

Knowledge about first aid among physical education professionals outside school settings

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Abstract:

Approaches of Physical Education professionals, which work in non-school settings, include the development of simple physical activities for health maintenance and quality of life improvement, physical training prescriptions for high performance purposes and orientation of therapeutic protocols. However, the interventions may lead to accidents of all types to the practitioners and, therefore, it obliges the professionals to act as a primary rescuer in situations of urgency and emergency. This research aimed to investigate the knowledge level in first aid of Physical Education professionals who work in non-school settings. Three hundred eighteen Physical Education professionals, who work non-school settings, were submitted to questionnaires with multiple choices, and essay questions about First Aid. The participants, on a larger scale, had access to First Aid contents during the academic education period, either at college or through external courses (92.8%). However, the course completion, at a specific time in the undergraduate process, has not been sufficient to prepare them for urgency and/or emergency situations. In addition, they presented little ability with basic concepts and behaviors, especially regarding cardiopulmonary resuscitation and the use of automatic external defibrillator. Additionally, 72% of professionals answered they do not have self-confidence to provide first aid in any situation. In conclusion, Physical Education professionals present insufficient theoretical knowledge in first aid, being necessary some better training in this area, both in the theoretical and practical aspects.

Keywords: Physical Education, First Aid, Professional Training, Accidents, Health Personnel.

Conhecimento sobre primeiros socorros entre os profissionais de educação física fora do ambiente escolar

Resumo:

As abordagens dos profissionais de Educação Física, que trabalham em ambiente não escolar, incluem o desenvolvimento de atividades físicas simples para manutenção da saúde e melhoria da qualidade de vida, prescrições de treinamento físico para fins de alto desempenho e orientação de protocolos terapêuticos. No entanto, as intervenções podem levar a acidentes de todos os tipos para os profissionais e, portanto, obrigá-los a atuar como socorristas em situações de urgência e emergência. Esta pesquisa teve como objetivo investigar o nível de conhecimento em primeiros socorros de profissionais de Educação Física que atuam em ambientes não escolares. Trezentos e dezoito profissionais de Educação Física, que trabalham fora da escola, foram submetidos a questionários de múltipla escolha e questões discursivas sobre Primeiros Socorros. Os participantes, em maior escala, tiveram acesso aos conteúdos de Primeiros Socorros durante o período de formação acadêmica, na faculdade ou através de cursos externos (92,8%). No entanto, a conclusão do curso, em um momento específico do processo de graduação, não foi suficiente para prepará-los para situações de urgência e/ou emergência. Em adição, eles apresentaram pouca habilidade com conceitos e comportamentos básicos, principalmente em relação à ressuscitação cardiopulmonar e ao uso de desfibrilador externo automático. A preocupação é que 72% dos profissionais responderam que não têm autoconfiança para prestar primeiros socorros em qualquer situação. Em conclusão, os profissionais de Educação Física apresentam conhecimento teórico insuficiente em primeiros socorros, sendo necessária uma melhor formação profissional nessa área, tanto nos aspectos teóricos quanto práticos.

Palavras-chave: Educação Física, Primeiros Socorros, Formação Profissional, Acidentes, Pessoal de Saúde.

Conocimientos sobre primeros auxilios entre los profesionales de la educación física fuera del ámbito escolar

Resumen:

Los enfoques de los profesionales de Educación Física que trabajan en un entorno fuera de la escuela incluyen el desarrollo de actividades físicas simples para mantener la salud y mejorar la calidad de vida, recetas para entrenamiento físico de alto rendimiento y orientación sobre protocolos terapéuticos. Sin embargo, las intervenciones pueden provocar accidentes de todo tipo para los profesionales y, por lo tanto, el fuerza a los profesionales a actuar como respondedores de emergencia. Esta investigación tuvo como objetivo investigar el nivel de conocimiento de primeros auxilios de los profesionales de educación física que trabajan en entornos no escolares. Trescientos dieciocho profesionales de educación física, que trabajan fuera de la escuela, fueron sometidos a cuestionarios de opción múltiple y preguntas de ensayo sobre primeros auxilios. Los participantes, en mayor escala, tuvieron acceso a los contenidos de primeros auxilios durante el período académico, en la universidad o a través de cursos externos (92.8%). Sin embargo, la finalización del curso en un punto específico del proceso de titulación no fue suficiente para preparar a los profesionales para situaciones urgentes y / o de emergencia. Además, mostraron poca habilidad con los conceptos y comportamientos básicos, especialmente con respecto a la reanimación cardiopulmonar y el uso del desfibrilador externo automático. La preocupación es que el 72% de los profesionales respondieron que no tienen la confianza para brindar primeros auxilios en ninguna situación. En conclusión, los profesionales de Educación Física tienen un conocimiento teórico insuficiente en primeros auxilios, lo que requiere una mejor capacitación profesional en esta área, tanto en aspectos teóricos como prácticos.

