

41 - POSTURAL EVALUATION IN CHILDREN OF 10 TO 14 YEARS

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INTRODUCTION

Postural deviations are a great misfortune in the lives of people who have reached adulthood and even for some young people this subject has been a great martyrdom in their daily lives. Even children can go through such adversity because they spend a third of their lives in school, an environment that can expose them to ergonomic risk factors including carrying heavy backpacks, staying for long periods in inappropriate furniture (FOLTRAN et al. 2011).

Such problems have been accumulating due to the bad ways of sitting, walking, being overweight that children have carried in bags, suitcases, etc., the way we sleep and the time we spend in the same position, Benini and Karolczak (2010) point out that poor posture increases stress on body elements and distributes it to structures less able to support it, causing change in the center of gravity and, in the sequel, postural changes and pain. In this way there is a natural behavior of the human being to change his posture constantly, even during sleep. In this sense, Martins (2001) points out that "no position is adequate enough to be kept comfortably for long periods". Many people are not aware of how to prevent these obstacles. Lack of information causes them to gradually develop some joint or musculoskeletal disorder, which could be avoided if there was an explanation during their physical education classes in the school stage.

Pains in the spine, legs and even joints could be prevented if the lesions were viewed with due importance. Small gestures being used in day-to-day life would bring great solutions, especially in physical education classes, where theoretical contents associated with prophylactic practices can be elaborated to postural deviations, as highlighted by Knoplich apud Detsch and Candotti (2001, p. 44), "perhaps one of the most appropriate ways to reduce the large number of adults suffering from chronic spinal pain, or to seek preventive guidance in children and adolescents." Having this insight from the early days about the mischief of vices when walking with inappropriate footwear and the ways of treading, the ways of lying down and getting up from the bed (usually when we are in the supine position, we flex the spine and the hip when in fact, we should lie in the lateral position with the aid of the arms at last rise) and how to remain seated. In this sense, Carvalho; Santos and Carvalho (2008) affirm that it is common for students and teachers to adopt bad posture for a long time, which, if uncorrected, may lead to postural defects that possibly lead to muscle discomfort. Another common day-to-day situation is when we have to pick up some object that is on the floor, instead of performing a squat, we only flex the hips, causing an overload in the lumbar region of the spine.

If our children have access to this content, they may be aware of the possibilities to avoid the appearance and / or aggravation of physical pathologies, as we well know "a child without orientation, can acquire posture, mainly in the handling of school materials and activities of daily life" (VERDERI apud BIAVA and LIMA, 2011 p.3), so that we can gradually raise awareness among friends and family that they have healthy postural habits. The objective is not to make them professionals in physical assessment, but to lead them to the understanding that the spine has natural curvatures so that it can absorb day-day impacts and that by neglecting good posture habits can attenuate the curves and make them into hyperkyphosis, hyperlordosis and scoliosis, causes and effects, such as staying in a good posture, which for Brunnstrom apud Ferreira (2005) would be one in which the weight bearing joints are in alignment and minimal muscle action is necessary to maintain upright posture.

The Postural Assessment detects possible irregularities in the individual's body and consequently can be corrected (which will be done with information peculiar to the problem encountered). Postural assessment is a widely used method in physiotherapy to understand the alignment of body segments and directly influences treatment (Ferreira, 2005). In cases where postural deviations are detected, appropriate treatments are indicated for each type of deviation, such as hyperlordosis, hyperkyphosis and scoliosis (in the spine), in addition to deviations in the knee such as valgus (knees together and feet apart, forming an angle between the thigh and the outer opening leg) and genu varus (knees apart and feet approaching, forming an angle of internal opening). "Some postural deviations acquired during childhood may accentuate in adolescence and cause serious disorders during adulthood" (BIAVA and LIMA, 2011 p.1).

It is imperative that there be such guidance so that we can alert everyone from their childhood, mainly due to the growth and initiation of puberty where changes occur in the physical and cognitive part of the child.

"The prepubertal phase and puberty are periods of life in which the posture undergoes a series of adjustments and adaptations due to changes in the body and requiring psychosocial factors. Between 7 and 12 years of age, a child's posture undergoes a major transformation to reach a balance compatible with the new corporal proportions" (PENHA et al, 2005 p.2).

The Physical Education professional has a fundamental role in clarifying to the students about which are the postural deviations and possible causes of the emergence or the potentialization of the same ones and with that the care with the physical and possibly mental health, as a result of the pains etc.). Some individuals, in adulthood, may end up limiting or excluding physical activities from their routine due to the association of movement to pain, as Araújo et al. (2010) pain has a warning role to communicate to the body that something is wrong and it generates in the body a stress and even a physical disability.

