66 - COMPARATIVE STUDY OF PSYCHOMOTOR, BODY MASS INDEX AND FAT PERCENTAGE LEVEL OF CHILDREN AGED 8 TO 10 YEARS OLD

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INTRODUCTION

Psychomotricityis consideredof great importanceto children's development asit playsa key role inperceptual-motor education,that is,in global educationof the child being in the educationalcontext a newpedagogical perspective (FONSECA, 1995). Running agestureandbody movementare not onlyan anatomical-mechanistic knowledge, but they reflect theoverallsense ofhumanbehaviorbecominginseparable from itsgeophysicalandsocialinvolvement.Human movementgoes beyond asimplephysical and musculardescription which isexplained byan Atlasof anatomy and physiology. Human movementwhatever it is,is the waythe individualcommunicateswith the environment,which expressesandshowshow you feel.

Thebody movementmust be usedas a valuableeducational resourceparticularlyin the first fourgrades of elementary school, becauseat this stagethe physical andmental actionsareso closely linked that examining one of theseaspectsalonewould causeserious damagenot onlyfor school learning,but for the wholedevelopment of the child (FREIRE e SCAGLIA, 2010).

The developmentdepends on thematurationof variousaspects such ascognitive, affective, social, motor andphysical. Themotor developmentprocess starts at conception and continuesthroughout life. This processis characterized bycomplex and interrelatedchangesasaspects of thegrowth and maturationof organic systems. Each childwill presenta specific pattern ofdevelopment, whichpartly depends on thebiological structuresand partlyfrom environmental influences. The motorperformanceshows greatvariability.Physicalmaturityisdirectly influenced bybody mass.Thechildhood andpreadolescenceperiodsarecharacterized bygreat bodilychanges, includingchanges in body composition (GALLAHUE e DONNELLY, 2008).

Thegrowth patternsare determinedby the interaction betweengenetic factorsand environmental factors among themthe levelof the child'smotor task.Increased bodycomposition especially in childhoodcan lead tooverweight and obesitythroughout the developmentand candetermineassociated problemsin adulthood.Themotor experiencesandthe level ofregularmotor taskin childhoodcan directly influencebody composition, which depends partly on thepsychomotorlevel.

Theaim of this researchwas to identify andcompare thepsychomotorlevel with thebody mass indexand fat percentageofchildren aged 8 to10 years.

METHODOLOGY

The study sampleconsisted of400schoolchildrenaged 8 to 10 years fromten schoolsfrom public andprivate institutionsin the municipalityof Rio de Janeiro, being40children in eachschoolof both genders. Among the10 schools, 5were frompublic schoolsand 5private schools.

The instruments used in this study were the Psychomotor Battery, Vítor da Fonseca (1995), which presents an analysis protocol of psychomotor profile by evaluating seven psychomotor factors (Tonicity and Balancing, lateralization, the Body Concept and Spatial-Temporal Structure, Global praxis and Fine praxis;. the Body Mass Index Protocol proposed by OMS (2007) and the Protocol of Fat Percentage Rating proposed by Lohman (1997) – Triceps Skinfold and subscapular.

The research data were analyzed by quantitative analysis , performed based on measures of central tendency (arithmetic mean) and dispersion (standard deviation) , estimates of probability density and complementary cumulative function functions in addition to the Pearson correlation coefficient theoretical based on applied statistics based on Ross (2010).