Palabras clave: Educación Física, Primeros auxilios, Accidentes, Formación Profesional Personal de salud.

INTRODUCTION

Regular practice of exercises has been widely recommended for the purpose of improving physical fitness, maintaining health and preventing and treating chronic diseases (OJA e TITZE, 2011). An important aspect is that the establishment of systematized physical activity for prevention and treatment of diseases, provided by Physical Education teachers, creates opportunities to work in the scope of therapeutic intervention. It happens through exercise application as a non-pharmacological treatment strategy in non-school settings, including clubs, sport schools, gyms, studios, hospitals and basic health units. However, studies have shown that Physical Education professionals present insufficient knowledge regarding clinical conditions, which may involve greater risk of medical interurrences, mainly during the activities (VANCINI *et al.*, 2010; VANCINI *et al.*, 2012).

Based on this, Physical Education professionals may intervene with corporal practices in health or disease context, and the safety of exercise prescription must be priority in the daily intervention for healthy and unhealthy people. However, even with the necessary care during the intervention, urgency and/or emergency situations may occur. Therefore, in the case of an accident and/or risky circumstances and damage to the health of the practitioner, the Physical Education professional must be prepared to act in basic life support until the arrival of a specialized team (advanced life support) (VANCINI-CAMPANHARO *et al.*, 2013), which makes it essential to present theoretical and practical knowledge about first aid, a topic sometimes not appreciated by students and teachers during academic formation in Physical Education. It is important to point out that first aid aims to maintain the victim integrity and vital functions until the arrival of specialized assistance in order to prevent possible health problems and sequels; Physical Education teachers are inserted in the health area and as such, they present an important role in performing of basic life support (CARDOSO, 1998; PANDEY *et al.*, 2017). Thus, these professionals must know how to analyze and evaluate the victim, perceive the signs and symptoms, know and recognize disorders and injuries, apply prevention and intervention methods and operate in a possible emergency/urgency situation (BERNARDES *et al.*, 2007; COSSOTE *et al.*, 2015).

Studies have shown that Physical Education teachers in school environment present insufficient theoretical and psychological preparation to perform first aid maneuvers (BERNARDES *et al.*, 2007; GHAMOUM *et al.*, 2015). However, there is some research that

verified the level of theoretical and technical knowledge about the first aid of professionals working in non-school settings, in which, among other interventions, the high performance and the treatment of chronic diseases are approached, situations that may expose the professionals and clients to emergency events (PAIANO *et al.*, 2014; COSSOTE *et al.*, 2015; GHAMOUM *et al.*, 2015).

As such, due to the risk of accidents and sudden illness inherent in the physical activity assisted by a Physical Education teacher, the aim of the present study was to evaluate the level of knowledge about First Aid of these professionals in several workplaces outside the school.

MATERIAL AND METHODS

Sample of respondents: The sample calculation was performed with a prevalence (P) estimated at 30% for the knowledge prevalence in First Aid, confidence level of 95% and relative accuracy of 5%. Thus, the estimated total sample size should be 322 individuals; however, a stratified sample composed by 318 Physical Education professionals of both genders who worked in non-school settings was used. This study respected the ethical principles of research involving human beings (Resolution 466/12) and was approved by the Research Ethics Committee of the Federal University of Espírito Santo (protocol - 35485714.4.0000.5542).

Study design: The research was characterized as qualitative-quantitative, transversal with exploratory and descriptive character that aimed to investigate the knowledge about First Aid of Physical Education professionals through the application of a questionnaire. The inclusion criteria of the participants were: a) Graduated in Physical Education; b) Registration in the Council of Physical Education; c) Professional performance in non-school environments. The places for data collection were randomly selected according to the following distribution: 46 gyms (, 2 Pilate's studios, 2 aquatic practice places, 4 clubs and 3 sports advisories.

