206 - BIOMECÂNICA OF POSTURE: POSTURE REVIEW OF STUDENTS IN PUBLIC EDUCATION.

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INTRODUCTION

According to the constant evolution of man in his procedure biomechanics, have been discovering new proposals and techniques for prevention, maintenance and improvement of health, and the mechanics of the human body, an area that has presented several studies on the development of postural individual.

The man remains in place through a series of systems that are interlinked with each other so that the body is kept in static or dynamic. The system Bone, joint and muscular, systems are crucial to maintaining its basic structure, to read the dependency of other complementary systems for its greater functionality.

The scientific developments in the field of Biomechanics every day presents new mechanisms to keep the man standing, where the habits of locomotion, the posture of sit, lie down and your action-reaction static or dynamic are the determining factors for their postural stability.

The introduction of scientific studies that evaluate the static posture of the human body, usually engages the scientific knowledge to the prevention, maintenance and promotion of health of the individual assessed.

When evaluating or analyzing the posture of a human body is statically need for consistency of the observation evaluated in three views: anterior-posterior, posterior-anterior and lateral or profile, with the aim of identifying postural deviations.

Each person has characteristics individual posture, the posture can be defined as the position that our body takes in space, relative to its segments to the center of gravity (Barbanti, 2003) that can be influenced by factors such as obesity, inadequate nutrition, activities without physical guidance, eutrophication or hypertrophic muscle (SANTOS and COSTA, 2008).

According MAGEE (2002), the posture is a compound of the positions of the various joints of the human body in that time, correct posture and the position in which a minimum of stress is applied at each joint.

To highlight that in the field of postural deviations, is a big discussion in relation to school that they behave so wrong in its attitude as it is at this stage of life that the body undergoes its physiological changes abruptly.

The postural problems are inter-related concerns with the quality of life of the individual, because the child in the discovery and aprimoração movements applied to your everyday life and influenced by their culture, is establishing habits that most often are unsuitable for their development anatomical - physiological.

The big advantage of doing tests on body posture in the school network is precisely because of the large number of children and adolescents who are in one place, and the professor of physical education a big responsibility to conduct biannual reviews of the posture of the students.

Postural analyzed by the Deviations posture assessment can occur at the level of the head, neck, shoulder, waist, knees and feet. Already the disease found on the spine, can be made in the neck, thoracic and lumbar.

It is known that culture is a crucial factor throughout the harmonic development of human beings as the adequacy and contemporary adaptation of schools to the posture assessment should be designed as one of the main factors for discussion of the century, or even the main , It is the quality of life, which for the school network, analyze habits and attitude of students with quality and forward to areas of greatest responsibility of educating is to contribute to its development biopsychosocial bringing him to his own awareness of posture maintainers.

OBJECTIVES

To posture analyze, identify and describe the main deviations found in students, aged between eight to thirteen years of both sexes, enrolled in elementary schools of three public schools, located in the southern city of Palmas-TO.

METHODOLOGY

It is a descriptive study, exploratory and cross. The population was calculated for the study of 1200 students who study in regular elementary schools in three schools in the municipal network in the municipality of Palmas-TO. The sample of this work was composed by 600 children, between eight and thirteen years. Being 300 males and 300 females, the participants of the survey were chosen randomly.

The protocol for collection of data containing information on the posture assessment was based on proposals from Kendall et al. (1995), to assess posture and observational. The data were recorded on a questionnaire.

The evaluators were on the same line of children at a distance of 3 meters, which was observed at each angle made the difference for every child. The evaluation was performed in the posture of the sports complex, CEULP / ULBRA in laboratory studies of human movement, based on the assessment sheets, developed by researchers who recorded the ages and genders.

To assess the postural deviations, we used a magic marker specific, a perpendicular and a simetrógrafo. The student was placed in standing position in simetrógrafo heels with feet slightly apart and abducted about 15 degrees, searching out the asymmetries in the national front, and sagittal transversal.