RESULTS

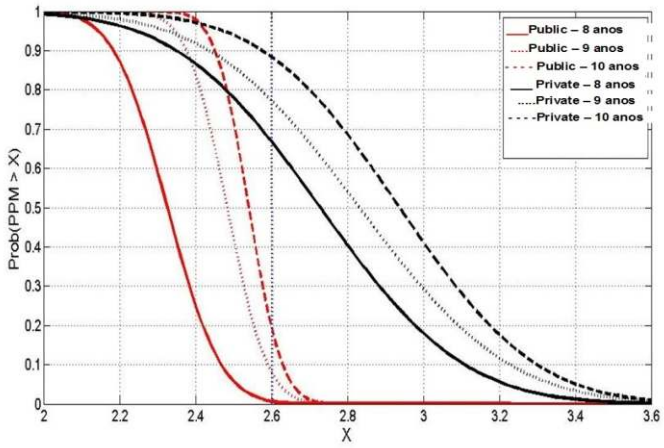
Below are the data shown in Table 1 and 2 and Figure 1, for the Psychomotor Level (level of psychomotor structures), BMI and Fat Percentage Level by age groups. Table 1 below presents the means and the Psychomotor Profile standard deviations on an analysis of different ages (8.9 and 10) .

Table 1: Mean and standard deviation (SD) of Psychomotor Level Medium Public and Private schools. (According to students ages 8 ,9 and 10 years).

	RESULT PER AGES			
	8 years	9 years	10 years	Total
Mean	2,3257	2,5229	2,5400	2,5057
SD	0,1108	0,1590	0,0695	0,0675

Table 1 shows the average increase trend of average psychomotor profile mean with increasing age of the students, aspect observed for each of the student groups. Figure 1 below shows a greater dispersion profiles of students from public schools in relation to private , when analyzing the approach of the data of each group by Gaussian distribution (ROSS , 2010). Figure 1 also shows estimated cumulative curves for supplementary functions according to the ages of the students. It can be seen that only 20 % of public schools tend to have Psychomotor Profile Average students with 10 years older than 2.6 (blue vertical line traceja) . This measure approximates 90 % for private schools.

Figure 1 : Profile of Approach Psychomotor East for school by Gaussian probability density functions



Are presented in Table 3, the means values of the Fat Percentage and body mass index (BMI) for the two groups of schools according to the ages of the students.

Table 3 - Mean BMI and Fat Percentage

	BMI			Fat Percentage		
	8 years	9 years	10 years	8 years	9 years	10 years
Public School	18,22 (overweight)	17,13 (normal)	16,75 (normal)	17,04 (normal)	15,87 (normal)	18,37 (normal)
Private School	17,88 (overweight)	17,65 (normal)	20,22 (overweight)	18,06 (normal)	17,80 (normal)	19,24 (normal)

From the results shown on the graphs above it was observed that among the analyzed groups, children aged 10 years had more mature Psychomotor Level compared to groups of children aged 8 and 9 years old. This result is probably related to the motor task time experienced by older children. Children aged 8 and 9 years were very similar with respect to the maturing of the Psychomotor Level. The body Mass Index and Fat Percentage did not show considerable variance between the groups compared.

CONCLUSION

The results revealed in the survey showed superiority in Psychomotor Level of older children, aged 10 years. This result may be related to the time of motortask experienced by this group. Psychomotor level directly depends on the influence of the environment that children experience in their daily activities. Children 10 years old have certainlygone through more experiences than children aged 8 to 9 years.

The results also showed that the analyzed Psychomotor Structuresbetween groups are generallyconsidered GOOD to NORMAL level for the respective analyzed ages. The Vitor da Fonseca (1995)protocol for the Psychomotor Battery is reviewed on a scale of 1 to 4 points going from level considered bad (1) to the EXCELLENT level (4). The children studied were mostly in a GOOD level indicating that this development could be better depending on the motor experience of these children.

Data related to BMI and Fat Percentage showed an overall level close to normal, with some cases of overweight. When compared with the psychomotor level, BMI data and Fat Percentage showed no significant correlation.

This assessment can help understand the psychomotor development process in childhood, in the global and fine motor aspect, enabling that professionals involved in childhood education have parameters of psychomotor levels for comparison favoring the planning of school physical education in the aspects of education and psychomotor reeducation.

The research suggests that school physical education have as a major goal the maturing of the psychomotor level especially in middle childhood and preadolescence and control of Body Mass Index and Fat Percentage close to the level of normalcy.