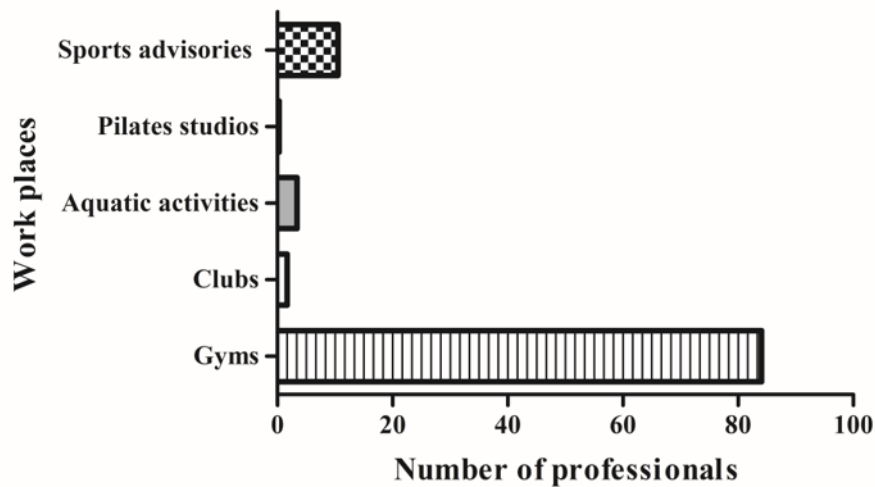
First Aid Knowledge Evaluation: The field research occurred during three months and two questionnaires were used with multiple choices, yes/no and essay questions related to the theme and adapted from the literature (CARDOSO, 1998; PERGOLA e ARAUJO, 2008). The questionnaires were delivered and collected by two evaluators at the application places. After answers collection, the data were transcribed and stored in a spreadsheet for analysis. It is important to point out that until the 13th question the questionnaires were similar for professionals which worked with aquatic or terrestrial practices; from the 14th, the questionnaire was adapted to the work environment (terrestrial and aquatic). The instrument was developed over the following domains: experience and attitudes taken in emergencies and/or urgencies; knowledge about injury assistance procedures; preparation level for possible events; decisions taken in situations of unconscious victim; vital signs verification; access to specialized local service and information which must be transmitted. In this sense, specific questions have been created for professionals working with terrestrial practices with regard to the following themes: importance of fast and accurate first aid, cardiopulmonary resuscitation (CPR) procedures, use of automatic external defibrillator (AED) and cases of bleeding. In addition, the professionals who worked with aquatic practices were questioned about the situation of drowning and procedures in situations of cardiorespiratory arrest (CRA) and / or loss of consciousness.

Statistical analysis: The calculation of sample size and the tabulation, description and analysis of data were performed using software *SigmaStat - 3.5* and *Microsoft Excel 2010*. Data were expressed in absolute and relative frequency (%).

RESULTS

Figure 1 presents workplaces of professionals: gyms (n= 262); clubs (n= 9); aquatic activities places (n= 36); *Pilate's* studios (n= 2) and sports advisories (n= 9).

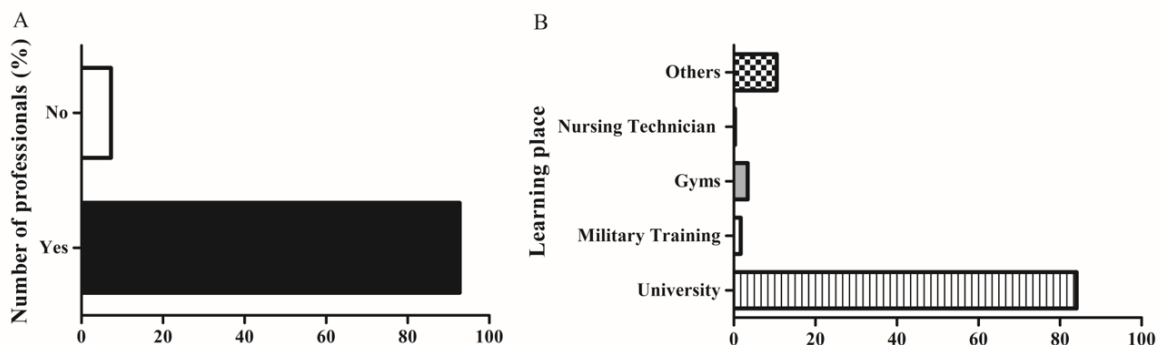
Figure 1. Number of Physical Education professionals by work place.



Source: Authors.

