156 - PIPE - PROGRAM OF SPECIFIC INTERVENTION PSYCHOMOTRICITY

GECIELY MUNARETTO FOGAÇA DE ALMEIDA
MIRIAM BECKHÄUSER DE BASTOS SILVA
ELAINE CARMELITA PIUCCO
KASSANDRA NUNES AMARO
University of the State of Santa Catarina - UDESC
Center of Physical Education, Physiotherapy and Deports - CEFID
Laboratory of Human Development - LADEHU
geciely@gmail.com

INTRODUCTION

The development of the human being depends on diverse linked factors between itself, which involve nutricional aspects, genetic, physical and biopsicossociais, being that the motor development is permeado by all they, especially in infancy, period of great development of abilities motor, who widely in accordance with evolve the varied age and more arrive to be each time, complete and complex. Through the motor explorations, the child develops same conscience of itself and the exterior world, assisting in the conquest of its independence and social adaptation (PINK GRANDSON, 2002).

Classic authors (Ozeretsky, Guilmain, Zazzo, Stambak and Vayer) come analyzing the human motor behavior through specific tests, based in the subjective and objective comment of the normal and abnormal motor development. These studies generally conclude that children who present motor deficit tend to progress well, when stimulated in specific and directed way. In the context of alterations in the infantile development, the children with syndrome appear of Down (SD), a genetics-chromosomic condition, that reaches chromosomic pair 21 and constitutes one of the causes most frequent of mental deficiency, understanding about 18% the total in specialized institutions (MOREIRA et al, 2000).

The SD leads to a set of physical and mental alterations, associates to the delay of the neuropsicomotor development. Authors cite some studies that disclose that these children present delay in the acquisitions of basic motor landmarks, indicating that these landmarks emerge in superior time to the one of children with normal development (SPANOÁ et al, 1999). Of the cognitive point of view, literature indicates a delay in the mental development (of light the moderate one) being observed a bigger comprometimento of these children in the area of the language (PUESCHEL, 1995).

For Lorenzini (2002), even so the special riots associates in children with necessities can intervene with its motor acquisitions, the "constant supply of experiences for the child, making possible satisfactory conditions for its development" become possible the improvement of these acquisitions. Especially a combination between affective, social, ambient stimulaton will be had and physical, all, inside of its limitations, will obtain to develop themselves of a healthful and natural form.

The psicomotora evolution of the child with syndrome of Down follows a parallel line, however with imbalance, in relation to the average of the general population, what it becomes necessary the accomplishment of specific interventions with these children (FUNAYAMA, 2002). Children of zero the three years generally receive specific stimulation in special schools and specialized centers; however, to leave of this age, the stimulation reduces consideravelmente or even though it ceases.

With base in these factors, the Laboratory of Human development (LADEHU) of the Center of Physical Education, Physiotherapy and Deports (CEFID) of the University of the State of Santa Catarina (UDESC) comes offering, since 2005, a Program of Specific Psychomotricity Intervention (PIPE) for children of 04 the 12 years with Down syndrome, that if bases on the principles of the evaluation-intervention-reevaluation. The program involves based activities of intervention in the following motor areas: fine motricity, global motricity, balance, corporal project, space organization, secular organization, language and laterality. The objective of this research is to present the PIPE and to analyze the influence of the interventions during one year in a group of children who had participated of the project.

METHODOLOGY

Initiate in March of 2005, the Program of Specific Psychomotricity Intervention (PIPE), is tied with the Project of Psychomotricity Extension, offered for the Laboratory of Human Development (LADEHU) of the Center of Physical Education, Physiotherapy and Deports (CEFID) of the University of the State of Santa Catarina (UDESC). The PIPE searchs to promote subsidies for an evaluation and psicomotora intervention effective in children of 04 the 12 years with syndrome of Down, in the direction to optimize its global development.