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COMPARATIVE STUDY OF PSYCHOMOTOR, BODY MASS INDEX AND FAT PERCENTAGE LEVEL OF CHILDREN AGED 8 TO 10 YEARS OLD

ABSTRACT

The purpose of this research was to identify and compare the psychomotor level with the body mass index and fat percentage of children aged 8 to 10 years. The study sample consisted of 400 schoolchildren aged 8 to 10 yearsfrom ten schools from public and private institutions in the municipality of Rio de Janeiro, being 40 children in each school of both genders. The instruments used in this study were the Psychomotor Battery, Vítor da Fonseca (1995), which presents an analysis protocol of psychomotor profile by evaluating seven psychomotor factors (Tonicity and Balancing, Lateralization, the Body Concept and Spatial-Temporal Structure, Global praxis and Fine Praxis;. the Body Mass Index Protocol proposed by OMS (2007) and the Protocol of Percent Body FatRating proposed by Lohman (1997) – Triceps Skinfold and subscapular. The results revealed in the survey showed superiority in Psychomotor Level in older children aged 10 years. The data on BMI and body fat percentage, showed general level close to normal, with some cases of overweight. When compared with the psychomotor level, BMI data and Body Fat Percentage did not show considerable correlation. The conclusive research data suggests that Physical Education have as a major goal the maturing of the psychomotor level, especially in middle childhood and preadolescence, as the control of body mass index and fat percentage close the level of normalcy.

KEYWORDS: Psychomotor Level, Body Mass index, Fat Percentage

ÉTUDE COMPARATIVE SUR LE NIVEAU PSYCHOMOTEUR, L'INDICE DE MASSE CORPORELLE ET LE POURCENTAGE DE GRAISSE ENTRE LES ÉLÈVES ÂGÉS DE 8 À 10 ANS

RESUMÉ

La recherche ici presentée a comme objectifs identifier et comparer le niveau psychomoteur avec l'indice de masse corporelle (IMC) et le pourcentage de graisse infantile, de 8 à 10 ans. L'échantillon a été composé de 400 étudiants venus des écoles privées et des écoles publiques, issus de différentes régions du Rio de Janeiro. L'étude porte sur dix écoles (cinq publiques et cinq privées), 40 élèves de chaque école, les deux sexes. L'instrument utilisé dans la présente étude était La Batterie Psychomotrice de Vítor da Fonseca (1995), qui révéle un protocole d'analyse du profil psychomoteur vers l'évaluation de sept facteurs psychomoteurs (le Contrôle Tonico-Moteur, l'Apparition de la Latéralisation, le Développement des Capacités Posturales et de Préhension, la Motricité Globale et Fine; le Protocole de Classification de le Pourcentage de Graisse proposé par Lohman (1997) – Les Plis Cutanés Tricipital et Sous-Scapulaire). Les résultats observés montrent la supériorité au Niveau Psychomoteur de les enfants plus âgés, qui ont environ 10 ans. Les données rélatives aux IMC et Pourcentage de Graisse démontrent le niveau général très proche de la normale, sauf quelques cas de surpoids. Quand comparés avec le Niveau Psychomoteur, les données rélatives aux IMC et Pourcentage de Graisse n'ont pas montré corrélation significative. Les éléments conclusives sugèrent que l'éducation physique scolaire ait comme un de ses objectifs la maturité du niveau psychomoteur, principalement en ce qui concerne à la deuxième enfance et la préadolescence, ainsi comme le control du IMC et du Pourcentage de Graisse proche de la normale.