Os were assessed in standing position and the observations were made using the following technical terms : Anterior-posterior view, posterior-anterior and lateral or profile of the human body. In observation of the anterior-posterior body was identified the symmetries of the feet, knees, hips, triangle of tales, shoulders and head, in profile Side or were the knees, hips, spine, shoulder and head and look at the posterior Previous were the feet, popliteal line, gluteal line, spine (lumbar, thoracic and neck region), shoulder and head position.

DISCUSSION

Table 01. Distribution of postural deviations with greater frequency in individuals of both sexes and their percentage of body segments evaluated according THE FRONT.

Genres	Segment Body	N	%
MEN (N= 300)	Feet abducted	180	60
	Feet above	90	30
	Varus knee	159	53
	Knee valgus	102	34
	Hip misaligned	96	32
	Shoulder misaligned	144	48
WOMEN (N= 300)	Feet abducted		48
	Feet above		39
	Varus knee		23
	Knee valgus		54
	Hip misaligned		29
	Shoulder misaligned		32

Noting the results listed in table 01, after the anterior-posterior evaluation found that the main postural deviations were found in the feet, knees, hips and shoulders, because both groups have apparently the same postural deviations. For the male group the diversion more frequently in this vision was to Knee rods.

According to MOLINARI (2000, Pages, 212) may be caused by the shortening of the medial thigh muscle weakness or a lateral thigh. Because the muscle hypertrophy or atrophy of only one of the sides of the thigh can also be a major cause.

Another departure evident in boys and girls were on the shoulders according to scientific literature can be identified as characteristic of the development phase and behavioral of the child.

Table 02. Distribution of postural deviations with greater frequency in individuals of both sexes and their percentage of body segments evaluated according THE SIDE.

Genres	Segment Body	N	%
MEN	Knee recurvata		22
	Lombar sharp curvature		43
	Thoracic sharp curvature		34
	Anteropulsÿo of Shoulders		41
	Prominent head		30
WOMEN	Knee recurvata		33
	Lombar sharp curvature		49
	Thoracic sharp curvature		42
	Anteropulsÿo of Shoulders		40
	Prominent head		21

If we look at the results in Table 02, after the evaluation of profile or Side, we understand the increase of physiological curvatures. One of deformities most neglected in the treatment of the vertebral column are cifoses labelled postural teenage, but may be signs of any pathology more complex (KANOPLICH 2003, page 470). The most common type of kyphosis is the postural, also known by the designation of dorsum crooked postural. Kyphosis only considered a pathology of the column when the degree of scale is increased from the classification of hipercifose.

The curvature may be altered by posture adopted by the children, one of the examples cited by Kanoplich (2003), is the posture adopted by girls to conceal the breasts, when judge large by age, curvam the shoulders, increasing the angle of curvature.

Lordosis curve is observed in the profile of a vertebral column, the convexity cervical region and the lumbar region. Farfan apud Kanoplich (2003 page 474) showed that the lumbar lordosis is directly related to the obliquity pelvic, That must be around 20 degrees. If it is over there will be an increase in the lordosis and consequently for all curves for compensation.

Table 03. Distribution of postural deviations such with greater frequency in individuals of both genders and their respective percentage according to the body segments assessed **posteriorly.**

Genres	Side diversions	N	%
MEN	Scoliosis likely Lombar		32
	Probable Thoracic Scoliosis		57
WOMEN	Scoliosis likely Lombar		34
	Probable Thoracic Scoliosis		51

he demonstrations postural analyzed in section later, at the level of vertebral column, observed-if the characteristic of a likely Thoracic scoliosis (57%) for males and (51%) for females. Bienfait (1995) affirms that the escolioses at that age are not acentuações so serious, then the possibility of treatment, with the objective of trying to redress.

Mechanically scoliosis is defined as a twisting of the basic elements of the column in about the vertical axis. The Scoliosis Research Society, which at world level studies the escolioses classified the types of escolioses found in the sample as scoliosis idiopatica juvenile, it consists of the cases that the curve escoliotica begins after three years and goes to the puberty.