A small problem is that most parents imagine that children's pains are fruits of their development and simply ignore them, as Detsch and Candotti (2001: 44) consider "most postural deviations in children in growth are classified as developmental deviations and, when patterns become habitual, they can result in postural defects. "The earlier the assessments and guidelines are made, the more beneficial the results will be." Murahovschi apud Detsch and Candotti (2001, p. 44) "early diagnosis and treatment of spinal diseases provide better results in minimizing the effects of postural deviations".

With this, there is a very great possibility that we can remedy various adversities with a simple postural examination and awareness of good manners when acting on a daily basis, from getting up from the bed to the way we should sit without any future inconveniences to the good -be. The postural evaluation consists of determining and recording if possible through

photographs, postural deviations or wrong posture attitudes of each individual (CARNAVAL, 2000) and for Ferreira (2005, p.3) "postural evaluation is the initial step for any treatment physiotherapeutic".

In order to make people aware of the musculoskeletal disorders since childhood, we will perform the postural evaluation in children aged 10 to 14 years of public schools in the city of Novo Aripuanã, Amazonas.

Methodology

The present work is an exploratory descriptive exploratory field research according to Thomas & Nelson (2002), in which descriptive research corresponds to a status study, based on the premise that the problems can be solved from observations and objective analyzes. The participants of this study are part of the larger research project entitled "Study of Anthropometric, Dermatoglyphic, Nutritional, Physical Fitness, Physical Activity, Quality of Life, Lifestyle and Perception of Body Image of Children and Adolescents of Schools of Novo Aripuanã, Amazonas, Brazil", submitted and approved by the Ethics and Research Committee of the State University of Amazonas - UEA under the number of opinion 2.172 479.

Sample

The sample consisted of 18 students (11 boys and 7 girls) from a public school in the city of Novo Aripuanã, Amazonas, both boys and girls aged 10 to 14 years. The subjects were selected from the school attendance list. Participants were chosen intentionally, provided they met the inclusion and exclusion criteria. Initially, the Term of Consent and Free Clarification (TCLE) was given to parents and / or guardians and the Term of Consent and Free Assent (TCLA) for children, in order to clarify matters related to the research and after parental authorization. accepted, the research was carried out.

In order to collect data, we used SAPO (Postural Evaluation Software) software to analyze the data collected through photographs of the evaluated ones, according to GLANER et al. (2012). SAPO facilitates the evaluation of posture through photogrammetry. scanned photos enables measurements of position, length, angle, center of gravity and body alignment. According to Sacco (2007)

"Photogrammetry is the art, science and technology of obtaining reliable information about physical objects and the environment through processes of recording, measuring and interpreting photographic images and patterns of radiant electromagnetic energy and other sources. Photogrammetry enables the recording of subtle changes and interrelationships between different parts of the human body that are difficult to measure or record by other means."

During data collection the subject remained positioned 30 centimeters away from a surface or wall of neutral color, with the 240 cm plumb line attached to the ceiling. The evaluator will be 340 centimeters from the one evaluated with a Canon EOS 30D camera, attached to a tripod at a height of 120 centimeters from the ground with reference to the axis of the lens.

Firstly, the evaluated one was in previous view for the evaluator, during the analysis the same was positioned in lateral view (right and left) and finally in posterior view. With your feet shoulder-width apart, look at the Frankfurt plane with your head positioned so that the imaginary line connecting the lower eyelid (Orbitale) to the upper part of the earlobe (Trago) is parallel to the ground (OLIVEIRA and GUIMARÃES, 2003).

To distinguish the anatomical points, we will use white styrofoam balls 20 mm in diameter fixed to the volunteers with double-sided tape. The mentioned points are: lobes of the ear; acromion; anterosuperior iliac spine; greater trochanter of the femur; joint line of the knee; upper edge of the patella; tuberosity of the tibia; medial and lateral malleolus; lower border of the scapula; postero-superior iliac spine; calcaneus; calcaneal tendon; spinal processes of the 7th cervical vertebra (C7) and the 3rd thoracic vertebra (T3). (GLANER, 2012).

The evaluated ones presented flexible clothes that could facilitate the visualization of the upper and lower limbs, besides allowing the perception of possible deviations in the vertebral column. For boys, we chose to wear shorts or shorts (so that they are above the knees), without a shirt, according to figure 2.

Figure 2 - Standardization of positioning and dress of the evaluated at the time of collection (BOYS).



FONTE: Personal archive

The evaluated ones were separated into doubles of the same sex so that there was no embarrassment on the part of the girls, as they would be in shorts or lycra pants and top or shirt as shown in figure 3.

At all collection sessions, we were careful to get a school official to be responsible for the students. Sometimes the Physical Education teacher and in others, a female school official

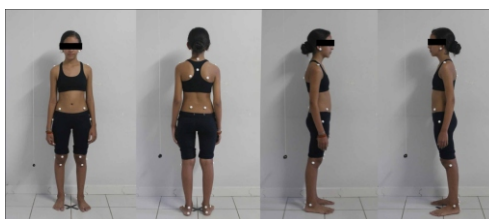


Figure 3 - Standardization of positioning and dress of the evaluated at the time of collection (GIRLS).