The children are directed to the project for institutions of special education, as well as for regular schools of Florianópolis/SC and pass for an evaluation through the following instruments:

1. Scale of Motor Development: developed for Rosa Neto (2002), the EDM evaluates the following motor aspects: Fine Motricity (óculo manual), global Motricity (coordination); Balance (static position); Corporal project (imitation of position, rapidity); Space organization (perception of the space); Secular organization (secular language, structures) and Laterality (hands, eyes and feet). The "EDM" determines the motor age (gotten through the points reached in the tests) and the motor quotient (gotten for the division between the motor age and the chronological age multiplied by 100) allowing a classification of each quotient in levels: "very superior", "superior", "normal high", "normal medium", "normal low", "inferior" and "very inferior".

2. Fiche of physical evaluation: using one it balances digital, one stadiometer and one plicometer, evaluates it corporal mass, the cutaneous stature and folds tricipital and to subescapular.

3. Fiche of postural evaluation: using a simetrógrafo, the fiche is composed of the previous, lateral postural comment the posterior one, detecting possible posturals and ortopedics shunting lines.

4. Psicossocial questionnaire: used a register fiche, with objective to contemplate the necessities of this specific project, the questionnaire is applied the responsible parents and/or, being composed of following itens: data of identification, data of the responsible ones, on conditions to the gestation, on conditions to the birth, neuropsicomotor development, social behavior and partner-economic conditions.

From the initial evaluation, the children are directed to the sessions of "Psicomotora Intervention", carried through two times per week, with duration of 50 minutes each. The carried through activities are re-educative stimulants and, carried through of playful form englobando the areas of the fine motricity, global motricity, balance, corporal project, space organization, secular organization, language and laterality.

The daily accompaniment of the interventions is made through a Model of Comment of the Psicomotora Therapy (SÁNCHES et al, 2003), beyond daily photos. During the interventions with the children, its familiar ones remain in another

environment, where they receive psychological support and information on the development from its son, as well as adequate forms to stimulate it in other contexts.

In the current research, of the type case study, the motor data of 4 children with Down syndrome had been used, selected intentionally for the criterion of participation since the beginning of the project in 2005 (1 evaluation and 2 reevaluations), generically treated as "cases" (1, 2, 3 and 4) and that they had participated of at the very least 15 sessions in 1º semester of 2006. For the statistical treatment of the data the informatic program of the "EDM" was used (ROSA NETO, 2002), for attainment of the general motor quotients (QMG) of each child, making possible the comparative analysis of these values in each presented case.

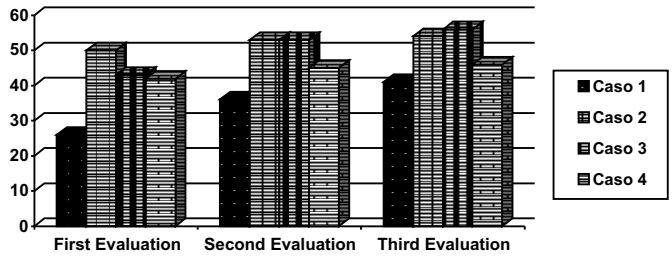
RESULTS AND DISCUSSION

From the motor evaluations of the children, are possible to determine the motor quotient general (QMG), gotten for the division between the general motor age and the chronological age, multiplied for 100, supplying an absolute value (ROSA NETO, 2002). The referring data to the 4 (four) cases analyzed in this research can better be visualized in Table 1 and Graph 1.

Table 1 - Results of the QMG of the analyzed cases.

CASE	1ª Evaluation	2ª Evaluation	3ª Evaluation
1	26,3	35,8	40,7
2	50	53	54
3	42,6	52,9	56
4	42,1	45	46,5

Graph 1 - Graphical analysis of the QMG of the analyzed cases.



In general way, all the children had presented evolution in its motor development, with increase of the level of general motor quotient, emphasizing the positive aspect of the directed motor interventions for this special population, corroborating with other studies (SPANOÁ et al, 1999; LORENZINI, 2002; FUNAYAMA, 2002). Despite this, all to remain in the inferior level "very" classified by the "EDM" (PINK GRANDSON, 2002), what already it is of certain waited form, considering inherent the neuromotors alterations to the syndrome. Considering each in case that specific, it can be made the following analyses:

CASE 1 - Child of the feminine sex, with 8 years and 3 months in the initial evaluation and 9 years and 5 months in the final reevaluation. She participated of 40 sessions in the year of 2005 and 22 sessions in 1º semester of 2006, totalizing 62 sessions of intervention. Its laterality was defined as crossed. As it can be observed, the child of case 1 presented a considerable profit in its motor development, therefore its QMG passed of 26,3 (in 2005) for 40,7 (in 2006). The motor areas of greaters deficits in the initial evaluation were fine, global motricity, balance and language, of which only the last one did not get significant improvement.