MOTS-CLÉS: Développement Psychomoteur, Indice de Masse Corporelle, Pourcentage de Graisse

ESTUDIO COMPARATIVO DEL NIVEL PSICOMOTOR, ÍNDICE DE MASA CORPORAL Y PORCENTAJE DE GRASA DE NIÑOS ENTRE 8 A 10 AÑOS

RESUMEN

El objetivo de esta investigación fue identificar y comparar el nivel psicomotor con el índice de masa corporal y el porcentaje de grasa de los niños de 8 a 10 años. La muestra del estudio consistió en 400 escolares de 8 a 10 años, procedentes de diez escuelas de las escuelas públicas y privadas en el municipio de Río de Janeiro, con 40 niños en cada escuela, de ambos sexos. Los instrumentos utilizados en este estudio fueron la Batería Psicomotora de Vítor da Fonseca (1995), que presenta un protocolo de análisis del perfil psicomotor mediante la evaluación de siete factores psicomotores (la Tonicidad y el Equilibrio, la Lateralización, la Noción del Cuerpo y la Estructuración Espacio-Temporal ; la Praxis Global y la Praxis Fina; el Protocolo de Índice de Masa Corporal propuesta por la OMS (2007) y El Protocolo de Clasificación de Porcentaje de Grasa propuesto por Lohman (1997) – Pliegues Tricipital y Subescapular. Los resultados revelados en la encuesta mostraron superioridad en el Nivel Psicomotor de los niños mayores, de 10 años. Los datos sobre el IMC y el Porcentaje de Grasa, se mostraron por lo general cerca de lo normal, con algunos casos de exceso de peso. Cuando se compara con el nivel psicomotor, los datos de IMC y el Porcentaje de Grasa no mostraron una considerable correlación. Los datos concluyentes de la investigación sugieren que la Educación Física Escolar tenga como objetivo principal la maduración del nivel psicomotor, especialmente en la infancia media y la preadolescencia, y el control del Índice de Masa Corporal y Porcentaje de Grasa cerca del nivel de normalidad.

PALABRAS CLAVE: Desarrollo Psicomotor, Índice de Masa corporal, Porcentaje de Grasa

ESTUDO COMPARATIVO DO NÍVEL PSICOMOTOR, ÍNDICE DE MASSA CORPORAL E PERCENTUAL DE GORDURA ENTRE CRIANÇAS DE 8 À 10 ANOS

RESUMO

O objetivo da presente pesquisa foi identificar e comparar o nível psicomotor com o índice de massa corporal e percentual de gordura de crianças entre 8 e 10 anos. A amostra do estudo foi composta por 400 escolares, com idade entre 8 e 10 anos, oriundos de dez escolas da rede pública e particular de ensino, do município do Rio de Janeiro, sendo 40 crianças de cada escola, de ambos os gêneros, dez crianças com idade de 8 anos, quinze crianças com idade de 9 anos e quinze crianças com idade de 10 anos. Os instrumentos utilizados no presente estudo foram a Bateria Psicomotora de Vítor da Fonseca (1995), que apresenta um protocolo de análise do perfil psicomotor através da avaliação de sete fatores psicomotores (Tonicidade e Equilibração, Lateralização, Noção do Corpo e Estruturação Espacial-Temporal, Praxia Global e Praxia Fina; o Protocolo de Índice de Massa Corporal proposto pela OMS (2007) e o Protocolo de Classificação do Percentual de Gordura proposto por Lohman (1997) – Dobras Triciptal e Subscapular. Os resultados revelados na pesquisa mostraram superioridade no Nível Psicomotor das crianças mais velhas, com idade de 10 anos. Os dados relativos ao IMC e Percentual de Gordura, mostraram nível geral próximo ao normal, com alguns casos de sobrepeso. Quando comparados com o nível psicomotor, os dados do IMC e Percentual de Gordura não mostraram corelação considerável. Os dados conclusivos da pesquisa sugerem que a Educação Física escolar tenha como um dos objetivos principais o amadurecimento do nível psicomotor, principalmente na segunda infância e pré-adolescência, assim como o controle do Índice de Massa Corporal e Percentual de Gordura próximo ao nível de normalidade.

PALAVRAS-CHAVE: Desenvolvimento Psicomotor, Índice de Massa Corporal, Percentual de Gordura.