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Analysis of the profile, areas of action and abilities of Brazilian Sports Physical Therapists working with soccer and volleyball

Análise do perfil, funções e habilidades do fisioterapeuta com atuação na área esportiva nas modalidades de futebol e voleibol no Brasil

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Abstract

Objective: To analyze the profile of Brazilian physical therapists working with soccer and volleyball professional teams, by verifying their level of education (graduate or undergraduate), as well as their role and insertion within the interdisciplinary team. **Methods:** Structured questionnaires were administered to forty-nine physical therapists working at soccer, volleyball clubs and Brazilian national teams. These questionnaires provided data on social demographic, characteristics of the work environment and organization of clinical practice and its domains. **Results:** From the 49 participants in this study only five were female. Mean age of all participants was 32.2 years. The majority of the sports physical therapists had specialization degrees in different areas (78.2%), were hired through referral (78.2%), worked more than 8 hours a day or were exclusively dedicated to their clubs (80.0%) and earned seven to ten Brazilian minimal wages (58.2%). They reported to have participation in the domains of emergency care (87.3%), prevention (92.7%), functional rehabilitation (98.2%) and return to competition (100%). They had interdisciplinary relationships with physical educators during functional rehabilitation programs (70.9%) and with physicians in the decision process of return to activity after rehabilitation (74.5%) and on the veto of an athlete to take part in practices or matches (63.6%). Therapists also complained of threats to their professional autonomy, specially directed by the team's physician. **Conclusion:** There is still a need to invest in continuing education of sports physical therapists with the objective to improve their educational level and to strengthen their professional autonomy.

Keywords: physical therapy; sport; profession; rehabilitation; prevention; staff.

Resumo

Objetivo: Investigar o perfil do fisioterapeuta com atuação na área esportiva nas modalidades de futebol e voleibol no Brasil no que tange à sua formação, atuação e grau de autonomia dentro da equipe multidisciplinar. **Métodos:** Foram analisados questionários estruturados para levantamento de dados sociodemográficos, dados relativos ao ambiente de trabalho e à prática clínica e os seus domínios, referentes a 49 fisioterapeutas de clubes e seleções de futebol e voleibol. **Resultados:** Do total de entrevistados, apenas cinco fisioterapeutas eram do sexo feminino, e a idade média do grupo era de 32,2 anos. A maioria dos fisioterapeutas brasileiros que atuam no esporte possuem especialização em diversas áreas (78,2%), foram contratados por indicação (78,2%), trabalham mais de 8 horas/dia ou em regime de dedicação exclusiva (80,0%) e recebem de sete a dez ou mais salários mínimos (58,2%). Além disso, observou-se uma grande participação do fisioterapeuta nos domínios do atendimento emergencial (87,3%), prevenção (92,7%), reabilitação funcional (98,2%) e retorno após lesão (100%). O fisioterapeuta com atuação no esporte relata haver uma boa relação interdisciplinar, sobretudo com o preparador físico na reabilitação funcional (70,9%), com o médico do clube na decisão do retorno do atleta após reabilitação (74,5%) e no veto ou liberação do atleta para jogos/treinos (63,6%). Entretanto, muitos reclamaram de ameaças à sua autonomia, principalmente pelo profissional médico. **Conclusão:** Ainda existe a necessidade de investir na formação específica do profissional fisioterapeuta esportivo, visando a uma melhor especialização na área esportiva e consolidando conceitos importantes da área por meio de um melhor entendimento de referenciais teóricos e de atuação clínica.

Palavras-chave: fisioterapia; esporte; profissão; reabilitação; prevenção; equipe interdisciplinar.