Scoliosis has location in thoracic spine gives not only an amendment, a deformity in the thorax, as well as respiratory deformities, in serious cases. In the lumbar region causing imbalance organic and often even pains. THE diagnosis of scoliosis needs to be supplemented by radiological examination.

To highlight that in the field of deviations not of the vertebral column physiological, is-if a large increase of the numbers of students with such effects, That is precisely at this stage of human life that the body suffers abruptly their amendments.

FINAL CONSIDERATIONS

The majority of postural deviations in the child in growth is classified as deviations of development and, where the standards become customary, may result in postural defects.

The early diagnosis and treatment of diseases of the vertebral column provide better results in order to minimize the effects of postural deviations (MURAHOVSCHI, 1998).

In the face of the results obtained by subjective evaluation of posture, concludes-that the deviations of the segments of the body Knees, of the vertebral column (Curvature Lumbar marked, Probable Thoracic scoliosis) and Head Protuberant, have a greater prevalence of the impact found in individuals in this sample.

For KNOPLICH (1985) one of the ways most appropriate to reduce the large number of adults suffering from chronic pain of the vertebral column, is seeking to do a preventive guidance in children and adolescents.

The great advantage to make analyzes body posture in the school network is precisely because of the large number of children and adolescents found in a single place, while the interest of professor of physical education identify the imbalances postural through the implementation biannual of postural analyzes of the schoolchildren.

Thus we can give emphasis the educative attitudes to be taken with the individuals in this age and worked in the school network as an axle preventive healthcare for children.

REFERÊNCIAS BIBLIOGRÁFICAS

ASHER, Cécile. Variações de Postura na Criança. São Paulo: Manole, 1976.

BARBANTI, Valdir J; **Dicionário de Educação Física e Esporte**. São Paulo: Atual, 2003.

BIENFAIT, Marcel. **Os Desequilíbrios Estáticos** - São Paulo: Summus, 1995.

BLACK, Arno. **Escola Postural - uma Alternativa para a Saúde da Coluna Vertebral**. Porto Alegre: Rígel, 1993.

KENDALL, et al. **Músculos. Provas e Funções**. 4ª edição. São Paulo, Manole, 1995.

KNOPLICH J. **Enfermidades da Coluna Vertebral uma Visão Clínica e Fisioterápica**. 3ª edição, Robe, 2003.

KNOPLICH, José. **A Coluna Vertebral da Criança e do Adolescente.** São Paulo: Panamed, 1985.

MAGEE, D.J. **Avaliação Postural In: Disfunção Musculoesquelética.** 3ª edição, São Paulo: Manole, 2002, p.105-157.

MIRANDA, Adalton. **Bases de Anatomia e Cinesiologia**. 4ª ed. Rio de Janeiro: Sprint, 2003.

MURAHOVSCHI, Jayme. **Pediatria: Diagnóstico + Tratamento.** 5. ed. São Paulo: Sarvier, 1998.

RASCH, Philip **J. Cinesiologiae Anatomia Aplicada.** 7. ed. Rio de Janeiro: Guanabara Koogan, 1991.

SANTOS, A. G & COSTA, O. J. **Análise da Postura Corporal nos Alunos do Ensino Fundamental: Comparações entre meninos e meninas**. Resumo Anais VIII Jornada de Iniciação Científica do CEULP/ULBRA, Palmas, 2008.

BIOMECANICA OF POSTURE: POSTURE REVIEW OF STUDENTS IN PUBLIC SCHOOLS.