CASE 2 - Child of the feminine sex, with 6 years and 10 months in the first evaluation and 8 years in the third evaluation. She participated of 36 sessions in the year of 2005 and 16 sessions in 1º semester of 2006, totalizing 52 sessions of intervention. The evaluation of its motor development can be seen in graph 2. Its laterality was defined as crossed. In this in case that, the motor profit was good, therefore it passed of 50 (1ª evaluation) for 54 (3ª reevaluation). The areas of greaters deficits were balance, space organization and language, being that it had great improvement in the 2 first areas.

CASE 3 - Child of the feminine sex, with 5 years in the initial evaluation and 6 years and 3 months in the last evaluation. She participated of 32 sessions in the year of 2005 and 20 sessions in 1º semester of 2006, totalizing 52 sessions of intervention. Its laterality was defined as dexterous complete. In this in case that, the motor profit was very good, passing of 42,6 (in 2005) for 56 (in 2006). The areas of greaters deficits in the initial evaluation were global motricity, space organization and language, improving in all they, despite the language still being of bigger deficit.

CASE 4 - Child of the masculine sex, with 5 years and 11 months in the initial evaluation and 7 years and 2 months in the final evaluation. She participated of 23 sessions in the year of 2005 and 15 sessions in 1º semester of 2006, totalizing 38 sessions of intervention. Its laterality was defined as dexterous complete. In this in case that, the motor profit was good, passing of 42,1 (initial evaluation) for 46,5 (3ª reevaluation). Its bigger difficulties in 1ª evaluation had been in the balance and the language, improving in the first area, keeping the difficulty in the language.

The results found in this research corroborate with other referring studies to the general motor development of this specific population. Marinello (2001) and Almeida (2006), when evaluating the motor development of children with syndrome of Down through the "EDM" had evidenced that this population presents a great difficulty in the motor abilities, presented quotients of "very inferior" development in the different evaluated areas. Delays in the motor acquisitions of the children with Down syndrome are brought by literature as previsible (PUESCHEL, 1995).

Ramalho et al (2000) considers that the learning of the standards of movements of children with Down syndrome, occurs in slow and dificult way. According to these authors, the compromised area of development more of the carrying children of Down syndrome is of the language, being the evidency grammatical and syntactic difficulties. Our results confirm this theory, therefore the four important analyzed children had presented deficits in the sub-area of the language, exactly after the intervention sessions. One of the justifications for the results below of normality in this area is the influence of the muscular hipotonic tonus in children with Down syndrome, gift in 100% of the cases (MOREIRA et al, 2000), what it intervenes directly with the language, for the hipotonic tonus of the language and the accessory muscle of face (PUESCHEL, 1995).

Subsequentemente to the language, the areas that the children had presented greater difficulty had been global motricity, balance and space organization, corroborating with the study of Spanoá et al (1999), that it evaluated the motor abilities

of 22 children with syndrome of Down of 5 the 14 percentile years and found deficits in the ample movement and the balance, especially until the 10 years of age, time where they start to present a better development.

With relation to the laterality, studies show that great part of the children with syndrome Down can present crossed or indefinite laterality, varying between 15% and 45% (MARINELLO, 2001 and ALMEIDA, 2006). Studies referring the manual preference in children with syndrome of Down, 7 the 9 years and 13 the 15 years, had found a bigger frequency of accidents (left-handed) and of indefinite dominate when it mentions the children of lesser age, suggesting still to after have maturation of the dominate the nine years of age (FUNAYAMA, 2002).

Despite the resulted basses motor reached for the children with Down syndrome, ahead of programs of precocious stimulation and intervention they are capable to reach more satisfactory motor levels (LORENZINI, 2002; SÁNCHES et al, 2003). Our research obtained to prove this affirmation, therefore all the children who had for more than appeared to the Program of Specific Psychomotricity Intervention (PIPE) 30 sessions, had gotten resulted positive, with increase of the General Motor Quotients.