FONTE: Personal archive

Statistical treatment

Descriptive statistics will be used to present the results, using the mean, standard deviation and frequency.

Results and discussion

After the data collection, we began to present the results obtained from SAPO analysis of boys and girls aged 10 to 14 years (n = 18), 11 boys (61.1%) and 7 girls (38.9%). Some of the evaluated ones presented deviations like hyperlordosis - It is the abnormal increase of the lumbar curve leading to an accentuation of normal lumbar lordosis (JESUS and MARINHO, s.d ****.); hyperkyphosis - is defined as an abnormal increase of the posterior concavity of the spine, the most important causes of this deformity being bad posture and insufficient physical conditioning (JESUS and MARINHO, 2006); scoliosis - standard deviation of the frontal plane column (JESUS and MARINHO, 2006).

As a result, we obtained 3 individuals (16.6%) with hyperlordosis, 2 boys (66.7%) and 1 girl (33.3%); 5 (27.8%) with scoliosis, 3 boys (60%) and 2 girls (40%); 1 boy (5.6%) with hyperkyphosis and 9 (50%) individuals without changes, being 5 boys (55.6%) and 4 girls (44.4%); none of the patients presented more than one postural deviation.

Conclusion

It turned out that most of the students did not have any information about the spine and its possible deviations. This makes prevention even more difficult on its own initiative. At first some were afraid of what could happen, however, over time the first evaluated passed the information learned to their classmates arousing curiosity about the test. Some of the patients already had at least one of the deviations presented in this article, although not all have complaints of back pain or lower limbs. At first we conceived that the girls would have the highest rate of postural deviations due, mainly, to a slightly more pronounced curvature in the lumbar region, but the results showed us the opposite. Due to this event, lack of knowledge of the public about the pathologies of the vertebral column, we point out the extreme importance of the study on posture as content of the school physical education classes with the purpose of guiding from childhood about such maladies.

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ABSTRACT

This research aims to perform postural assessment in children aged 10 to 14 years and to identify possible postural deviations, probable changes in the boys and girls column, as well as to verify the index of which genders are most affected by postural deviations and orientation good posture. Participants were 18 children of both sexes with ages varying between 10 and 14 years enrolled in a public school in the city of Novo Aripuanã / AM. The subjects were separated in pairs (of the same sex) for the accomplishment of the evaluation by photogrammetry, which consists of the capture of images and launched to the program SAPO (Software of Postural Evaluation) to analyze the obtained data. Styrofoam balls of 20 mm were fixed in the evaluated, by means of adhesive tape, as a way of identifying the points to be analyzed. The evaluated ones were placed in an anatomical position and photographed in anterior, posterior and lateral view (right and left). They were dressed in clothing that made it possible to see the upper and lower limbs. It was observed that 9 individuals presented postural deviations; among the 9 with deviation, the majority were boys, 11 boys (n = 61.1%) and 7 girls (n = 38.9%). Some of the evaluated ones presented deviations like hiperlordose, hypercifose, scoliosis. As a result, we obtained 3 individuals (16.6%) with hyperlordosis, 2 boys (66.7%) and 1 girl (33.3%); 5 (27.8%) with scoliosis, 3 boys (60%) and 2 girls (40%); 1 boy (5.6%) with hyperkyphosis and 9 (50%) individuals without changes, 5 boys (55.6%) and 4 girls (44.4%); none of the patients had more than one deviation.

Key words: Postural Assessment, Posture, Vertebral Column.

EVALUATION POSTURALE CHEZ LES ENFANTS DE 10 A 14 ANS

Résumé

Cette recherche vise à réaliser une évaluation posturale chez les enfants âgés de 10 à 14 ans et à identifier les éventuels écarts de posture, les changements probables dans la colonne garçons et filles, ainsi que de vérifier l'indice des genres les plus affectés par les déviations de posture et une bonne posture d'orientation. Les participants étaient 18 enfants des deux sexes âgés de 10 à 14 ans inscrits dans une école publique de la ville de Novo Aripuanã / AM. Les sujets ont été séparés par paires (du même sexe) pour la réalisation de l'évaluation par photogrammétrie, qui consiste en une capture d'images, et lancés au programme SAPO (Logiciel d'évaluation postural) pour analyser les données obtenues. Des billes de styromousse de 20 mm ont été fixées dans l'évalué, au moyen de ruban adhésif, afin d'identifier les points à analyser. Les personnes évaluées ont été placées dans une position anatomique et photographiées en vue antérieure, postérieure et latérale (droite et gauche). Ils portaient des vêtements qui permettaient de voir les membres supérieurs et inférieurs. Il a été observé que 9 personnes présentaient des déviations posturales; parmi les 9 avec déviation, la majorité étaient des garçons, 11 garçons (n = 61,1%) et 7 filles (n = 38,9%). Certains des sujets évalués présentaient des déviations comme l'hyperlordose, l'hypercifose, la scoliose. En conséquence, nous avons obtenu 3 individus (16,6%) atteints d'hyperlordose, 2 garçons (66,7%) et 1 fille (33,3%); 5 (27,8%) atteints de scoliose, 3 garçons (60%) et 2 filles (40%); 1 garçon (5,6%) atteint d'hyperkyphose et 9 (50%) personnes sans changement, 5 garçons (55,6%) et 4 filles (44,4%); aucun des patients n'avait plus d'une déviation.

