi: 10.1136/bjsports-2011-090548.
- 38. Jarvier G, Sikes M. Running as a resource of hope? Voices from Eldoret. Rev Afr Political Econ 2012;39(134):629-644. Doi: 10.1080/03056244.2012.738416.
- 39. Digel H. Development spotlight ukraine, a model of success. New Stud Athlet 2011;26(3):119-125.
- 40. Onywera VO, Scott RA, Boit MK, Pitsiladis YP. Demographic characteristics of elite Kenyan endurance runners. J Sports Sci 2006;24(4):415-422. Doi: 10.1080/02640410500189033.
- 41. Stavropoulos I, Tripolitsioti A, Giakoumatos S, Stergioulas A. Competencies of the first and second division track and field coaches. Int J Sport Stud 2014;4:584-590.

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