INTRODUCTION: The evolution in the scientific arm of Biomechanics every day presents new mechanisms to keep the man standing, where the habits of locomotion, the posture of sit, lie down and your action-reaction static or dynamic are the determining factors for their postural stability . When evaluating or analyzing the posture of a human body is statically need for consistency of the observation evaluated in three views: anterior-posterior, posterior-anterior and lateral or profile, with the aim of identifying postural deviations. **OBJECTIVE:** This study aims to examine the posture, identify and describe the main deviations found in students, aged between eight to thirteen years of both sexes, enrolled in elementary schools of three public schools, located in the southern city of Palmas -TO. **METHODOLOGY:** This is a descriptive study, exploratory and cross. The population was calculated for the study of 1200 students who study in regular elementary schools in three schools in the municipal network in the municipality of Palmas-TO. The sample of this work was composed by 600 children, between eight and thirteen years. Being 300 males and 300 females, the participants of the survey were chosen randomly. The protocol for collection of data containing information on the posture assessment was based on proposals from Kendall et al. (1995), to assess posture and observational. The data were recorded on a questionnaire. The evaluators were on the same line of children at a distance of 3 meters, which was observed at each angle made the difference for every child. **DISCUSSION:**

Noting the results pointed out in table 01, we note that the main postural deviations such were found in feet, knees, hip and shoulders, because both groups appear the same postural deviations. If we look at the results in Table 02, we understand the increase of curvatures classified as physiological (lumbar lordosis, kyphosis thoracic and cervical lordosis). In table 3 we observed in the vertebral column characteristics of a likely Thoracic scoliosis (57%) for males and (51%) for females. Bienfait (1995,) states that the escolioses at that age are not acentuações so serious, then the possibility of treatment, with the objective of trying to redress. **CONCLUSION:** The majority of postural deviations in the child in growth is classified as deviations of development and, where the standards become customary, may result in postural defects. THE early diagnosis and treatment of diseases of the vertebral column provide better results in order to minimize the effects of postural deviations (MURAHOVSCHI, 1998). In the face of the results obtained by subjective evaluation of posture, concludes-that the deviations of the segments of the body Knees, of the vertebral column (Curvature Lumbar marked, Probable Thoracic scoliosis) and Head Protuberant, have a greater prevalence of the impact found in individuals in this sample.

KEY WORDS: Biomechanics of posture, postural evaluation, Schoolchildren.

BIOMECANICA DE LA POSTURE: POSTURE REVIEW DES ÉTUDIANTS DANS LES ÉCOLES PUBLIQUES.

INTRODUCTION: L'évolution dans le bras scientifique de la biomécanique, tous les jours de nouveaux mécanismes de l'homme debout, où les habitudes de locomotion, la posture de s'asseoir, se coucher et votre action-réaction statique ou dynamique sont les facteurs déterminants pour leur stabilité posturale . Lors de l'évaluation ou analysant la posture d'un corps humain est statique besoin de cohérence de l'observation évaluée dans trois vues: antéro-postérieur, postérieur-antérieur et latéral ou de profil, dans le but d'identifier les déviations posturales. **OBJECTIF:** Cette étude vise à examiner la posture, d'identifier et de décrire les principaux écarts dans les étudiants, âgés de huit à treize ans de deux sexes, scolarisés dans les écoles élémentaires de trois écoles publiques, situé dans le sud de la ville de Palmas -A. **METHODOLOGIE:** Il s'agit d'une étude descriptive, transversale et exploratoire. La population a été calculée pour l'étude de 1200 étudiants qui suivent des études régulières dans les écoles élémentaires de trois écoles dans le réseau municipal dans la municipalité de Palmas-TO. L'échantillon de ce travail était composé de 600 enfants, entre huit et treize ans. Etre 300 hommes et 300 femmes, les participants de l'étude ont été choisis au hasard. Le protocole pour la collecte de données contenant des informations sur la posture d'évaluation était fondée sur des propositions de Kendall et al. (1995), pour évaluer la posture et d'observation. Les données ont été enregistrées sur un questionnaire. Les évaluateurs ont été sur la même ligne des enfants à une distance de 3 mètres, ce qui a été observé à chaque angle fait la différence pour chaque enfant. **DISCUSSION:** Prenant note des résultats a fait