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Introduction ::::

The practice of sport activities are the cause of a number of sports injuries of the musculoskeletal system¹⁻⁶. The education of professionals involved in the treatment of these injuries as well as the expertise and areas of action of each professional working within the sports environment are extremely variable from country to country^{7,8}. In a study conducted in four divisions of the English soccer, it was found that half of the clubs had physical therapists without specific qualification in the sports area⁹. Most of those who had no specific qualification were represented by technicians in physical therapy, most of whom were former athletes. According to the authors, these physical therapists were in adverse position to resist threats to their professional autonomy, particularly those that arised from attempts of managers and physicians to influence their clinical decision⁹. Conversely, although this study demonstrated that physical therapists had limited education and autonomy, the physician only visited the club once a week and therefore, physical therapists were responsible for providing primary care to sports injuries as well as other diseases⁹. In such cases, the physical therapist prescribed medication, treated the athletes based on soccer culture and applied injections, when necessary. For the most part, treatments were done without any clinical/scientific basis and often with little autonomy in decision making. This contradictory behavior of physical therapist's performance in English soccer reinforces the need for a better understanding of the areas of action and responsibilities of each member of the health care team.

Currently, there is still controversy regarding the role and the level of education required for each health professional working with sports. The health care team, including sports physical therapist, seems to act in at least four major areas: prevention, emergency care, functional rehabilitation and return to activity^{2,4,5,10-14}. In spite of this international definition of the areas of action of sports physical therapists, the performance of this professionals in Brazil, appears to be heterogeneous without a clear definition of its role within the health care team^{15,16}.

The lack of Brazilian studies, together with the undefined role of physical therapist in the team, may contribute to the existence of differences between the areas of action of sports physical therapists. Differences in clinical practice and professional education of sports physical therapists can threaten the identity of this professional and slow the development of the area¹⁷. Therefore, the understanding of the insertion and performance of Brazilian sports physical therapist in the interdisciplinary team can contribute to a better organization of services and consequently better treatments for the athlete. Therefore, the aim of this study was to analyze

the profile of Brazilian sports physical therapist in relation to their education, degree, performance and autonomy within the interdisciplinary team.

Methods ::::

This cross-sectional design study was submitted to and approved by the Committee of Ethics in Research of the Universidade Federal de Minas Gerais (UFMG), Belo Horizonte, MG, Brazil, protocol n°. ETIC 294/07.

Selection of study participants

Potential volunteers were initially contacted during the I International Congress and III Brazilian Congress of Sports Physical Therapy (Ouro Preto, MG, Brazil, November/2007) or later by e-mail addressed to clubs and members of the National Society of Sports Physical Therapy. Inclusion criteria were: a) be a sports physical therapist of a national club/team, male or female, with any type of employment; b) have Brazilian nationality and education; c) act or have acted, in the latest two years, on the male professional soccer league (1st and 2nd divisions of the Brazilian Championship) or on the male or female volleyball league (Volleyball National League) as well as state and national teams in both sports.

Participants who met the inclusion criteria and who agreed to participate completed the questionnaire during the Congress or received an e-mail containing the questionnaire. The study used a structured questionnaire to survey: a) demographic data, b) data related to work environment, c) data on clinical practice and its domains. Patients returned the completed questionnaires by email. Volunteers who did not sign a consent form during the congress received a letter containing a consent form and a return envelop. All participants signed the consent form.

Sample Characterization

Questionnaires were answered by 49 physical therapist; 27 from soccer clubs and 22 from volleyball clubs and teams. Five volunteers reported to act both in volleyball clubs/teams and therefore, their work dynamic, including the relationship with other professionals, was considered separately in order to reliably characterize the performance of these professionals in their workplace. Most physical therapist (44) were male and only five were female. who worked at volleyball teams/clubs. Considering all volunteers, ten were physical therapists of volleyball teams; 18 of volleyball clubs and 27 of soccer clubs, representing 91%, 50% and 68% respectively. The margin of error corrected for finite populations were 9.8%, 16.8% and

10.9% respectively, for the study proportions. Considering the total sample, the margin of error was 8.1% (considering the 95% level of confidence). Interview data were grouped and analyzed using SPSS 15.0 statistical package. In this study, descriptive analysis of distribution in each dimension evaluated was performed. The McNemar test was applied to compare the proportions of variables measured in the whole sample, and the Z test was used to compare differences in proportions of soccer and volleyball groups.

