

**103 - TRAINING STANDARD MOTOR WITH HIGH ELEVATION IN CHILDREN WITH AUTISM:
A CASE STUDY**

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INTRODUCTION

According to studies by Magill and Hall (1990), the learning of a standard motor refers to change the individual's ability to perform the same task following the practice. In the same direction, Kandel et al (2000), asserts that learning is related to neural change, including the structure and function of nerve cells and their connections in different regions of the nervous system. According to Bernstein (1967) cited by Tani (2008), the motor learning occurs during a process of stabilization, when the individual is in the process of sorting motor problems.

In individuals with autism, as defined by DSM-IV (1995) as "those who are characterized by severe and pervasive in several areas of development" studies have revealed a mechanism of motor learning deficit. Roger and Bennetto (2000), have posed the hypothesis that there is an impaired ability to mimic the movements of another person considering the central part of the neuropsychological profile of individuals with autism. In this sense, can be inferred that the quality of learning of standard motor in individuals with autism, will depend on the mediation of these individuals with their environment. Studies of Anzalone & Williamson (2000) and reinforces that the statement implying that child with autism has difficulty engaging in social transactions due to poor regulation activation, attention, affection and motor action.

Given these theoretical you can then select how the aim of this study was to evaluate the standard high elevation in children with autism and identify procedures to facilitate the efficient acquisition, retention and transfer of skills for stabilizing the variability of motor action.

**METHODOLOGY
CHARACTERISTICS OF THE STUDY**

It was a case study of the Extension in Motor Activity Project to children and teenagers with autism (PREMAUT) from the physical education course of Federal University of Alagoas in the period of February 2010 to July 2011.

SAMPLE:

The study sample consisted of five (5) male children, aged 5 to 11 years of age, all permanent in the Extension in Motor Activity Project for a minimum period of 18 months, clinical diagnosis of autism (CID F.84.0) without association with other diseases.

INSTRUMENTS AND PROCEDURES

The instruments used to collect data, were methodically organized into four phases: On the first analysis, was performed document file Extension Project in motor activities to children and teenagers with autism with the aim of selecting the sample; On the second, semi-structured interviews with parents and guardians to authorize the child's participation in the research by signing the consent form; on the third, it was applied motor tests based on postulates of Gallahue and Ozmun (2005, p.296), pre-integration of children in the project lasting 18 months to evaluate the stages of the standard stabilizing ability (lift leg jump) . The tests were consisted of three tasks with complexity levels of low, medium and high, described below:

(1)Low complexity stabilizing task: it was used 2 strings of 50 cm in length each, set into the ground and away from each other 10 cm. The child should skip the first, the starting point for the second identified as an arrival point. The aim, will be to test the dynamic balance, static and recovered and thus identify the stage of stabilizing ability (initial, elementary or mature) of the child during each elevation of legs.

(2) Medium complexity of stabilizing task , it was used two arches, with a diameter of 20 cm each, arranged in rows on the floor distant from each other 10 cm. The child should jump into the first arc and then the second sequence. The aim, will be to test the dynamic balance, static and recovered and thus identify the stage of stabilizing ability (initial, elementary or mature) of the child during each elevation of legs.

(3) Highly complex stabilizing task: it was used five arches, with a diameter of 20 cm each, arranged in rows on the floor. The child should jump into the first arc sequentially until the fifth arch. The aim, will be to test the dynamic balance, static and recovered and thus identify the stage of stabilizing ability (initial, elementary or mature) of the child during each elevation of legs.

In each of the tasks can identify the stage of the standard high elevation from the postulates of Ozmun and Gallahue (2005, p. 295) characterized in:

Initial stage:

1. Child seems confused to try;
2. Inability to push herself and gain distance and elevation;
3. Each attempt seems more a step in the race;
4. User inconsistent of pushing leg ;
5. Arms ineffective.

Elementary stage:

1. Seems to be thinking during the action;
2. Attempts looks like a race;

3. Small elevation above the supporting surface;
4. Small tilt of the trunk forward;
5. Appearance of the rigid body;
6. Incomplete extension of the legs during the flight;
7. Arms used for balance, not as an aid in power production;

Mature stage:

1. A relaxed rhythmic action;
2. Strong impulse in the extension leg;
3. Good combination of horizontal and vertical forces;
4. Set trunk tilt forward;
5. Opposition set of arms;
6. Full extension of the legs during the flight.