remarquer dans le tableau 01, nous constatons que les principales postural écarts tels ont été trouvés en pieds, les genoux, l'hanche et épaules, parce que les deux groupes s'affichent la même posture écarts. Si nous examinons les résultats dans le tableau 02, nous comprenons l'augmentation de courbure classées comme physiologiques (lombaire lordose, cyphose thoraciques et cervicales lordose). Dans le tableau 3 nous avons observé dans la colonne vertébrale caractéristiques d'un probable Thoraciques scoliose (57 %) pour les hommes et (51 %) pour les femmes. Bienfait (1995,) prévoit que la escolioses à cet âge ne sont pas acentuações tellement grave, alors la possibilité de traitement, avec l'objectif d'essayer de réparation. **CONCLUSION:** La majorité des postural écarts dans l'enfant de la croissance est classé comme écarts de développement et, lorsque les normes devenus usuels, Peut entraîner postural défauts. Le diagnostic précoce et de traitement des maladies de la colonne vertébrale donnent de meilleurs résultats afin de minimiser les effets de postural écarts (MURAHOVSCHI, 1998). Dans le visage des résultats obtenus par une évaluation subjective de la posture, conclut-que les écarts des segments de l'organisme genoux, de la colonne vertébrale (Courbure Lombaire marqués, Probables Thoraciques scoliose) et à la tête proéminent, ont une plus grande prévalence de l'impact trouvés dans l'individu dans cet échantillon.

MOTS CLÉS : Biomécanique de la posture, postural évaluation, les écoliers.

BIOMECANICA DE POSTURA: LA POSTURA DE EXAMEN DE LOS ESTUDIANTES EN LAS ESCUELAS PÚBLICAS.

Los avances científicos en el campo de la Biomecánica presenta cada día nuevos mecanismos para mantener el hombre de pie, donde los hábitos de locomoción, la postura de sentarse, tumbarse y su acción-reacción estática o dinámica son los factores determinantes para su estabilidad postural. Al evaluar o analizar la postura de un cuerpo humano es estáticamente necesidad de coherencia de la observación en tres puntos de vista: anterior-posterior, anterior-posterior y lateral o perfil, con el fin de identificar las desviaciones posturales. **Este estudio tiene como objetivo**, Postura a analizar, identificar y describir las principales desviaciones encontradas en los estudiantes, de edades comprendidas entre los ocho a trece años de ambos sexos, matriculados en escuelas primarias de tres escuelas públicas, ubicadas en el sur de la ciudad de Palmas-TO. **La metodologia** Es un estudio descriptivo, exploratorio y transversal. La población se ha calculado para el estudio de 1200 estudiantes que estudian en las escuelas primarias regulares en tres escuelas de la red municipal en el municipio de Palmas-TO. La muestra de este trabajo fue compuesta por 600 niños, entre ocho y trece años. Siendo 300 varones y 300 mujeres, los participantes de la encuesta fueron elegidos al azar. El protocolo para la recogida de datos que contengan información sobre la postura de evaluación se basó en las propuestas de Kendall et al. (1995), a fin de evaluar la postura y de observación. Los datos fueron registrados en un cuestionario. Los evaluadores fueron en la misma línea de los niños a una distancia de 3 metros, se observó que en cada ángulo marcó la diferencia para todos los niños. Tomando nota de los **resultados** señaló en el cuadro 01, observamos que el principal postural tales desviaciones fueron encontrados en los pies, rodillas, cadera y hombros, porque ambos grupos parecen las mismas postural desviaciones. Si nos fijamos en los resultados en el Cuadro 02, entendemos el aumento de curvaturas clasificadas como fisiológica (lumbar lordosis, la cifosis torácicas y cervicales lordosis). En el cuadro 3 hemos observado en la columna vertebral características de un probable torácicas escoliosis (57%) para los hombres y (51%) para las mujeres. Bienfait (1995,) afirma que la escolioses a esa edad no son acentuaÃ§ÃMes tan grave, entonces la posibilidad de tratamiento, con el objetivo de tratar de corregir. **Conclusión**:La mayoría de postural desviaciones en el niño en crecimiento es clasificado como desviaciones de desarrollo y, cuando las normas acostumbrado, Puede ocasionar defectos posturales. El diagnóstico precoz y el tratamiento de enfermedades de la columna vertebral proporcionar mejores resultados a fin de minimizar los efectos de desviaciones postural (MURAHOVSCHI, 1998). En la cara de los resultados obtenidos por evaluación subjetiva de postura, concluye que las desviaciones de los segmentos del cuerpo Rodillas, de la columna vertebral Curvatura Lumbar marcados, Probable torácicas escoliosis) y Jefe Protuberante, tienen una mayor prevalencia del impacto en individuos en esta muestra.