Figure 2 shows the answers to questions 1 and 2. Results demonstrate that 295 participants (92.8%) answered they had taken a course and/or training in First Aid and 23 participants (7.2%) stated that they had not taken and/or completed any course (Figure 2A). In addition, most professionals ($n = 248$, 84.1%) had access to information about First Aid during their graduation; 5 (1.7%) answered they had taken First Aid in military training; 10 of the professionals (3.4%) have experienced in gyms; 1 professional (0.3%) had experience in the course of Nursing Technician and 31 (10.5%) answered other places which included single courses (Figure 2B).

Figure 2. (A) Percentage distribution of the sample answers regarding who has attended or not the First Aid course and/or has attended training; (B) First Aid course: Learning place



Source: Authors.

Table 1 represents answers to question 3. Considering that 92.8% (n = 295) of professionals who attended the course during the graduation or others, the knowledge acquired in academic space and in single courses was not satisfactory for application in professional practice, since most teachers (n = 212; 72%) are not prepared to provide first aid in any type of situation (Table 1). Thus, only 28% (n = 83) of the professionals who attended the First Aid course considered themselves prepared for emergency situations.

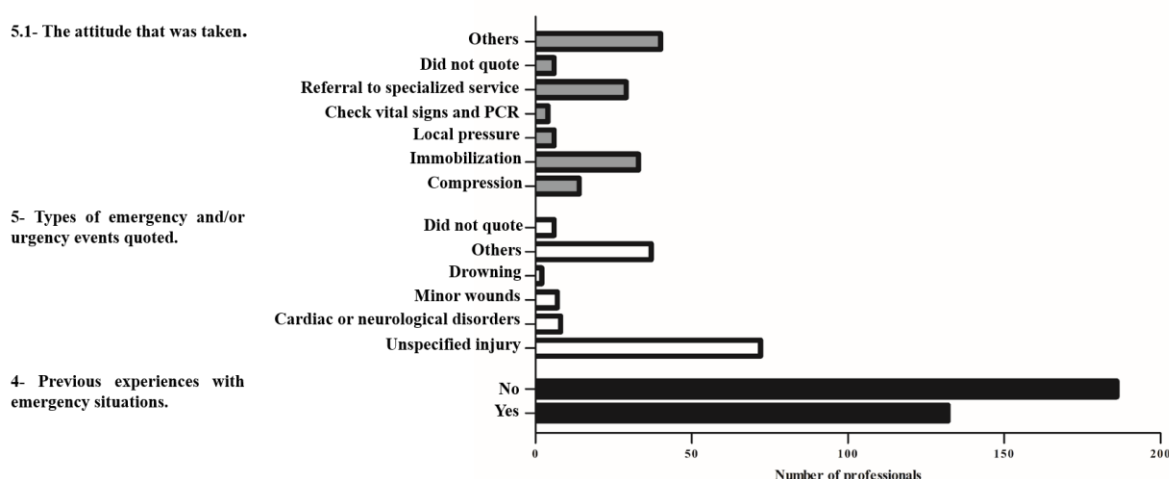
Table. 1 – Distribution of absolute and relative frequencies of Physical Education teachers prepared to provide First Aid assistance.

| Professionals who attended the course during the graduation course or others | Number of Physical Education teachers prepared to provide First Aid assistance | |
|--|--|------------|
| | N | % |
| Yes | 83 | 28,14 |
| No | 212 | 71,86 |
| Total | 295 | 100 |

Source: Authors.

Figure 3 presents the answers to questions 4 and 5. In relation to previous experiences with emergency situations, the results indicate that 186 professionals (58.5%) had never experienced this scenario and 132 (41.5%) had previous experience. The types of emergency and/or urgency events cited were: unspecified injury (n = 72, 54.5%), cardiac or neurological disorders (n = 8, 6.1%), minor wounds (n = 7, 4%), drowning (n = 2, 1.5%), others (n = 37; 28%) and 6 professionals (4.5%) did not mention the situation experienced. Decision making and the attitude of the professional are fundamental in this scenario. In this context, it was mentioned: compression (n = 14; 10.6%), immobilization (n = 33; 25%), local pressure (n = 6, 4.5%), check vital signs and PCR (n = 4; 3.1%), referral to specialized services (n = 29; 22%), others (n = 40; 30.3%) and 6 (4.5%) professionals did not mention taking attitude.

Figure 3. Frequency of answers (n= 318) to questions 4, 5 and 5.1. **Black bars:** previous experiences with emergency and/or urgency situations. **White bars:** type of emergency and/or urgency which was experienced. **Gray bars:** attitudes which were taken during the experience.



Source: Authors.