Results

Characteristics of professionals and profession

The majority of the volunteers (89.1%) were male and 10.9% females, with ages ranging from 24 to 46 years, mean of 32.2 years. Those who worked in soccer teams accounted for 49.1% and, in volleyball, for 50.1%. There were no female physical

therapists working in soccer teams and female consisted of 21.4% of physical therapists working in volleyball teams. The areas of expertise most often mentioned in the interviews are described on Table 1.

The hiring of the physical therapist at the club/team was made mostly (78.2%) by means of referral, and only one volunteer joined by selection process. Data concerning which professional referred the physical therapist, their employment contract type with the club, work hours, payment and extra income are described on Table 1. The frequency of activities performed by physical therapist in the club such as “presence in training and matches”, “travel with the team” and “application and/or distribution of prescribed medication” is described on Figure 1.

Professional Performance

Table 1 shows the involvement of physical therapists in performing activities within the previously cited sports

Table 1 – Areas of expertise of physical therapists, professional responsible for the physical therapist nomination, employment type, hours of work, payment, extra incomes and areas of action of sports physical therapists.

PERCENTAGE OF RESPONDENTS BY ANALYZED VARIABLE						
Areas of specialization	Responsible for the nomination	Employment contract	Hours of work per day ^a	Payment (minimum wage)	Extra Income ^d	Areas of activity
Sports Physical Therapy 47	Coaches/Trainers 28	Formal 54.5 ^b	8 hours or more 80	More than 10 wages 25.5	Awards 47.3	Return to sports 100
Acupuncture 15	Physical Therapists 26	Individual 20 ^c	6 to 8 hours 12.7	7 to 10 wages 32.7	extras* 40	Prevention 92.7
Trauma and Orthopaedic 7	Medical director 12	Legal entity 18.2	4 to 6 hours 3.7	4 to 6 wages 25.5	Overtime 9.1	Functional rehabilitation 98
Others 31	Others 34	Others 7.3	Until 4 hours 3.6	1 to 3 wages 16.3	Others 7.3	Emergency care 87.3

*Amount received for a win and/or draw; a. There was no statistically significant difference between sub-groups; b. In soccer (74.1%) there was greater number of formal employment than the volleyball teams (35.7%) ($p < 0.001$); c. Volleyball had a higher frequency of physical therapists working as service providers (32.1%) ($p < 0.001$); d. In soccer there were several more bonuses (88.9%) compared with volleyball (50%) ($p < 0.001$).

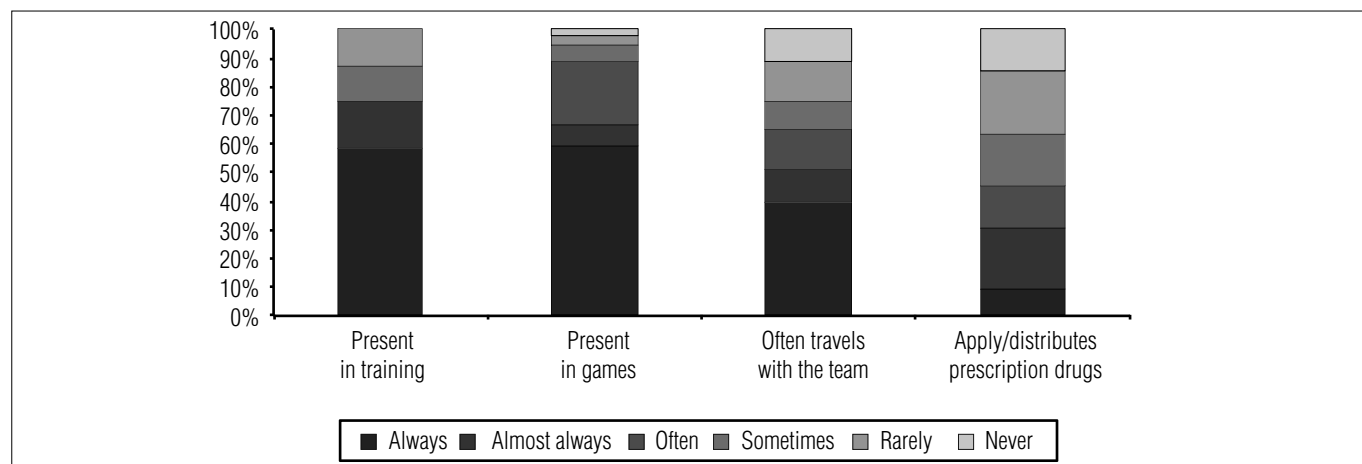


Figure 1 - Frequencies in relation to the activities performed by physical therapist