In the research of Almeida (2006), that it carried through 30 sessions of psicomotora intervention with a child with syndrome of Down, during 4 months, observed improvement in the general motor development of the child, with prominence for the global motricity and the language. The negative age of 52 months (in the daily pay-test) passed to 42 months (in the one after test), representing 10 months of motor evolution. Finishing, one proves the positive results front the specific psicomotora intervention, together the children with Down syndrome of 4 the 12 years.

CONCLUSIONS

Deficits motor found in the population with Down syndrome and the improvement of the indices with the program of specific psicomotora intervention (PIPE) justifies the necessity of existence and continuity of programs that aim at the stimulation and psicomotora re-education for these children, exactly in more advanced motor ages, therefore the neuromotor alterations gifts tend to persist. It is emphasized, therefore, that a boarding of evaluation and intervention during all the period of infancy (until the 12 years) can serve of subsidy for a proposal ahead accomplishes of all the aspects related to the infantile development, through the psychomotricity.

The benefits of the psychomotricity in the motor development of children already had been evidenced by Lorenzini (2002) and Sanches et al (2003), when affirming that the work in psychomotricity privileges the physical and mental act, when that are learned to listen, to interpret, to imagine, to pass of the idea to the act and the abstract to the concrete, being essential to the formal learning.

The interventionist boarding has revealed very efficient in the infantile development, especially front to deficits motor in populations special. The knowledge of this project and this methodology can contribute so that other professionals and institutions can reach the objective to provide to greater independence for these children.

BIBLIOGRAPHICAL REFERENCES

ALMEIDA, Geciely Munaretto Fogaça de Almeida; ROSA NETO, Francisco. Motor evaluation intervention in Down Syndrome. *FIEP Bulletin*, Foz do Iguaçu, n.76, p. 413-416, jan. 2006.

FUNAYAMA, Carolina Araújo Rodrigues. Aspectos Neurológicos na Síndrome de Down. *Temas sobre Desenvolvimento*, v. 11, n.61, p. 40-4, 2002.

LORENZINI, Marlene. *Brincando a brincadeira com a criança deficiente*. São Paulo: Manole, 2002. 134 p.

MARINELLO, Katiuça. *Avaliação do desenvolvimento motor em escolares portadores de deficiência mental matriculados na APAE de Tubarão/SC*. [Graduação Fisioterapia]. Universidade do Sul de Santa Catarina, 2001. 90p.

MOREIRA, Lília; EL-HANIB, Charbel; GUSMÃO, Fábio. Down syndrome and its pathogenesis: considerations about genetic determinism. *Rev Bras Psiquiatr*, São Paulo, n. 22 (2), p.96-99, 2000.

PUESCHEL, Sigfried. *Síndrome de Down: guia para pais e educadores*. 2 ed. São Paulo: Papirus, 1995. 128 p.

RAMALHO, Cássia Maria; PEDROMÔNICO, Márcia Regina Marcondes; PERISSINOTO, Jacy; Síndrome de Down: avaliação do desempenho motor, coordenação e linguagem (entre dois e cinco anos). *Temas sobre Desenvolvimento*, São Paulo, v.9, n.52, p.11-14, 2000.

ROSA NETO, Francisco. *Manual de avaliação motora*. Porto Alegre: Artmed, 2002. 136 p.

SÁNCHES, Pilar Arnais; MARTINEZ, Marta Rabadan; PEÑALVER, Iolanda Vives. *A psicomotricidade na educação infantil - uma prática preventiva e educativa.* Trad.: Inajara Haubert Rodrigues. Porto Alegre: Artmed, 2003. 115 p.

SPANOÁ, Maria; MERCURI, Eugenio; RANDOÁ, Teresa; PANTOÁ, Tiziana; GAGLIANO, Antonella; HENDERSON, Sheila; GUZZETTA, Franco. Motor and perceptual motor competence in children with Down syndrome: variation in performance with age. *European Journal of Paediatric Neurology*, n.3, p. 7-14, 1999.

