107 - MOTOR DEVELOPMENT OF PARTICIPANTS OF THE PIRACEMA PROJECT WITH DISABILITIES: ASSESMENT AND INTERVENTION

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INTRODUCTION

People with disabilities show different characteristics regarding the development of their body scheme, spatial organization, balance, agility and strength, among others, and in certain cases may be considered pathological, which means, developing with peculiarities and distinct sequences of the development considered “normal”, and in others simply delayed, that is, when it is verified an evolution in all similar to a normal development but lagging compared to chronological age (GORLA, ARAÚJO e CARMINATO, 2004).

According to Gallahue (2004), motor development is a continuous process that changes throughout our lives, which begins with conception and end with death. It is the progressive change of the movement behavior throughout life. The individual continuously adapt to changes in his/her abilities to move in an effort to obtain and maintain motor control and the competence of the movement. It is a sequential process related to chronological age, brought by the interaction between the requirements of the tasks, the biology of the individual and the environmental conditions, being inherent to the social, intellectual and emotional changes. And in childhood, particularly at the beginning of the process of schooling, that a large increase of motor abilities take place, which allows the child a broad control of his/her body in different activities. In addition, the acquisition of motor skills in linked to the development of body awareness, space and time, and these skills are components of basic knowledge for both motor learning and activities of school education. This means that, achieving a good motor control the child will be building the basic notions for their intellectual development.

Thus, the motor assessment establishes itself as a resource that allows us to obtain data from a child or specific population and which can become valid decisions about their motor development. This way establishing the diagnostic assessment as a starting point for a planned educational intervention whose primary objective is to improve the motor skills allowing higher functional levels in daily activities. In the educational intervention program the professional must have in mind the real needs of the student and that to meet such needs and expectations of the individual it is important to consider their characteristics in the various processes of change (ROSA NETO, 2011)

METHODOLOGY

Were subjects of this study 32 students enrolled in APAE “Associação de Pais e Amigos dos Excepcionais” of Santa Cruz do Sul – RS and participants of the Piracema Project – “Swimming for People with Special Needs”, of both gender, with ages varying between 5 and 45 years old, suffering from various disabilities. This study is characterized as a descriptive-explanatory research of longitudinal character that according to Gaya (2008), demarcates characteristics or outlines the profiles of a certain group or population.

To collect data it was used the Scale of Motor Development (SMD) kit (ROSA NETO, 2002), which comprehends a set of test of graded difficulty, conducting to a thorough exploration of different sectors of development. The SMD is indicated for children with delayed neuropsychomotor development, with learning difficulties at school, speech problems, in writing and calculation, behavior problems, neurological, mental and sensory alterations, evaluating according to ROSA NETO, 2002; GALLAHUE & OZMUN, 2004 the following motor areas:

-Fine Motricity (MA1), means the set of activities involving the movements of certain segments of the body or the ability to control them, with minimal use of force in order to achieve a precise answer to the task. Global Motricity (MA2) consists of skills that involve contractions of of large muscles of the body when they are normally in movement. The Balance (MA3) is the ability of the body to take and hold any position against the force of gravity, where all the forces acting on it are void. The Body Scheme (MA4) refers to the ability to discriminate accurately the body parts, actively support all actions that the body makes over itself and over external objects, ability to organize the body parts in the performance of a task. Spatial Organization (MA5) is the knowledge of body dimensions, both the space of the body as the surrounding space and the ability to accurately assess the relationship between the body and the environment. Language/Temporal Organization (MA6) includes a logical, conventional dimension and an aspect of living. The time consciousness is structured on the perceived changes, regardless of being succession or duration. The General Motor Age (GMA) is obtained by summing the positive results achieved in motor tests, expressed in months. The Chronological Age (CA) is verified by the birth of date of the child, transforming this age in months. The Negative Age (NA) is the difference between the overall motor age and the chronological age. For the statistical treatment of data, it was used the SPSS program for Windows 13.0, by analyzing the mean, median, mode, standard deviation, variance, minimum and maximum value.

