

Evaluation of physical educators' knowledge about epilepsy

Rodrigo Luiz Vancini¹, Claudio Andre Barbosa de Lira^{1,2}, Sergio Gomes da Silva¹, Fúlvio Alexandre Scorza³, Antonio Carlos da Silva¹, Douglas Vieira³, Esper Abrão Cavalheiro³, Ricardo Mario Arida¹

ABSTRACT

People with epilepsy suffer from a considerable lack of physical activity. In addition, an important problem of epilepsy management is the lack of qualified professionals. In this study we present data from a survey which aimed to assess physical educators' general knowledge about epilepsy. One hundred and thirty four physical educators of both sexes answered a questionnaire. Sixty percent of the professionals believe that a seizure is an abnormal electrical discharge of the brain, 13% that epilepsy is a cerebral chronic disease that can not be cured or controlled, 84% that people having convulsions will not necessarily present epilepsy and 5% that people with epilepsy have difficulties of learning. Questions concerned previous professional experience with epilepsy showed that 61% have seen a seizure and 53% have access to some information about epilepsy. Thus, 28% of professionals have a friend or relative with epilepsy, 14% have a student with epilepsy, and 29% helped someone during seizures. Our findings reveal a lack of physical educators' appropriate knowledge about epilepsy. Improvement of this might contribute to the improvement of epilepsy care/management. **Key words:** physical activity, physical education, epilepsy, knowledge.

Avaliação do conhecimento de professores de educação física sobre epilepsia

RESUMO

Pessoas com epilepsia apresentam baixa participação em atividades físicas. Um importante problema nos cuidados da epilepsia é a falta de profissionais qualificados. Neste estudo apresentamos dados de uma pesquisa para avaliar o conhecimento de professores de educação física sobre a epilepsia. Um questionário foi respondido por 134 educadores físicos de ambos os sexos. Sessenta por cento dos profissionais acreditam que a crise epilética é uma descarga elétrica anormal do cérebro, 13% que a epilepsia é uma doença crônica cerebral que não pode ser curada ou controlada, 84% que pessoas que têm convulsões não necessariamente apresentam epilepsia e 5% que pessoas com epilepsia têm dificuldade de aprendizado. Em relação à experiência prévia do profissional, 61% presenciaram uma crise epilética e 53% tiveram acesso a alguma informação sobre epilepsia. Além disso, 28% dos profissionais possuíam amigo ou parente com epilepsia, 14% tinham um aluno com epilepsia e 29% já tinham socorrido alguém durante uma crise. Nossos achados revelam uma falta de conhecimento apropriado dos profissionais da área de educação física sobre a epilepsia. A melhora desse conhecimento pode contribuir para um adequado tratamento e cuidado da pessoa com epilepsia.

Palavras-chave: atividade física, educação física, epilepsia, conhecimento.

Correspondence

Ricardo Mario Arida
Universidade Federal de
São Paulo (UNIFESP)
Rua Botucatu 862 / 5º andar
04023-900 São Paulo SP - Brasil
E-mail: arida.nexp@epm.br

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The epilepsies are the most common serious neurological condition, affecting cognitive, emotional, and behavioral conditions, ability to work, social functioning, family stability and self-esteem of the patient. They are characterized by spontane-

ous recurrent seizures, caused by focal or generalized paroxysmal changes in neurological functions triggered by abnormal electrical activity in the brain¹.

Physical exercise has been recommended as an important tool to reduce risk of cardiovascular and endocrine disease, and improve bone and muscle conditioning². In this regard, people with epilepsy should have the same benefits from an adapted physical training program as healthy persons: increased maximal aerobic capacity, increased work capacity, reduced heart rate on submaximal standardized work level, weight reduction with reduced body fat, increase self-esteem, and an antidepressant effect^{3,4}.

There are several data demonstrating that people with epilepsy would receive similar benefits from physical activity. For instance, Roth et al.⁵, which examined physical exercise, stressful life experiences, and depression in adults with epilepsy, found that active subjects had significantly lower levels of depression than inactive subjects, as well as better psychosocial adjustment. Similarly, Nakken et al.³ also noted that after a 4-week exercise program, individuals with epilepsy had an improved mental state and became more sociable. However, it has been observed that people with epilepsy suffer from a considerable lack of physical fitness that might have an impact on their general health and quality of life. People with epilepsy present significant deficits in aerobic endurance, muscle strength endurance and physical flexibility⁶. For instance, Nakken et al.³ found considerably lower maximum oxygen uptake in people with epilepsy than average population. These findings are also observed in children with epilepsy. A study conducted by Wong and Wirrell⁷ demonstrated that teens with epilepsy were less physically active than their sibling controls. Despite medical recommendations toward encouraging rather than restricting participation, the stigma remains and persons with epilepsy continue to be less active than the general population. In these lines, several studies have shown a low degree of participation in physical activities among persons with epilepsy^{5,8-10}. This reluctance of patients and physicians is due in part to fear of injuries and in part to fear that exercise will cause seizures⁸. At the same time as restriction and overprotection are put into action, clinical^{3,9,11,12} and experimental studies¹³⁻¹⁵ have shown positive effects of exercise in epilepsy. For instance, most experiments on brain electrical activity have shown that abnormal discharges disappear in most patients during physical activity but return at rest^{11,16}. It has been also observed that fewer seizures occur during both mental and physical activity compared with periods of rest^{18,19}. The increased vigilance and attention involved in exercise could explain the reduction in the number of seizures¹⁶. In animal studies, a reduction of seizure frequency was observed after an aerobic physical

