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Stretching intervention for pediatric caregivers in a University Hospital

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ABSTRACT. This study aimed to provide an interaction time among pediatric caregivers performing group stretching activities, and to verify the effectiveness of a stretching session to improve flexibility. Caregivers of the pediatric ward of a university hospital participated in a group activity, with 17 static postures of self-stretching techniques, held each position for 30 seconds. Muscle flexibility was assessed before and after the stretching session, using the Bank of Wells, capable of measuring the flexibility of the posterior muscle chain. After a single series of global stretching, the elongation of the posterior muscle chain of the subjects significantly increased, with a gain of 18.05%. Furthermore, participants reported reduction in muscle pain and greater willingness to perform the tasks throughout the day, with a moment of leisure to help them cope with the situation they were in. Therefore, the program of stretching activities for hospital caregivers improved the flexibility in only one session, and represents an important intervention for the promotion of welfare and physical interaction between caregivers and staff, since it is one more possibility for physical therapists to work within the hospital context.

Keywords: muscle stretching, escort patients, intervention unit, pediatrics.

Intervenção com alongamento aos acompanhantes pediátricos de Hospital Universitário

RESUMO. Este estudo teve como objetivo proporcionar momentos de interação entre os acompanhantes pediátricos com a realização atividade de alongamento em grupo e verificar a eficácia de uma sessão de alongamento na melhora da flexibilidade. Acompanhantes da enfermaria de pediatria de um hospital universitário realizaram atividade em grupo, com técnicas de autoalongamento estático em 17 posturas, mantido em cada postura por 30 segundos. A flexibilidade muscular foi avaliada antes e após a sessão de alongamentos, utilizando o banco de Wells, capaz de mensurar a flexibilidade da cadeia muscular posterior. Observou-se que, após uma única série de alongamento global, houve aumento significativo do alongamento da cadeia muscular posterior dos indivíduos estudados, com um ganho de 18,05%. Além disso, os participantes referiram melhora da dor muscular e disposição para realização das tarefas ao longo do dia, sendo um momento de lazer dentro do ambiente hospitalar, importante para amenizar a difícil situação em que se encontravam. Portanto, o programa de atividades com alongamentos para acompanhantes hospitalares melhorou a flexibilidade em apenas uma sessão, bem como representa uma intervenção importante na promoção do bem-estar físico e interação entre acompanhantes e equipe de profissionais, tratando-se de mais uma possibilidade de atuação de fisioterapeutas no contexto hospitalar.

Palavras-chave: exercício de alongamento muscular, acompanhantes de pacientes, unidade de intervenção, pediatria.

Introduction

The Statute of Children and Adolescents established by Law 8069 provides, through Art. 12, that hospitals should give conditions for full-time permanence of a parent or guardian, in cases of child or adolescent hospitalization (BRASIL, 2002). However, one of the factors that hinder the permanence in hospital is the precariousness of infrastructure to welcome escorts, who cannot sleep/rest in the hospital environment (SIQUEIRA et al., 2002).

Escorts are usually accommodated in seats or chairs; in this way, it is frequent the appearance of musculoskeletal pain, especially lumbar back pain. Sitting for long periods can lead to loss of abdominal muscle strength and a tendency to misalignment of spine vertebrae (GALDINO; SOARES, 2001). Low back pain can be predisposed by limited flexibility of the hip and lumbar spine and can restrict the performance of individual tasks (PINHEIRO; GOES, 2010).

Stretching interventions aimed at increasing flexibility and joint range of motion has been

recommended as an important component in different areas related to motor function. The beneficial effects are evidenced in functional activities, in preventing injuries, in postural training and muscle relaxation (GAJDOSIK et al., 2005; GAMA et al., 2009). Moreover, this activity can reduce the incidence of musculoskeletal pain and improve the subjective perception of pain

Stretching generates immediate effect and a single session can increase muscle flexibility (maximum physiological passive range) and joint motion (HARVEY et al., 2002; PINHEIRO; GOES, 2010), favoring the well-being, reducing the incidence of diseases and their repercussions at economic, social and quality of life levels (WINTERS et al., 2004; PINHEIRO; GOES, 2010).