PALABRAS CLAVE: Biomecánica de postura, evaluación postural, los escolares.

BIOMECANICA DA POSTURA: ANALISE POSTURAL DOS ALUNOS DA REDE PUBLICA DE ENSINO.

INTRODUÇÃO: A evolução científica no ramo da Biomecânica apresenta a cada dia novos mecanismos para manter o homem de pé, onde os hábitos de locomoção, a postura de sentar, deitar e sua ação-reação estática ou dinâmica são os fatores determinantes para sua estabilidade postural. Ao avaliar ou analisar a postura de um corpo humano estaticamente é preciso à consistência da observação do avaliado em três Vistas: Ântero-Posterior, Pôstero-Anterior, e Lateral ou de perfil, com a finalidade de identificação de desvios posturais. **OBJETIVO:** Este estudo tem por objetivo analisar a postura, identificar e descrever os principais desvios encontrados nos alunos, com idade entre oito a treze anos de ambos os sexos, matriculados no ensino fundamental de três escolas pública, localizada na região sul do município de Palmas-TO. **METODOLOGIA:** Trata-se de um estudo descritivo, exploratório e transversal. A população determinada para o estudo foi de 1200 alunos que estudam regularmente no ensino fundamental, em três escolas da rede municipal do município de Palmas-TO. A amostra deste trabalho foi composta por 600 crianças, entre oito e treze anos. Sendo 300 do sexo masculino e 300 do sexo feminino, os participantes da pesquisa foram escolhidos aleatoriamente. O protocolo para coleta de dados contendo informações sobre a avaliação postural, foi elaborado com base nas propostas de Kendall et al.(1995), para a avaliação postural e observacional. Os dados foram anotados em um questionário. Os avaliadores ficaram na mesma linha das crianças a uma distância de 3 metros, onde foi observado em cada ângulo o desvio apresentado por cada criança. **DISCUSSÃO:** Observando os resultados apontados na tabela 01, constatamos que os principais desvios posturais foram encontrados nos pés, joelhos, quadril e ombros, pois ambos os grupos apresentam aparentemente os mesmos desvios posturais. Para o grupo masculino o desvio com maior freqüência nesta visão foi a de Joelho Varo e para as meninas verificamos que o principal desvio foram os joelhos valgos. Ao observarmos os resultados da Tabela 02, percebemos o aumento das curvaturas classificadas como fisiológicas (Lordose lombar, cifose torácica e lordose cervical). Na tabela 3 observamos na coluna vertebral características de uma provável Escoliose Torácica (57%) para o sexo masculino e (51%) para o sexo feminino. Bienfait (1995,) afirma que as escolioses nessa idade não apresentam acentuações tão graves, havendo então a possibilidade de tratamento, com o objetivo de tentar a correção. **CONCLUSÃO:** A maioria dos desvios posturais na criança em crescimento é classificada como desvios de desenvolvimento e, quando os padrões se tornam habituais, podem resultar em defeitos posturais. O diagnóstico e tratamento precoces de doenças da coluna vertebral proporcionam melhores resultados no sentido da minimização dos efeitos dos desvios posturais (MURAHOVSCHI, 1998). Diante os resultados obtidos pela avaliação subjetiva da postura, conclui-se que os desvios dos segmentos corporais dos Joelhos, da Coluna Vertebral (Curvatura Lombar acentuada, Provável Escoliose Torácica) e Cabeça Proeminente, possuem a maior prevalência das incidências encontradas nos indivíduos desta amostra.

PALAVRAS CHAVE: Biomecânica da postura, Avaliação postural, Escolares.