physical therapy domains. It was found that all physical therapists worked in the “return to sport after injury” and that 89.1% were responsible for recording an injury within the club. The remaining 10.9% stated that the records of injury were performed by another professional, and that physical therapists always had access to it. Table 2 shows the frequency of implementation of prevention programs, evaluations to verifying the effectiveness of these programs, professionals who more often worked with the physical therapist in the implementation of these preventive programs and the use of resources in prevention. It is noteworthy that 44% did not answer to the questionnaire item; type of evaluation for effectiveness of the prevention program, and 5% could not define the type of evaluation.

Figure 2 shows a list of professionals responsible for emergency care during practices and matches. The only significant difference in physical therapy practice between the situations “practice” and “matches”, was the decrease of “physical therapist” action and the increase of “physician and massagist” action ($p=0.063$).

The technique and/or procedure most often cited to be used in emergency care was “taping”, (70.9%), followed by “wounds, calluses and blisters care” (63.6%) and “bandages” (60%). Knowledge in “taping” was acquired primarily in extracurricular courses and clinical practice (34.5% and 36.4%); “bandages”, in university and extracurricular courses (27.3% and 32.7%); “manual therapies”, in extracurricular courses (38.2%); the “ABC of trauma”, in university and extracurricular courses (34.5% and 25.5%); “cardiopulmonary resuscitation” (CPR) in extracurricular courses (40%) and “wound, calluses and blisters care”, in clinical practice (49.1%). The techniques and/or procedures most applied were physical resources, mentioned by 98% of respondents, manual techniques (62%), kinesiotherapy and kinesiotherapeutic techniques (58%), muscle chain techniques and global postural rehabilitation technique (53%).

Aerobic exercises during rehabilitation aiming to maintain cardiorespiratory fitness was performed by 89.1% of clubs. Table 2 shows the distribution of professionals responsible for this work, showing that 20% of cardiorespiratory activities were performed by an interdisciplinary team.

Table 2. Frequency of implementation of preventive programs, evaluation of the preventive program, professionals involved with the implementation of the preventive program and the use of preventive resources.

PERCENTAGE OF RESPONSES BY ACTIVITY ANALYZED						
Implementation of preventive programs (%)	Evaluation of the preventive program (%)	Acting in prevention (%)	Use of hot bath (%)	Use of cold bath (%)	Preventive equipment more prescribed (%)	Physical activity during rehabilitation (%)
With support 76,4	Analysis of injuries 36	Physical Trainer 83.6	After matches 16.4	After matches 49.1	Orthoses 61.8	Physical Trainer and Physical Therapist 30.9
Without support 18,2	Tests and assessments 16	Coach 67.3	After the training 43.6	After the training 54.5	Braces 61.8	Physiotherapist 21.8
Not applied 5,4	Observation / athlete's perception* 18	Physician 56.4	Never 52.7	Never 34.5	Foot orthoses 47.3	Physical Trainer 14.8

* Each one with 9%.