In addition to the physical changes imposed by poor accommodation of pediatric companions, there are psychic alterations demonstrated by irritability and anxiety. These factors directly influence the companion-patient-staff relationship (GALDINO; SOARES, 2001). Developing a 'care-watch system' in pediatrics means involving not only the child but also include its relational and social universe, so as to consider child and family as a single client (FAQUINELLO et al., 2007).

Projects have been developed by inserting pediatric caregivers in activities that may facilitate the inclusion of family/caregivers in the process of child hospitalization and minimize stress in order to make the hospitalization a less traumatic event, able to make the day-to-day more humanized and pleasurable (NASCIMENTO et al, 2006).

In this context, this study aimed to provide an integration moment among pediatric caregivers through group stretching activities. Also, we checked the effectiveness of a stretching session by measuring the flexibility.

Interaction time among pediatric caregivers performing group stretching activities, and to verify the effectiveness of a stretching session to improve flexibility

Material and methods

This was a cross-sectional, prospective and analytical study approved by the Research Ethics Committee in Human Beings, Federal University of Triângulo Mineiro, under protocol 2656. The sample subjects received explanations about the purpose of the study and previously signed a consent form.

The work included the participation of 63 caregivers of the pediatric ward of Hospital de Clínicas de Uberaba. There were subjects of both sexes predominantly female (61 women) with an average age of 30 years. It was included all participants who, after clarification, signed the consent form and who had no restrictions on stretching activity. It was excluded those who left for various reasons the ongoing activity.

We conducted a flexibility evaluation before and after a series of global stretching. The stretching was performed at the ward and the groups consisted of up to six participants. The duration was about 20 minutes and the time usually at 9:30 am, when there were no further procedures to be performed with the children.

For flexibility evaluation, we used the Well's Bench, able to measure the posterior chain of the body. The bench is 35 cm high and wide and 40 cm long, with a standard scale of 15 cm at the tip. For the measurement, the subject sits in front of the bench with feet flat and knees extended, then overlapping hands the subject is asked to take them forward and touch the scale of the bench. Three measures were taken before and after and obtained the mean values (ESPINDULA et al, 2010). This test was performed only by trained professionals.

Techniques of static self-stretching were conducted, which consisted of a series of 17 positions. Bilateral stretching was maintained in each posture for about 30 seconds. The stretching techniques included the upper fibers of trapezius muscles, sternocleidomastoid, posterior fibers of the deltoid, triceps brachial, rhomboid, pectoral, large dorsal, quadriceps, ischiotibial and adductors.

A spreadsheet was built in the Microsoft Excel and the statistical analysis was run with the Software Sigma-Stat® 2.0. Data normality was tested by Kolmogorov-Smirnov test and homoscedasticity by the Bartlett test. The analysis of the paired variables was performed by multifactorial non-parametric analysis of variance, Wilcoxon test; and for parametric multifactorial variance, we used the Student's t-test for dependent samples. Differences were considered statistically significant when probability (p) was less than 5% ($p < 0.05$).

Results and discussion

There was a significant increase in flexibility of the posterior muscle group of subjects after a single series of global stretching ($p = 0.001$). The average flexibility before stretching was 30.07 cm and after stretching 35.5 cm representing a gain of 18.05% (Table 1).

Table 1. Flexibility measurements in cm, before and after a stretching session.

	Before	After	P-value
Mean	30.07	35.50	< 0.001*
Median	29.83	36.5	
Wilcoxon Test			

The participant subjects reported reaction in muscle pain and increased willingness to perform the tasks throughout the day. Also, they said it was a time of leisure and integration within the hospital environment, important for helping them cope with the situation.

This study aimed to determine the effectiveness of a session of global muscle stretching by measuring flexibility and to provide integration between caregivers with group stretching activities. In fact, muscle flexibility plays a key role in preventing some musculoskeletal diseases, and promotes better motion efficiency and muscular performance and may also influence the individual's posture (PENHA; JOÃO, 2008; SPERNOGA et al., 2001). Thus, in the present study, there was a special attention on flexibility of pediatric caregivers admitted to a ward in a University Hospital.