Table 2 shows answers to questions from 6 to 9 of questionnaires, which approached basic knowledge in First Aid in the field of injuries. Based on the results, 165 professionals (51.9%) correctly answered the question about the initial procedures for distress in muscle cramp situations and 260 (81.8%) presented knowledge of the attitude to be taken in situations of muscular distention until arrival of the specialized service. In cases of removal of the victim after sprain, fracture, dislocation or contusion of the lower limb, 254 (79.9%) of the professionals answered correctly about the procedures which must be performed. Furthermore, when confronted about possible suspected fracture of the spine, 281 professionals (88.4%) were aware of the standard procedure which must be carried out until the arrival of the specialized team.

Table. 2 – Distribution of correct answers in absolute and percentage values about First Aid for injuries.

| Questions | N | (%) | Correct answer |
|---|-----|--------|--|
| How to proceed in case of muscle cramps? | 165 | (51.9) | Stretch the muscle and apply warm compress. |
| How to proceed in case of a muscle sprain until the arrival of specialized care? | 260 | (81.8) | Apply cold compress and immobilize the site. |
| In case of lower limb injuries, such as: sprains, fractures, dislocations, contusions and etc. How is the victim removed? | 254 | (79.9) | The victim must be carried with the help of one or more persons and avoiding movement of the injured limb. |
| When there is suspicion of a break in the spine, what should be done? | 281 | (88.4) | Do not mobilize the victim or move it in block if necessary. |

Source: Authors.

Table 3 shows the answers from questions from 10 to 13 regarding decision-making in emergency situations in the daily work of professionals, including cases in which the victim is unconscious. In this context, the majority of the participants (n = 270; 84.9%) stated that they would verify the vital signs and would call the specialized aid. Moreover, we observed the following responses and attitudes: life sign verification (n = 22, 6.9%), specialized care request (n = 24, 7.6%) or driving to hospital (n = 1; 0.3%) and 1 (n = 0.3%) participants would not know which decision to take. It is noteworthy that 300 professionals (94.3%) emphasized knowing how to verify the presence of vital signs; a part of the professionals (n = 13, 4.1%) was not aware of this topic and 5 (1.6%) did not respond. The following vital signs were cited by the participants: breathing (206 times, 34.5%), heart rate (291 times, 48.7%), coloration/pupil (47 times, 7.9%), temperature (18 times, 3.0%), consciousness (12 times, 2.0%), blood pressure (5 times, 0.9%); and 18 (5.6%) participants did not know how to indicate at least 1 vital signal. In this question, part of the professionals cited more than 1 vital signal, which caused an absolute frequency of responses greater than the number of interviewees.

Concerning the knowledge of the telephone number of the specialized urgency/emergency service, 250 participants (78.6%) reported knowing, 29 participants

(9.1%) claimed to be unaware and 39 (12.3%) did not respond. The following services were cited: SAMU (n = 202, 38.8%), Police (n = 189, 36.3%), Rescue Team (n = 61, 11.7%) and 68 (21.3%) professionals did not know how to appoint at least 1 local service; in this question, part of the participants cited more than 1 specialized service, which caused an absolute frequency of responses greater than the number of interviewees.

An important approach during an emergency event is what kind of information should be transmitted to the specialized service during the request for rescue. Most of the professionals answered that they would report vital signs (n = 203, 63.8%). However, other alternatives were pointed out: “I would inform whether the victim was injured” (n = 25; 7.9%) or “I would inform whether the heart was beating” (n = 4; 1.3%). It is a worrying fact that a considerable part of the professionals (n = 86; 27%) would not know what to observe and inform, as well as nullified the question or did not answer it.

Table 3 – Physical Education answers from questions 10 to 13 of the questionnaires.