‘**Table 1** Classification of motor development by the General Motor Quotient (GMQ).

GMQ	Motor Development
130 or more	Much superior
120 – 129	Superior
110 – 119	Normal high
90 – 109	Normal medium
80 – 89	Normal low
70 – 79	Inferior
69 or less	Much inferior

RESULTS AND DISCUSSION

The following results were obtained related to motor development. The group presented, according to Table 2, a general motor quotient (GMQ) classified as Much Inferior (28,00). It was observed that the areas of greatest difficulties were

spatial organization (MQ5) and temporal organization (MQ6). Knowing how much the motor development of the human being is a subject much studied throughout the history, many studies have been conducted in order to evaluate the motor evolutionary stages corresponding to their biological maturation. As for the motor development related to gender although the general motor quotient of the girls ("normal low") was lower than the boys ("normal medium"), the variables did not differ significantly in comparison, fact similar to other studies as SANTOS, 2010.

Table 2 Motor Quotients

	MQ1	MQ2	MQ3	MQ4	MQ5	MQ6	GMQ
Mean	48,87	31,07	28,44	28,44	27,84	19,16	28,00

In the evaluation of Table 3 which represents the motor age of all students, it was observed that the average general motor age was much inferior to the average chronological age, representing a negative age of (NA) of 185,87 months. Comparing the results of the present study to the ones obtained by ROSA NETO, 2011 where it was analyzed the motor quotient in all items was classified as "much inferior" what is characterized as a concerning motor deficit

Table 3 Motor Age of the Students

	MA1	MA2	MA3	MA4	MA5	MA6	GMA	IC	IN
Mean	90,85	57,75	52,87	52,87	51,75	35,62	52,06	237,43	185,87
Median	60,00	48,00	48,00	54,00	48,00	30,00	53,00	206,50	154,00
Mode	60	24	24	0	36	0	72	172	104
Standard Deviation	142,762	42,729	42,438	45,604	26,994	34,683	31,226	00,840	105,128
Variance	20381,145	1824,968	1801,016	2079,726	728,710	1202,952	975,093	0168,706	11051,984
Minimum value	0	0	0	0	0	0	6	55	45
Maximum value	844	132	132	132	96	132	124	528	520

Now regarding the female motor age, Table 4 shows that most of the studied subjects had their Best average in fine motricity (MA1) reaching an average of 66,46, and the lowest average was temporal organization (MA6) with 33,23 classified as much inferior. In studies conducted by MANSUR and MARCON, 2006 where the aim would be to evaluate the motor profile of children with moderate mental disabilities, being the biggest deficit attributed to the temporal organization. All data and information provided by the SMD in the evaluation of the group has the general motor quotient as the most important parameter in the final diagnosis of the participants of the Piracema Project. By relating the motor age of all motricity kinds to the chronological age, contributed scientifically for a well oriented intervention in order to try to adjust the existing deficiencies.

Table 4 Female Motor Age

	MA1	MA2	MA3	MA4	MA5	MA6	GMA	IC	IN
Mean	66,46	42,46	41,53	57,23	54,46	33,23	49,23	255,92	206,69
Median	60,00	24,00	24,00	48,00	48,00	24,00	58,00	222,00	180,00
Mode	84	0	0	0	36	0	6	110	104
Standard Deviation	38,141	44,528	49,140	57,373	30,041	41,324	34,064	15,470	24,696
Variance	1454,769	1982,769	2414,769	3291,692	902,769	1707,692	1160,359	3333,410	5549,231
Minimum value	0	0	0	0	0	0	6	110	81
Maximum value	132	132	132	132	96	132	100	528	520

In the evaluation of Table 5 which represents the male motor age, it can be seen that the result for fine motricity (MA1) was on average of 107,57 considered normal medium. However, it still represents an average of negative age (NA) of 171,63. This confirms the statement of MANSUR and MARCON,2006 and take us to understand that the Participants of the Piracema Project in relation to their motor age, have certain difficulties to collect information and evaluate the physical relationship between the body and the and the environment we live in through our senses. It is possible to observe this fact when these children participate of activities that involve the propulsion and coordination of strokes of legs and arms in the crawl and backstroke style.