Mots-clés: évaluation posturale, posture, colonne vertébrale.

EVALUACIÓN POSTURAL EN NIÑOS DE 10 A 14 AÑOS

Resumen

Esta investigación tiene como objetivo realizar una evaluación postural en niños de 10 a 14 años e identificar posibles

diferencias posturales, cambios probables en la columna de niños y niñas, así como verificar el índice de los géneros más afectados por los niños. Desviaciones posturales y buena orientación postural. Los participantes fueron 18 niños de ambos sexos de 10 a 14 años inscritos en una escuela pública en la ciudad de Novo Aripuanã / AM. Los sujetos se separaron en pares (del mismo sexo) para la evaluación de fotogrametría, que consiste en una captura de imagen, y se lanzaron en el programa SAPO (Postural Evaluation Software) para analizar los datos obtenidos. Se fijaron perlas de espuma de poliestireno de 20 mm en el evaluado, mediante cinta adhesiva, para identificar los puntos a analizar. Los evaluados se colocaron en una posición anatómica y se fotografiaron en vista anterior, posterior y lateral (derecha e izquierda). Llevaban ropa que permitía ver las extremidades superiores e inferiores. Se observó que 9 personas tenían desviaciones posturales; De los 9 con desviación, la mayoría eran varones, 11 varones (n = 61,1%) y 7 niñas (n = 38,9%). Algunos de los sujetos evaluados tenían desviaciones tales como hiperlordosis, hipercifosis, escoliosis. Como resultado, obtuvimos 3 individuos (16.6%) con hiperlordosis, 2 niños (66.7%) y 1 niña (33.3%); 5 (27,8%) con escoliosis, 3 niños (60%) y 2 niñas (40%); 1 niño (5,6%) con hipercifosis y 9 (50%) sin cambio, 5 niños (55,6%) y 4 niñas (44,4%); Ninguno de los pacientes tenía más de una desviación.

Palabras clave: valoración postural, postura, columna vertebral.

AVALIAÇÃO POSTURAL EM CRIANÇAS DE 10 A 14 ANOS

RESUMO

Esta pesquisa objetiva-se em realizar a avaliação postural em crianças de 10 a 14 anos e identificando os possíveis desvios posturais, as prováveis alterações na coluna de meninos e meninas assim como verificar o índice de quais gêneros são mais acometidos pelos desvios posturais e a orientação dos alunos quanto à boa postura. Participaram 18 crianças de ambos os sexos com idades variantes entre 10 e 14 anos matriculados em uma escola pública na cidade de Novo Aripuanã/AM. Os sujeitos foram separados em duplas (de mesmo sexo) para a efetivação da avaliação por fotogrametria, que consiste na captura de imagens e lançadas ao programa SAPO (Software de Avaliação Postural) para análise dos dados obtidos. Foram fixadas bolas de isopor de 20 milímetros nos avaliados, por meio de fita adesiva, como forma de identificar os pontos a serem analisados. Os avaliados ficaram dispostos em posição anatômica e fotografados em visão anterior, posterior e lateral (direita e esquerda). Estavam vestidos com roupas que possibilitaram a visualização dos membros superiores e inferiores. Foi observado que 9 indivíduos apresentaram desvios posturais, dentro dos 9 com desvio, a maioria é de meninos, 11 meninos (n= 61,1%) e 7 meninas (n= 38,9%). Alguns dos avaliados apresentaram desvios como hiperlordose, hipercifose, escoliose. Em decorrência, obtivemos 3 indivíduos (16,6%) com hiperlordose, sendo 2 meninos (66,7%) e 1 menina (33,3%); 5 (27,8%) com escoliose, 3 meninos (60%) e 2 meninas (40%); 1 menino (5,6%) com hipercifose e 9 (50%) indivíduos sem alterações, 5 meninos (55,6%) e 4 meninas (44,4%); nenhum dos avaliados apresentou mais de um desvio.

PALAVRA(S)-CHAVE: Avaliação Postural, Postura, Coluna Vertebral.