training^{14,19}. In this line, all the positive effects are reached since the physical exercise is well-guided and accompanied by specialized professional²¹. The literature suggests that once the patient's seizures are well controlled they should participate in sports and physical activities. An important problem of epilepsy management is the lack of qualified professionals. In countries where specialist professionals are not commonly observed, an evaluation of knowledge in epilepsy could help to additional information for physical educators to contribute for the improvement of epilepsy care/management.

As physical exercise is usually prescribed and accompanied by a specialized physical educators, we aim to evaluate the knowledge of professional's physical education toward epilepsy in order to give them more effective support concerning safety precautions and understanding of positive effect of exercise on epilepsy.

METHOD

Subjects with academic degree in Physical Education, that lived in São Paulo City, Brazil, were invited to participate in this study. A self-administered questionnaire was designed to verify the knowledge about epilepsy and physical activity. The inclusion criterion to participate in the study was: professional with graduate degree in Physical Education. All subjects signed an informed consent document. All procedures involved in this study were approved by the University Ethic Committee.

The subjects answered a 16-item questionnaire with 15 simple close-end type response scales (Table 1 and 2) and one multiple choice question. Questions concerned: [A] general knowledge about epilepsy (10 questions) and [B] previous professional experience related to epilepsy (5 questions). The questionnaire was answered by 134 subjects (102 males and 32 females; mean age, 27.2 years; range 20-46 years). From all subjects 14.9% (n=20) were postgraduate and 85.1% (n=114) had only academic degree. Briefly, 57.4% (n=77) of them had professional experience with healthy subjects, 30.0% (n=40) with high-level sport, 10.4% (n=14) with scholar physical education, 2.2% (n=3) with scientific research and 9.0% (n=12) did not answer. A descriptive statistic analysis was used through computer software.

RESULTS

The first part of the questionnaire was designed to assess the general physical educators' knowledge about epilepsy. One hundred percent (n=134) of the subjects interviewed had already heard about epilepsy and 98.5% believe that epilepsy is not an infectious disease. Thirteen percent (n=18) believe that epilepsy is a cerebral chronic disease that can not be cured or controlled. Sixty percent (n=81) believe that a seizure is an abnormal electrical discharge of the brain. The majority of them (84.3%,

Table 1. General knowledge about epilepsy.

Question	Yes n (%)	No n (%)	Do not know n (%)
Heard about epilepsy	134 (100)	0	0
Epilepsy is a contagious disease	2 (1.5)	132 (98.5)	0
Epilepsy is a brain chronic disease that can not be cured or controlled	18 (13.4)	105 (78.4)	11 (8.2)
Seizure occurs when an abnormal electric discharge happen in the brain	81 (60.4)	10 (7.46)	43 (32.1)
All individuals that have seizure present epilepsy	6 (4.5)	113 (84.3)	15 (11.2)
People with epilepsy have difficulties of learning	7 (5.2)	100 (74.6)	27 (20.1)
The ratio of individuals with epilepsy in Brazil is 2%	12 (9.0)	5 (3.7)	117 (87.3)
People with epilepsy should study in a special classroom	2 (1.5)	124 (92.5)	8 (6.0)
Fear to live with a person with epilepsy	1 (0.8)	130 (97.0)	3 (2.2)
Would have a partner with epilepsy	97 (72.4)	30 (22.4)	7 (5.2)

Table 2. Previous professional experience with epilepsy.

Question	Yes n (%)	No n (%)	Do not know n (%)
Have seen a seizure	82 (61.2)	52 (38.8)	0
Have a friend or relative with epilepsy	37 (27.6)	93 (69.4)	4 (3.0)
Have had a student with epilepsy	19 (14.2)	109 (81.3)	6 (4.5)
Helped someone during a seizures	39 (29.1)	95 (70.9)	0
Access to any kind of information about epilepsy	71 (53.0)	63 (47.0)	0

n=113) answered that persons having convulsions will not necessarily present epilepsy. Five percent (n=7) believe that people with epilepsy have difficulties of learning. Genetic (58.2%, n=78), cerebral disease (44%, n=59), trauma (24.6%, n=33), malformation (17.9%, n=24) tumor (10.4%, n=14) and infection (4.5%, n=6) were the most referred causes of epilepsy. Twenty-one professionals (15.6%) answered that the etiology of epilepsy is not known. Surprisingly, one person referred that epilepsy could be related to supernatural causes and two persons that people with epilepsy should study in a special classroom. Ninety-seven percent (n=130) have no fear to live with a person with epilepsy and 72.4% (n=97) would not mind to have a partner with epilepsy (Table 1).