Table 5 Male Motor Age

	MA1	MA2	MA3	MA4	MA5	MA6	GMA	IC	IN
Mean	107,57	68,21	60,63	49,89	49,89	37,26	54,00	224,78	171,63
Median	60,00	60,00	48,00	60,00	48,00	48,00	52,00	193,00	139,00
Mode	60	24	24	0	36	48	72	55	45
Standard Deviation	82,773	39,202	36,545	36,935	25,381	30,435	29,933	90,598	90,225
Variance	3406,035	1536,842	1335,579	1364,211	644,211	926,316	896,000	8208,175	8140,690
Minimum value	0	0	24	0	0	0	10	55	45
Maximum value	844	132	132	120	96	132	124	443	371

CONCLUSION

Upon completing this study, it is possible to conclude that the variables assessed, global and fine motricity, balance, body scheme/speed, spatial organization and language/temporal organization were classified in the motor pattern as “much inferior”, being the variable fine motricity the one that had more positive results in the average and the temporal organization the variable with more negative results in the average. All data and information provided by the SMD in the evaluation of the group has the general motor quotient as the most important parameter in the final diagnosis of the participants of the Piracema Project. By relating the motor age of all motricity kinds to the chronological age, contributed scientifically for a well oriented intervention in order to try to adjust the existing deficiencies in the next aquatic activities.

The Scale of Motor Development can be very important in the positive contribution during the diagnosis of child psychomotricity. This measuring must be continuous and progressive, always relating the results to the other variables that may influence this process, it is appropriate to remember it does not develop with linear characteristics. The more information concerning the psychomotor, biological and social aspects of the Participants of the Piracema Project are gathered more efficient the assessment and intervention in their motor development will be. The Motor Development is a continuous change in motor behavior throughout life, provided by the interaction between the needs being this a continuous, specific and individual process of each person. The chronological age does not influence in the motor age.

It is interesting to observe that despite the limitations imposed by the deficiencies, Disabled People show competencies that should be encouraged and it is essential to involve them in activities related to the skills that had negative results as much as the ones that showed positive results, always seeking to enrich the motor repertoire.

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MOTOR DEVELOPMENT OF PARTICIPANTS OF THE PIRACEMA PROJECT WITH DISABILITIES: ASSESMENT AND INTERVENTION

ABSTRACT

It is known that the motor development of the human being is a subject much studied throughout history, many studies have been conducted in order to evaluate the motor evolutionary stages corresponding to their biological maturation. The purpose of this study of descriptive-exploratory character is to verify the assessed indices of motor performance of the individuals with disabilities in evaluations conducted in August and September of 2011. The research involved 32 students enrolled in APAE and participating of the Piracema Project of UNISC- Swimming for People with Special Needs. To collect data it was used the Scale of Motor Development (SMD) kit of Rosa Neto (2002). As result of this study it was verified that the variables assessed, fine and global motricity, balance, body scheme/speed, spatial organization and language / temporal organization motor pattern were classified as “very low”, being the variable fine motricity was the one that most obtained a positive result in the average and the spatial organization the variable with most negative results in the average. Thus, it is concluded taht the chronological age does not influence in the general motor age of the same.

KEYWORDS: Motor Development; Scales of Motor Development; Disability.