| Questions | |
|---|------------|
| Q10. What is the first measure to be taken in a situation in which the victim is unconscious? | |
| Check for vital signs and call for specialized aid. | 270 (84.9) |
| Check for vital signs. | 22 (6.9) |
| Call for specialized aid. | 24 (7.6) |
| Take to the hospital. | 1 (0.3) |
| Did not know how to intervene. | 1 (0.3) |
| Q11. Do you know how to check for vital signs? | |
| Yes. | 300 (94.3) |
| No. | 13 (4.1) |
| Did not answer. | 5 (1.6) |
| Q11.1. Vital signs cited by professionals: | |
| Breathing. | 206 (34.5) |
| Heart rate. | 291 (48.7) |
| Coloration/pupil. | 47 (7.9) |
| Temperature. | 18 (3.0) |
| Consciousness. | 12 (2.0) |
| Blood pressure. | 5 (0.9) |
| Q12. Do you know the emergency service number of your city? | |
| Yes. | 250 (78.6) |
| No. | 29 (9.1) |
| Did not answer. | 39 (12.3) |
| Q12.1. What are the services? | |
| SAMU. | 202 (38.8) |
| Police. | 189 (36.3) |
| Rescue Team. | 61 (11.7) |
| Did not know how to answer. | 68 (21.3) |
| Q13. What details must be observed on a victim and reported for the First Aid services during the call for emergency appeal? | |
| Information about wounds. | 25 (7.9) |
| Information about vital signs. | 203 (63.8) |
| Information about cardiac activity. | 4 (1.3) |
| Not aware of what to report. | 86 (27.0) |
| Data expressed in absolute and relative (%) frequency of answers. | |

Source: Authors.

Table 4 shows the knowledge level of 282 participants who intervened in terrestrial practices (from question 14 to 18). Most of the professionals were aware of the First Aid importance for the prognosis of the victim (n= 203; 72%). Regarding the cardiopulmonary

resuscitation (CPR) maneuver in adults, only 120 (42.5%) professionals chose the alternative that contemplated the correct procedures which must be performed in this case. Additionally, few professionals (n= 101; 35.8%) were aware of the acronym AED, automatic external defibrillator; even less expressive was the number of professionals who knew in which situation to use it (n= 62; 22%). Regarding the treatment of bleeding victims, most professionals responded by pressing the wound until it stopped bleeding (n = 222; 78.7%), which is correct.

Table. 4 – Distribution of answers in absolute and percentage values of professionals regarding First Aid procedures in terrestrial practices (n = 282).

| Questions | n | (%) | Correct answer |
|---|-----|--------|--|
| Why is it necessary to perform first aid with great precision and short interval of time? | 203 | (72.0) | To avoid sequelae, ensure continuity of treatment and decrease discomfort. |
| How is the CPR maneuver in adults done? | 120 | (42.5) | Thoracic compressions. |
| Professionals who knew the meaning of the acronym AED. | 101 | (35.8) | - |
| In which situations should the AED be used? | 62 | (22.0) | In situations in which the victim is in CRA. |
| How to perform in cases of bleeding? | 222 | (78.7) | Press the wound until it stops bleeding. |

Source: Authors.

Professionals who worked in aquatic practices (n= 36) answered specific questions (14 to 19) involving situations of drowning (Table 5). Most of the professionals (n= 33, 91.7%) were aware of the standard drowning victim's care procedure, that is, removing the victim using available materials (float, rope, piece of wood, etc.). The symptoms of CRA in a drowning victim were correctly verified by 34 professionals (94.4%). The majority of participants (n= 31, 86.1%) also opted for the correct alternative when questioned about the positioning of a victim who was unconscious but breathing and without suspected fracture of the vertebral column after drowning, that is, in lateral decubitus. Furthermore, the standard procedure to facilitate the rescue of a drowning victim (observation, entry into the water, approach, towing and care) was correctly pointed out by 19 professionals (52.8%). The same number of professionals (n= 19; 52.8%) answered the question about the sequence of procedures in victims with CRA after drowning (check vital signs, airway opening, insufflation and compression). Of concern is that only 9 professionals (25%) have opted for the correct alternative to the CPR maneuver that should be performed on adults after drowning.

Table. 5 – Distribution of sample answers in absolute and percentage values of professionals regarding First Aid procedures in aquatic practices (n= 36).

| Questions | N | (%) | Correct answer |
|--|----|--------|--|
| How to proceed during a drowning victim situation? | 33 | (91.7) | Remove the victim using available materials (float, rope and piece of wood). |
| After a drowning, the victim suffers CRA, what are the signs? | 34 | (94.4) | Loss of consciousness, breathing and heartbeat. |
| In relation to drowning, the victim is breathing, but is unconscious, what position should it be placed in if there is no suspected fracture of the spine? | 31 | (86.1) | Lateral decubitus. |
| What steps should be performed to facilitate the rescue of a drowning victim? | 19 | (52.8) | Observation, entry into the water, approach, towing and care. |
| During a drowning, the victim suffers a CRA. What is the sequence of procedures? | 19 | (52.8) | Check for vital signs, opening of the airways, insufflation and compression. |
| In drowning, how is the CPR maneuver in adults? | 9 | (25.0) | Thoracic Compressions. |

Source: Authors.