A study has shown that the acute effects of a single session of a protocol of static stretching (4 repetitions of 30 seconds) could significantly increase the knee joint angle. However, these gains in range of motion and flexibility are only temporary and short term. The inability to maintain significant knee extension angles beyond three minutes suggests that a temporary effect occurred in the viscoelastic component of the ischiotibial muscles, which was not deformed enough to produce a permanent change (DEPINO et al., 2000). Another study evaluated the flexibility of children undergoing equine therapy, and verified through Well's Bench, an increased stretching of the posterior muscle chain of the patients, and reported that regular programs of physical activity can increase the flexibility levels (ESPINDULA et al., 2012). These data are in agreement with our results, which by means of the Well's Bench, presented a significant increase of 18.05% in relation to the flexibility of the posterior muscle group of the pediatric caregivers with a single session of a group stretching program. It is therefore suggested that the acute effects of stretching represented an improvement in the flexibility of the individuals. However, we cannot say how long this effect remained, and thus we suggest more studies to report such fact. Such data also corroborate another study that considered the immediate and late acute responses of flexibility in the shoulder extension, and showed that both the number of series and the stimulus duration had influence on post-exercise flexibility, acutely, wherein the duration seems to offer the greatest change than the number of series, achieving better results with longer stretching time (VIVEIROS et al, 2004).

Another aspect to be highlighted is that the hospitalization of a family member imposes to the caregiver the experience of discomfort situations, requiring the adaptation to a hostile scenario, without convenience, and adjustment to the rules and routines of the institution, facing situations of anguish and resignation, conditions that alter his/her habits and daily customs. In this way, the experience of the companion in the hospital cannot be characterized as pleasant and his/her stay in this environment can trigger various situations of discomfort. It is observed the need to provide an attentive and receptive environment, promoting interaction with the staff, and minimizing the discomfort (SZARESKI et al., 2009). There are reports in the literature that the major difficulties during hospital stay presented by companions is the lack of infrastructure of the institutions, for example, a place to sleep and rest, as well as the need to interact with others in the hospital and return to their daily activities, which can cause physiological and emotional changes. In this sense, they manifest symptoms of physical stress such as body pain, leg swelling, generalized fatigue, weight loss or gain (DIBAI; CADE, 2009; SZARESKI et al., 2009; CARVALHO et al., 2008). Given the above, the present study demonstrated that physical therapists and physical educators can contribute to the welfare of companion, mitigating the impact of the disease and the hospital stay by including programs and group activities that use techniques of global self-stretching in order to minimize muscle pain and other physical conditions that could harm these individuals.

Studies point out the positive factors of a humanized care for hospitalized children, highlighting the importance of an equally humanized care to the mother, father and caregiver family members. Strategies involving leisure activities make the environment more welcoming and a timely use of downtime, besides promoting the health of participants. Moreover, there is the understanding that the hospital environment is not a place to experience only unpleasant aspects, such as pain, fear, anxiety and stress; on the contrary, it can be transformed into a place of relaxation, improving the quality of life not only of hospitalized children, but also their families and caregivers, since all participate, directly or indirectly, in the process (SIQUEIRA et al., 2002; NASCIMENTO et al.,

2006). These data corroborate the present study, in which we proposed a group activity with caregivers of admitted children, showing the possibility to perform a physical activity and leisure in the hospital environment, providing improved physical well-being of them, as well as it becomes a time of interaction between caregivers and staff.

Similarly, a qualitative and exploratory research using a group psychological intervention with companions of admitted children found that support groups can provide emotional support, be a welcoming environment for distresses, for clarification and an instance of psychosocial support and a space for reflection and relaxation, despite the exhausting and sometimes anguishing routine (PISKE et al., 2013).

Most studies with companions of hospitalized patients focuses on nursing and psychology staff, and that there is a lack of studies that point the role and contributions of physical therapists and physical educators in the care of this population. Although the psychological benefits are very important, there is a need for interventions aimed at reducing physical discomforts, pains, fatigue, commonly complained by these companions. This study was a first step towards such interventions, and thus contributes to further studies and projects aimed at such goals.

Conclusion

The study suggests that the program of activities including global stretching for hospital companions increases flexibility in a single session, and represents a possibility for physical therapists and physical educators to work in the hospital. Besides that, this activity is an important intervention in promoting physical well-being and interaction between caregivers and professional staff.

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