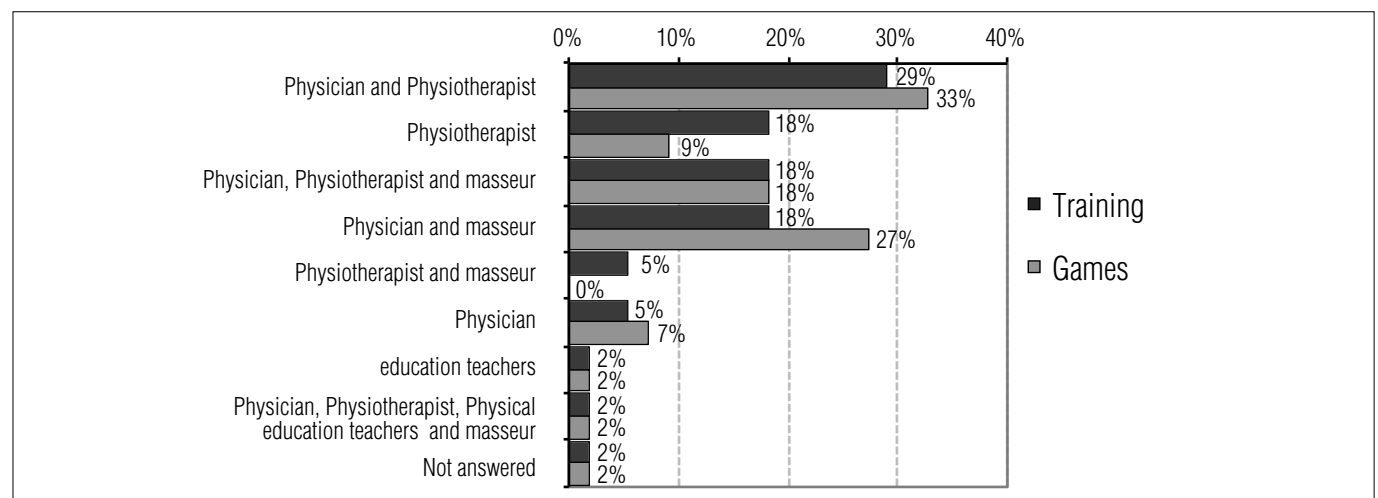


Figure 2. Professionals responsible for emergency care during practices and matches.

When asked about who was responsible for the final decision of returning to sport after rehabilitation, in 74.5% of cases the physician was responsible together with the physical therapist; in 14.5% only the physician and in 10.9% only the physical therapist. The criteria that guided such decision were primarily “subjective of the health team” (33%), followed by “excellent physical, technical and functional capacity” (22%), “pathophysiological criteria” (20%) and “needs of the club” (20%).

Tests or evaluations used for the clinical decision to return to sports were “always” performed by 67.3% of the interviewed professionals, while 27.3% said it was “almost always” and 5.5% answered “sometimes”. Among the professionals responsible for the gradual return of the athlete to functional activities on the soccer field and volleyball court, the most frequently cited were physical therapists with the physical educator (70.9%), followed by the physical therapist alone (27.3%). The remainder (1.8%) was represented by other interactions.

Analysis of Interdisciplinarity in Sport

Health professionals that were most commonly present in the interdisciplinary team/clube and that were hired directly by the team/clubs were the physical educator, with 94.5% of citations, the physician with 89.1% and the nutritionist with 69.1%. Among those who were hired to work sporadically, the most cited was the dentist surgeon, with 50.9% of citations. The professionals who were appointed as the least present in the team were the podiatrists, with 61.8%, and nurses with 50.9%. The study highlighted the work of psychologist and nutritionist during the rehabilitation process. Interestingly, 41.8% said that the injured athletes never had psychological follow-up, and 22.2% were not treated by a nutritionist during rehabilitation.

Analyzing the frequency of interaction between physical therapist and other professionals, it was observed that over 70% of physical therapists reported to constantly interact with physicians and 69.1% with the coach. The interaction with the directors of the club/team followed a pattern somewhat different because only 43.6% of physical therapists said that it

occurred very often. The autonomy of the physical therapist in sports team was restricted by the directors, the coach and the physician, with the latter being responsible for higher levels of restriction (Table 3).

Analysis by Modality

Statistically significant differences were found in relation to hiring practices, service provision, and wages (Table 1). There was a greater number of professionals who received more than ten minimum wages for those working at soccer clubs ($p<0.001$) and from seven to ten minimum wages for those working at volleyball clubs ($p<0.001$). There was a greater contribution of volleyball physical therapists in the athlete's emergency care ($p<0.001$), and participation in developing or supporting the development of prevention programs ($p<0.001$).