DISCUSSION

First Aid is performed in order to preserve life and prevent aggravation of the victim's condition and minimize sequelae (CARDOSO, 1998; PANDEY *et al.*, 2017). Health professionals, including the Physical Education teacher, must be prepared to act in emergency and/or urgency situations in the workplace, since events of low (eg.: cramps) or high (eg.: cardiorespiratory arrest) complexity may occur (CONSELHO FEDERAL DE EDUCAÇÃO FÍSICA, 2008). In this context, although it is fundamental for the formation of Physical Education

professionals, the subject of First Aid, when included in the University Graduate curriculum, is generally undervalued in the undergraduate process, a scenario that may make them unprepared and with low safety to act in emergency and/or urgency situations.

Therefore, the aim of the present study was to investigate the level of knowledge about First Aid of Physical Education professionals working in non-school settings. Our findings show that First Aid learning during undergraduate and further other short-term courses, such as workshops have not been sufficient to prepare professionals to act in emergency and/or urgency situations. This reflection arises from the fact that although most of professionals have affirmed access to the contents of the area during the academic training process, they still have low intimacy with concepts and basic behaviors, mainly in relation to CPR and AED utilization. In addition, another important and concern finding is that 72% of professionals report having no self-confidence to provide first aid despite the majority claiming to have had contact with the content.

It is necessary to emphasize that the low knowledge of Physical Education professionals has been observed in other areas often neglected in the process of academic formation. Previous studies aimed to investigate the knowledge of health professionals about different diseases, such as epilepsy (VANCINI *et al.*, 2010; VANCINI *et al.*, 2012) and poliomyelitis and post-polio syndrome (LIRA *et al.*, 2013). Vancini *et al.* (2010) investigated the knowledge of Physical Education professionals about epilepsy and found that these professionals have misconceptions about the disease. Surprisingly, one interviewee answered that epilepsy has its etiology linked to "demonic" issues. Posteriorly, the same group of researchers investigated the knowledge about epilepsy among physicians, nurses, physiotherapists, psychologists, nutritionists and physical education professionals, and among these professionals, misconceptions about the disease were also identified, especially among physiotherapists, nutritionists and Physical Education professionals (VANCINI *et al.*, 2010). Lira *et al.* (2013) investigated the knowledge about poliomyelitis and post-polio syndrome among physical education teachers and, similarly to the studies mentioned previously, misconceptions about the subject were also found. It is important to point out that Vancini *et al.* (2010) and Lira *et al.* (2013) showed that those professionals which, at some point in the professional formation had contact with information about epilepsy, poliomyelitis and post-polio syndrome, respectively, through undergraduate First Aid course, scientific events and etc., presented a higher level of knowledge about the subjects

approached. Furthermore, Vancini-Campanharo *et al.* (2013) affirm that knowledge about basic life support (BLS) - essential content in the context of first aid - among health professionals and caregivers of people with epilepsy is fundamental since they present a higher risk of sudden death. These results indicate that continuing education programs should be promoted among health professionals, including physical education teachers, in order to improve the management, conduct and care for patients (VANCINI *et al.*, 2010; VANCINI *et al.*, 2012; LIRA *et al.*, 2013).

Regarding the professional's area of performance for the present study, the majority (82.4%) worked in gyms. In this context, we found only one study that evaluated the knowledge about first aid among Physical Education professionals, specifically, in these places. This research also proposed that the professionals did not have self-confidence to provide relief in case of fainting and loss of consciousness and sufficient theoretical/practical knowledge to verify a CRA and perform the CPR maneuver (COSSOTE *et al.*, 2015), which is in agreement with our findings.

In the school environment, it was observed that the level of knowledge about First Aid of Physical Education teachers is not satisfactory (ALBERNETHY *et al.*, 2003; BERNARDES *et al.*, 2007; FIORUC *et al.*, 2008). Albernethy *et al.* (2003) alerted to the need of professionals who work with sports practices at school to undergo an ongoing basic life support (BLS) training process. Newly, it is worth mentioning that the problem of the lack of knowledge and preparation to provide First Aid is not particular to Physical Education (NEVES *et al.*, 2010).

In addition, our results show that most of the participants (92.8%) present some training in First Aid either during graduation course or other type of formation. In spite of this, 7.2% of the professionals stated that they did not have this content in the undergraduate curriculum and 22% did not carried out the discipline, which is often an optional course. This fact is concerned because the theoretical/technical knowledge is fundamental for the effective application of the first aid procedures. The introduction of robust modules of this subject is essential during the academic formation of health professionals (ESTEVEZ *et al.*, 2015).