DÉVELOPPEMENT DES PARTICIPANTS AVEC MOTEUR FRAI PROJET HANDICAP: ÉVALUATION ET INTERVENTION

RÉSUMÉ

Nous savons combien le développement moteur de l'être humain est un sujet peu étudié à travers l'histoire, de nombreuses études ont été menées afin d'évaluer les stades évolutifs du moteur correspondant à leur maturation biologique. L'objectif de cette étude était descriptive, exploratoire, est de vérifier les indices ont évalué le rendement du moteur à des personnes handicapées dans les évaluations effectuées en Août et Septembre 2011. La recherche a impliqué 32 élèves inscrits et de participer à des projets de frai des APAE UNISC-de natation pour personnes à besoins spéciaux. Pour collecter les données, nous avons utilisé le kit de développement moteur Scale (EDM) de Rosa Neto (2002). Les résultats de cette étude, il a été constaté que les variables, et le contrôle moteur mondiaux, l'équilibre, l'image corporelle / vitesse, l'organisation spatiale et de la langue / l'organisation temporelle du modèle de moteur ont été classés comme «très faible», et la variable qui a été la motricité fine obtenu plus positif sur la moyenne et l'organisation de la variable temporelle des résultats négatifs en moyenne. Ainsi, il est conclu que, l'âge chronologique n'influence pas le moteur générale du même âge.

MOTS-CLÉS: le développement moteur, échelle de développement moteur; handicapées.

MOTOR DE DESARROLLO DE LOS PARTICIPANTES CON DISCAPACIDAD DESOVE PROYECTO: EVALUACIÓN E INTERVENCIÓN

RESUMEN

Sabemos hasta qué punto el desarrollo motor del ser humano es un tema muy estudiado a lo largo de la historia, muchos estudios se han llevado a cabo con el fin de evaluar las etapas de la evolución del motor que corresponde a su madurez biológica. El objetivo de este estudio fue un estudio descriptivo, exploratorio, es comprobar los índices de evaluación del rendimiento del motor de las personas con discapacidad en las evaluaciones llevadas a cabo en agosto y septiembre de 2011. En la investigación participaron 32 estudiantes matriculados y que participaron en el Proyecto de desove de la APAE UNISC-Natación para Personas con Necesidades Especiales. Para recopilar los datos se utilizó el kit de motor Desarrollo a Escala (EDM) de Rosa Neto (2002). Los resultados de este estudio se encontró que las variables, y el control motor global, el equilibrio, la imagen corporal / velocidad, la organización espacial y el lenguaje / la organización temporal del patrón motor se clasificaron como "muy bajo", y la variable que se motricidad fina obtener más positiva en promedio, y la organización variable temporal de los resultados negativos en promedio. Por lo tanto, se concluye que, la edad cronológica no influye en el motor general de la misma edad.

PALABRAS CLAVE: Motor de Desarrollo, la Escala de Desarrollo Motor; con discapacidad.

DESENVOLVIMENTO MOTOR DOS PARTICIPANTES COM DEFICIÊNCIA DO PROJETO PIRACEMA: AVALIAÇÃO E INTERVENÇÃO

RESUMO

Sabemos o quanto que o desenvolvimento motor do ser humano é um assunto muito estudado ao longo da história, muitas pesquisas foram realizadas com a finalidade de avaliar as fases motoras evolutivas correspondentes a sua maturação biológica. O objetivo deste estudo, de caráter descritivo-exploratório, é verificar os índices avaliados do desempenho motor dos sujeitos com deficiência nas avaliações realizadas em agosto e setembro de 2011. A pesquisa envolveu 32 alunos matriculados na APAE e participantes do Projeto Piracema da UNISC- Natação para Portadores de Necessidades Especiais. Para a coleta de dados foi utilizado o kit de Escala de Desenvolvimento Motor (EDM) do Rosa Neto (2002). Como resultados deste estudo constatou-se que as variáveis avaliadas, motricidade fina e global, equilíbrio, esquema corporal/rapidez, organização espacial e linguagem/organização temporal foram classificadas em padrão motor “muito inferior”, sendo que a variável motricidade fina foi a que mais obteve resultado positivo na média e a organização temporal a variável de resultados negativos na média. Desta forma, conclui-se que, não a idade cronológica não influência na idade motora geral dos mesmos.

PALAVRA CHAVE: Desenvolvimento Motor; Escala de Desenvolvimento Motor; Portadores de Deficiência.