Discussion ::::

Soccer and volleyball modalities were chosen to be included in this study to characterize sports physical therapists profile because these sports are the most practiced in Brazil and those with the highest investments^{18,19}. Therefore, these modalities can be considered as reference to collective sports.

In the present study, a small presence of women as sports physical therapist was detected when compared with male physical therapists. The presence of women was only in volleyball, revealing a possible prejudice against female physical therapist's in professional soccer. The most common age of sports physical therapists was 28 years, and this fact possibility reflects the time required after graduation for the completion of specialization courses and the professional growth needed for the therapist to complement their education in the sports field²⁰. In the present study, 78.2% of the interviewed professionals completed at least one specialization course. Data about the education of the Brazilian sports physical therapy differ from the findings of Waddington, Roderick and Naik⁹, in which half of the English clubs had physical therapists without specialization degrees. However, it should be noted that only half of the physical therapists included in this study had specialization in sports area. This fact indicates that although acting in the sports field, some professionals may not be considered experts in the area.

In Brazil, referrals of physical therapists to clubs/teams represent the main hiring method, and the referral source is diluted among physical therapists colleagues, technicians and physician. However, the latter is the professional that most restricted the autonomy of physical therapists according to the results of this study. Referring again to English soccer⁹, it

Table 3. Restriction level of autonomy of physical therapists by other professionals.

Answers	Physician	Director / President / Supervisor	Coach
Constant	0.0%	0.0%	0.0%
Almost always	7.3%	0.0%	0.0%
Somewhat frequent	10.9%	0.0%	5.5%
Infrequently	29.1%	30.9%	34.5%
Never	50.9%	67.3%	58.2%
No reply	1.8%	1.8%	1.8%
TOTAL	100.0%	100.0%	100.0%

is remarkable that the recruitment of physical therapists, in most cases, occurs through interviews applied by a manager, without consulting other members. Although this type of selection may be more often based on merit, if also associated with low professional qualification, it can represent a threat to the autonomy of physical therapists as these soccer managers, besides the physicians of the club, may influence physical therapists' clinical decision making¹⁹.

The type of employment most frequently reported (54.5%) was the formal contract; the others are represented by contractors working as individuals or as legal entities. These data differ from the DIEESE study, conducted in the metropolitan areas of Brazil, in May/2008, in which 44.5% of workers had formal contract and 7.5% worked as individual contractors²¹. The hiring of contractors as legal entities is common practice in professional sports, and the result of this study demonstrated that this is also true for physical therapists.

The results of this study show that most sports physical therapists (83.7%) had wages above those recommended by FENAFITO (National Federation of Physical Therapy and Occupational Therapy Syndicates) which at the time of the conclusion of the interviews was designated at 3.6 minimum wages (R \$ 1,468.00)^{22,23}. Nevertheless considering the minimum wage suggested and desired by the same entity (7.8 minimum wages or R \$ 3,214.22), there were 58.2% of physical therapists within or above this wage range²². The hours of work of the interviewed physical therapists can be considered high, since 80% worked more than 8 hours or in exclusive dedication regime to the club. This finding is in disagreement with the Law n°. 8856 of March 1/1994, that sets 30 hours/week as the maximum hours of work for the profession²³. These findings suggest that some of the extra income perceived by the professionals will compensate for this distortion. Furthermore, the receipt of "extras" and "bonuses" from the club/team reveals how physical therapists are recognized by the directors of the team/clubs.

The role of physical therapists is observed in all domains of their previously described practice, suggesting their involvement in all possible functions. It is noteworthy, the important role of physical therapists in the area of emergency care, individually or in association with physicians and specially in training, where there is a cultural figure of the massagist in Brazil. However, there is still a large potential market to be conquered by sports physical therapist at the emergency care in matches. Therefore, the clubs need to hire more physical therapists to attend this demand, and physical therapists need more solid education, combined with political recognition by the federations and confederations of the physical therapist as a professional who can act in a scientific and secure manner in alliance with the physician.