Another point to emphasize is that psychological preparation or self-reliance to provide primary relief also influences the decision-making and attitudes of professionals in

emergency and/or urgency situations (ESTEVEZ *et al.*, 2015). Our results indicate that 72% of the professionals interviewed did not have self-confidence to perform first aid procedures first aid procedures, which reinforces the idea that the contact with knowledge, as it was the case for the majority among the participants, does not guarantee the preparation for the action. Thus, in the academic formation process, it is important to establish partnerships between educational institutions and first aid entities such as SAMU and the Fire Department (BIELEC *et al.*, 2014), in order to increase the self-confidence of health professionals to act in emergency and/or urgency situations. For the same purpose, it is fundamental to increase practical and real regular experiences in First Aid training courses. Ratifying this premise, only 41.5% of the participants in this study had experience with at least 1 emergency and/or urgency event during the work routine, confirming the importance of previous and real practical experiences during training courses.

Another factor that may influence the poor preparation of Physical Education professionals for emergencies and/or urgencies situations is the low demand for refresher courses after graduated. Continuing education in First Aid is fundamental for improving the qualification of the Physical Education professional in this area (COSSOTE *et al.*, 2015). The access to the contents of this subject in a timely manner during the undergraduate process does not provide the differentiated learning of the professionals after graduated in relation to those who did not take courses (ABBAS *et al.*, 2011), ratifying the importance of the periodic refresher courses with accredited entities and based on the most current guidelines, generally established by the American Heart Association (AHA) (2015). Physical Education professionals are aware of the importance of knowledge in order to perform primary relief procedures accurately and in a short time interval (72%), making it essential that those responsible for the intervention spaces encourage their participation in refresher courses.

Additionally, according to a previous study (COSSOTE *et al.*, 2015), a large proportion of the interviewed professionals, besides not knowing the meaning of the acronym AED (64.2%) and how this instrument should be used (78%), presented poor knowledge about the procedures of CPR (57.5%). This scenario is concerned, since Physical Education teachers, especially those who intervene in non-school settings, are exposed to accidents and emergency situations that may involve CRA, and it is important to note that the time between the initiation of CRA and the beginning of CPR maneuvers is considered a crucial factor for the survival and better prognosis of the victim (Bento *et al.*, 2004). Thus, it is essential that

health professionals, including Physical Education teachers, know how to use the AED if necessary (MOULE e ALBARRAN, 2002). In this regard, new teaching strategies must be inserted during the Physical Education undergraduate courses, in order to develop the skills and improve the attitude of the professionals in the emergency situations that demand theoretical and practical knowledge of the CPR maneuver and the use of the AED (COSSOTE *et al.*, 2015).

Regarding the drowning situations, the theoretical performance of the teachers, who worked in aquatic practices, was similar in respect to the CPR maneuver. It is important to note that around 500,000 deaths are recorded worldwide due to drowning, and in Brazil it is one of the main causes of death by accident. In 2007, more than 7,000 people died of drowning, with 87% of these drowning not having intentional causes (SZPILMAN, 2010). Our results express that professionals are not prepared to act in the primary relief for this type of accident, a worrying fact because the drownings are commonplace, especially in beach regions, clubs and water parks, and all of them where Physical Education professional act.

CONCLUSION

As noted before, most of the Physical Education professionals interviewed attended a First Aid course during the undergraduate process. However, they present below-expected knowledge regarding basic concepts and behaviors, mainly in relation to CPR and the use of AED, which includes professionals engaged in terrestrial and aquatic practices; in addition, they attest to have low confidence to apply the first aid procedures in any situation. This fact may point out that: 1) First Aid courses are not effective; 2) professionals are not aware regarding the proper importance to this subject during the undergraduate process; and 3) there is a poor demand of refresher courses after undergraduate. Therefore, educational institutions should reflect on First Aid approaches in Physical Education courses to stimulate and reinforce this content importance to students during undergraduate, emphasizing the risks of not being aware of the attitude to be taken in situations that expose the student/client to life risk. Moreover, since the theoretical-practical knowledge is fundamental for the application of procedures in the daily work, it is crucial that employers

or those responsible for the intervention environments encourage the participation of Physical Education professionals in refresher courses. In the scope of the research, new studies should be developed with the inclusion of practical tests, the evaluation of different learning methods and the observation of other intervention places, since in the current study, most of the interviewed worked in gyms.

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