The second part of the questionnaire was concerned to previous professional experience with epilepsy. In these lines, 61.2% (n=82) of physical educators have seen a seizure, 27.6% (n=37) have a friend or relative with epilepsy and 14.2% (n=19) have had a student with epilepsy. Fifty-three percent (n=71) of them had access to any kind of information (i.e., books, leaflets, papers, etc.) and 29.1% (n=39) helped someone during seizures (Table 2).

DISCUSSION

The investigation of physical educators' attitude and knowledge about epilepsy has been extremely limited.

This evaluation is of great importance since attitudes toward people with epilepsy should be influenced by the degree of the professional knowledge about this subject²². To our knowledge, this is the first study to evaluate physical educators' general knowledge about epilepsy.

Although the favourable effect of physical fitness on general health is unquestionable, people with epilepsy are often excluded from participation of physical activity. This reluctance to allow people with epilepsy to participate in sports stems from both physicians and overprotective parents²³. Generally, these professionals do not receive any formal instruction on epilepsy during their graduate program. Some important points concerning persons with epilepsy habits should be highlighted. Steinhoff et al.⁶, in their study concluded that people with epilepsy suffer from a considerable lack of physical fitness that might have an important impact on their general health and quality of life. In fact, several studies have showed a low degree of participation in physical activities among people with epilepsy^{3,5,8}. For instance, in a study of patients with epilepsy in Norway only 23% participated in organized physical activity⁸. We should also consider whether these patient samples may or not be directly applicable to developing countries. Surprisingly, a research carried out in Brazil by Arida et al.¹⁰ reported that the majority of people with epilepsy were engaged in

physical activities and believed that sports did not precipitate seizures.

Some topics concerning general knowledge about epilepsy such as definition of a seizure or convulsion were suitably answered by most of the responders; however, physical educators were not confident regarding the different causes of epilepsy and its incidence. The findings about education and learning differed among subjects. Only a small number of physical educators admitted that people with epilepsy might have special treatment at school such as studying in a special classroom and only a few believe that epilepsy do interfere in learning. Accordingly, in a Thailand study, 15% of school teachers were in favor to place children with epilepsy in a special classroom²⁴. Conversely, the majority of teachers in another survey conducted in Zimbabwe were in agreement to teach children with epilepsy²⁵. The majority of teachers were familiar with epilepsy although many of them complained about the extent of their knowledge concerning this disease²². In this regard, our findings are in agreement with a study developed by Thompson and Duncan²⁶ who investigated the relation between seizure-related variables and cognitive change in patients with severe intractable epilepsy. They demonstrated that seizures may have a direct adverse effect on cognition but a good seizure control even after years of intractability may produce a beneficial impact on cognitive prognosis. Conversely, another report showed that 15% of school teachers were in favor to place children with epilepsy in a special classroom²⁴. This preference may be consequence from fear of having to deal with a seizure and/or due to the degree of knowledge of how management with this condition²².

Attitudes toward epilepsy have changed over the years. In 1979, the American Institute of Public Opinion collected information concerning knowledge of epilepsy of the adult population throughout the United States for a period of 30 years. Changes in opinion (employment, education, insanity, cause of epilepsy, social attitude) as reflected in polls of 5 year intervals increased during this period²⁷. In addition, knowledge and attitudes toward epilepsy among teachers in a Brazilian study showed that although almost all teachers had heard about epilepsy, the knowledge on clinical characteristics and initial procedures to attend a person with epilepsy during a seizure was unsatisfactory²⁸.

Questions concerning to professional experience in epilepsy also demonstrate lack of information among physical educators. Almost 40% of the professionals have never observed a seizure. The question whether they had a friend or relative with epilepsy complements the previous question showing that 22.4% of responders did not go through a person with epilepsy. In addition, we were expecting that physical educators would get any kind of in-

formation about epilepsy during their graduate program, conversely, 47% of them have never heard about it.

Finally, it is important to note the limitations of questionnaire studies and problems with attitude surveys have been previously highlighted²⁹. Accordingly, this investigation may also provide a guide for more extensive studies. In conclusion, the findings of the present study put on view the insufficient knowledge among health professionals and sport instructors about the knowledge of physical exercise for people with epilepsy.

Campaigns promoting greater knowledge about epilepsy to non-medical professionals should be launched. Many of the gym instructors are not really familiar with general information and initial procedures to employ when attending a person during a seizure. With specific instruction among them, a more tolerant attitude towards epilepsy can be expected in the hope of achieving the objectives of the "Out of the Shadow" World campaign.

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