GECIELY MUNARETTO FOGAÇA DE ALMEIDA
Rua Ps. Willian Richard S. Filho, 980. Ap.602. Itacorubi
Florianópolis/SC/Brasil
CEP: 88034-100 - geciely@gmail.com

PIPE - PROGRAM OF SPECIFIC INTERVENTION PSYCHOMOTRICITY

ABSTRACT

The development of children with Down syndrome (SD) passes for a constant process of transformation, disclosing delays in the motor acquisitions. From zero the three years generally these children receive stimulation in specialized centers; however, to leave of this age, the stimulation reduces considerable or even though it ceases. The objective of this research is to present the proposal of the Program of Specific Psychomotricity Intervention (PIPE) for children with SD of 04 the 12 years offered by the Laboratory of Human Development (LADEHU) of the Center of Physical Education, Physiotherapy and Deports (CEFID) of the University of the State of Santa Catarina (UDESC) and to analyze the results of one year of intervention in a group of children. For in such a way, 4 children had been selected intentionally who had participated since the beginning of the project in 2005 and had appeared, at the very least, 15 sessions in 1º semester of 2006. These children had been evaluated at three moments, semester, always for the same appraiser. One used for this the tests that compose Motor Development Scale - "EDM" (PINK GRANDSON, 2002), that it evaluates the following areas: fine motricity, global motricity, balance, corporal project, space organization, secular organization and laterality. Between the evaluations, the children had participated of sessions of "Psicomotora Intervention", carried through two times per week, with duration of 50 minutes and offered interdisciplinarmente for

professionals of the areas of the health and education. The daily accompaniment of the interventions was made through a Model of Comment (SÁNCHES et al, 2003). Our results show to evolution in the motor development of all the children, after to participate of the PIPE per one year. The positive aspect of the directed interventions was evident in this research the children with Down syndrome.

Word-key: Motor assessment; Psychomotricity intervention; Down syndrome.

PIPE - PROGRAMME D´INTERVENTION PSYCHOMOTRICE SPECIFIQUE

RéSUMé

Le développement des enfants avec le syndrome de Down (SD) passe par un processus constant de transformation, révélant des retards dans les acquisitions motrices. De zéro à trois ans, généralement ces enfants reçoivent une stimulation dans des écoles spéciales et des centres spécialisés ; cependant, à partir de cet âge, la stimulation est considérablement réduite ou même cesse complètement. L´objectif de cette recherche est de présenter la proposition du Programme d´Intervention Psychomotrice Spécifique (PIPE) pour des enfants avec le SD de 4 à 12 ans offert par le Laboratoire de Développement Humain (LADEHU) du Centre d´Education Physique, de Physiothérapie et Sportif (CEFID) de l´Université de l´Etat de Santa Catarina (UDESC) et d´analyser les résultats d´une année d´intervention dans un groupe d´enfants. Ainsi ont été sélectionnés intentionnellement 4 enfants qui ont participé dès le début au projet en 2005 et pendant au moins 15 sessions au 1er semestre 2006. Ces enfants ont été évalués en trois moments distincts, semestriellement, toujours par le même évaluateur. Ont éte utilisés pour cela les tests qui composent l´Echelle de Développement Moteur -``EDM´´ (ROSA NETO, 2002) qui évaluent les domaines suivants : motricité fine, motricité globale, équilibre, système corporel, organisation spaciale, organisation temporelle et latéralité. Entre les évaluations, les enfants ont participe à des sessions d´``intervention psychomotrice´´, réalisées deux fois par semaine, pendant 50 minutes et offertes de manière interdisciplinaire par des professionnels des domaines de la santé et de l´éducation. L´accompagnement quotidien des interventions a été réalisé à travers un Modèle d´Observation (SANCHES, 2003). Nos résultats montrent une évolution dans le développement moteur des enfants, après avoir participé au PIPE pendant un an. Est apparu évident lors de cette recherche l´aspect positif des interventions en direction des enfants avec le syndrome de Down.

Mot-clef: Évaluation de moteur ; Intervention de Psychomotrice; Syndrome de Down.