Another important area of sports physical therapy is the prevention of injuries²⁴⁻²⁸. The implementation of an adequate

prevention program requires that injuries are recorded, that systematic evaluation of the effect of preventive measures are assessed and that an interdisciplinary team is included in the process^{11,24}. In the present study, it was observed that the vast majority of clubs had injuries record and encourage prevention programs. However, the manner to which the prevention programs were performed appeared not to be systematic and was absent in 44% of clubs. This fact indicates the need for more evidence based practice in injury prevention. The clubs that support prevention programs are those who have a greater presence of physicians, psychologists and nutritionists, as well as a greater number of other professionals integrating the team, which strengthens the interdisciplinary character of the prevention^{9,18,25,26}.

Significant differences were detected in comparisons between volleyball and soccer physical therapists. Most differences between professionals and their work environments originated possibly from the culture and organization of each modality²³. For example, due to the link of volleyball with companies, physical therapists were most often employed as a contractor rather than as an employee with a formal contract. Furthermore, physical therapists who worked with soccer were better paid and also receive more bonuses. This reflects the greater economic power of the Brazilian soccer compared to volleyball. The professional who worked with volleyball had increased participation in emergency care and greater participation in prevention programs. This can be explained by the smaller number of other professionals involved in volleyball, compared to soccer. It seems that the absence of other professionals dilutes the responsibility of developing and implementing prevention programs in soccer which is different in volleyball where this activity is part of physical therapy practice.

The results of the present study demonstrated that sports physical therapist were active within the interdisciplinary team. The data showed a good participation of physical therapist in maintaining the performance of injured athletes (30.9% with the physical educator and 21.8% alone), very good participation in the decision of the athlete's return to activities after rehabilitation (74.5% with the physician and 10.9% alone), in the veto and release of the athlete to the sport (63.6% always participate) and excellent participation in the functional rehabilitation (70.9% with the physical educator and 27.3% alone). This might reflect the respect given to the role of the physical therapist in the rehabilitation process and return to competition within the Brazilian sport community.

Professional autonomy can be defined as the ability of self-governance that can be used or not, or as the freedom to judge and of decision making^{29,30}. Studies on the autonomy of physical therapists have most often reported on the relationship between

physical therapist/doctor, where there is a lack of definition of roles and responsibilities, creating internal and external conflicts²⁰. In this study, 70% of respondents reported that they had interaction with physicians in their clubs. However, the restriction by this professional on the role of the physical therapist was greater when compared with those from other professionals of the team (directors and coaches). Professional autonomy is drawn from the established definitions of what is the prerogative and what is instrumental to the profession²⁸⁻³⁰. Sports physical therapists should look for a concrete definition of what is proper for physical therapy, what characterizes them as a professional and establish themselves as distinct and integral member of the healthcare sport team. The most common resources used (e.g. electrotherapy 98% and manual techniques 62%), the skills that were demonstrated by sports physical therapists (e.g. prescription of orthotics and insoles 61.8%) and the activities performed at the club (e.g. prevention and functional rehabilitation) became clear in this study. The possible areas of action of physical therapists in sports are extensive, can overlap with the areas of action of other professionals and therefore, produce conflicts.

The evaluation process is also a major definition of the physical therapist role^{10,29}. Unfortunately, only 16% apply tests and evaluations to determine the results of prevention, while 44% did not answer this question. Furthermore, in the release of the athlete after rehabilitation, the subjective nature of the evaluation was more commonly implement than tests and

evaluations performed by the physical therapist. The prescription of equipment with intent to prevent injuries has been cited in the literature as a procedure often necessary^{2,4,5,11,31,32}. Orthoses and insoles were the prevention procedures most indicated by the interviewed physical therapists. Moreover, the lack of definition in the literature regarding the results and benefits of using an ice bath or hot bath after matches and/or training has generated conflicting results among respondents. The absence of standardized tests to evaluate the outcomes of interventions and the lack of consensus regarding the best protocol for each intervention reveal the need of a better scientific basis for the performance of the profession.

The results of the present study are restricted only to the description of the profile of physical therapists working with professional soccer and volleyball. However, sports physical therapists profile in amateur clubs or in other sports may be different from these results. Thus, further studies involving physical therapists working in individual sports and in other work environments, such as fitness centers and social clubs should be encouraged.

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