PIPE - PROGRAMA DE INTERVENCIÓN PSICOMOTORA SPECIFIQUE

RESUMEN

El desarrollo de los niños con el síndrome de Down (SD) pasa por un proceso constante de transformación, revelando retrasos en las adquisiciones motrices. De cero a tres años, generalmente estos niños reciben un estímulo en escuelas especiales y centros especializados; sin embargo, a partir de esta edad, el estímulo es considerablemente reducido completamente o mismo interrupción. El objetivo de esta investigación consiste en presentar la propuesta del Programa de Intervención Psicomotora Específica (TUBO) para niños con el SD de 4 a 12 años ofrecido por el Laboratorio de Desarrollo Humano (LADEHU) del Centro de Educación Físico, Fisioterapia y Deportista (CEFID) de la Universidad del Estado de Santa Catarina (UDESC) y en analizar los resultados de un año de intervención en un grupo de niños. Así se seleccionaron intencionalmente 4 niños que participaron desde el principio en el proyecto en 2005 y durante al menos 15 sesiones al 1.o semestre se evaluó a 2006. Estos niños en tres momentos distintos, semestral, siempre por el mismo evaluador. Utilizaron para eso las pruebas que componen la Escala de Desarrollo Motriz -``EDM' ' (ROSA NETO, 2002) que evalúan los siguientes ámbitos: ' motricidad fina, motricidad global, equilibrio, sistema corporal, organización espacial, organización temporal y lateralidad. Entre las evaluaciones, los niños tienen participan en sesiones de ``Intervención Psicomotora' ', realizadas dos veces por semana, durante 50 minutos y ofrecidos de manera interdisciplinaria por profesionales de los ámbitos de la salud y la educación. El acompañamiento diario de las intervenciones se realizó a través de un Modelo de Observación (SANCHES, 2003). Nuestros resultados muestran una evolución en el desarrollo motriz de los niños, después de haber participado en el PIPE durante un año. Pareció evidente en esta investigación el aspecto positivo de las intervenciones en dirección de los niños con el síndrome de Down.

Palabras-clave: Evaluación motora; Intervención Psicomotora; Síndrome de Down.

PIPE - PROGRAMA DE INTERVENÇÃO PSICOMOTORA ESPECÍFICA

RESUMO

O desenvolvimento de crianças com síndrome de Down (SD) passa por um processo constante de transformação, revelando atrasos nas aquisições motoras. De zero a três anos geralmente estas crianças recebem estimulação em centros especializados; porém, a partir dessa idade, a estimulação reduz consideravelmente ou até mesmo cessa. O objetivo desta pesquisa é apresentar a proposta do Programa de Intervenção Psicomotora Específica (PIPE) para crianças com SD de 04 a 12 anos oferecido pelo Laboratório de Desenvolvimento Humano (LADEHU) do Centro de Educação Física, Fisioterapia e Desportos (CEFID) da Universidade do Estado de Santa Catarina (UDESC) e analisar os resultados de um ano de intervenção em um grupo de crianças. Para tanto, foram selecionadas intencionalmente 4 crianças que participaram desde o início do projeto em 2005 e compareceram a, no mínimo, 15 sessões no 1º semestre de 2006. Essas crianças foram avaliadas em três momentos, semestralmente, sempre pelo mesmo avaliador. Utilizou-se para isso os testes que compõem a Escala de Desenvolvimento Motor - "EDM" (ROSA NETO, 2002), que avalia as seguintes áreas: motricidade fina, motricidade global, equilíbrio, esquema corporal, organização espacial, organização temporal e lateralidade. Entre as avaliações, as crianças participaram de sessões de "Intervenção Psicomotora", realizadas duas vezes por semana, com duração de 50 minutos e oferecidas interdisciplinarmente por profissionais das áreas da saúde e educação. O acompanhamento diário das intervenções foi feito através de um Modelo de Observação (SáNCHES et al, 2003). Nossos resultados mostram evolução no desenvolvimento motor de todas as crianças, após participarem do PIPE por um ano. Ficou evidente nessa pesquisa o aspecto positivo das intervenções direcionadas a crianças com síndrome de Down.

Palavras-chave: Avaliação Motora; Intervenção Psicomotora; Síndrome de Down.