On the fourth moment of the study, children were included in the Training Program of Motor Skills, consisting of 120 sections of circuits and semi-structured and non structured variability motor plane and teaching resources and undertake the post-test based on the same sequence Pre-test described above.

Each section of the program was recorded on video camera aimed at a more detailed analysis of the acquisition, retention and transfer of locomotor ability skill on the directed walk. The results were analyzed and based on the frequency of motor behavior described from qualitative observations.

RESULTS AND DISCUSSION

The sample was composed of five (5) children diagnosed with autism (CID F.84.0) without association with other diseases, chronological age from 5 to 11 years of age, often in the project of a minimum period of 18 months.

The results related to motor assessment, based on the postulates of Gallahue and Ozmun (2005), the standard stabilizer with the high elevation, in the pre-test showed that: the Subject (A) had mature stage in the task of low complexity, elementary stage in the task medium and high complexity. The Subject (B) unable to perform the tasks of low, medium and high complexity. The Subject (C) failed to accomplish the task of low complexity; initial stage in the task of medium complexity and elementary stage in the task of high complexity. The Subject (D) shows the elementary stage in the task of low complexity; initial stage in the task of medium complexity, mature stage in the task of high complexity. The Subject (E) failed to accomplish the task of low and medium complexity, initial in the task of high complexity.

The program of motor activity, consisting of two phases with a total of 120 sections of 50 minutes each identified:

On the first phase of the program (stage adaptation), all five children, selected in this study showed dispersion during free exploration of space and teaching resources (hoops, ropes, balls, mattresses, exercise equipment and horse mat) available in the environment. Even with direct mediation of the trainees of the program, during the free exploration, the children did not show according to analysis of the 40 sections of the initial phase adaptive reason for exploration.

According to studies by Rodrigues (2006), motor activity is the expression of a behavior, that behavior is influenced by multiple variables (among them the environment and task), but expressed in a unified manner by a motor action. With regard to children with autism, restricted interest, attention deficit and stereotypes hinder the exploitation of the environment in which the acquisition of motor skills occurs from a dynamic process between perception and action, in other words, a relationship between actions and sensory consequences arising from this action as well they contribute to studies of Mota (2008) and Lye (1999).

On the second phase of the program, called Training of Motor Skills (THM), consists of 80 sections, the children were subjected to motor challenges related to the different possibilities of stabilization. The tasks are organized into circuits structured and semi-structured made each for 40 sections of the motor with variable motor task. The teaching strategy adopted allowed the modification of the type of motor circuit structured to semi-structured, with each cycle of 8 sections recorded on video camera aimed at a more detailed analysis of the acquisition, retention and transfer of locomotor ability.

The teaching strategy used in all sections of the circuits followed the sequence: (1) free trial of each child in each of the three tasks of the circuit, (2) introduction to each child a motor task from a model desired action performed by the mediator of the intervention, (3) testing the child with direct assistance, mediate presentation of the model's motor action, the mediator, (4) testing the child with oral advice of the mediator.

The analysis of visual records identified that, the four sequences were effective in teaching more than 75% of the sections of the five children, showing complete understanding of requirements demonstrated by stabilizing the motor action.

The structured circuits in 90% of the training sections, presented efficient teaching strategy in the acquisition, retention and skills transfer stabilizing. Confirming the contributions of Scheuer et. al. (2005). According to the authors, children with autism are constantly changing their focus of attention between hyper and hypo attention thus responding only to a particular stimulus provided by the environment, excluding the others. With this, can not divide and shift the focus of his attention to another stimulus hindering the execution of a particular motor action when subjected to different strategies such as those organized from semi-structured circuits.

The visual records still possible to infer that during the stabilizing skills training, only 30% of semi-structured circuits proved to be efficient in the acquisition, retention and transfer of the stabilizing action.

The variability of the motor task and the plan, as well as resources showed in interference with the motor action of the group selected for study in 80% of structured circuits.

According to Rodrigues (2006), the adaptation of motor activity can be changed in different degrees of demand and difficulty in helping the individual performance during the execution of the activity. The process of adaptation can influence the greater and lesser degree of difficulty, tuning the stringency of the activity with the child's ability and performance.

The results of the post-test identified that: the Subject (A) showed a mature stage in the tasks of low and medium complexity, elementary stage in the task of high complexity. The Subject (B) initial in the tasks of low and medium complexity and elementary stage in the task of high complexity. The Subject (C) initial in the task of low complexity; elementary training in the tasks of medium and high complexity. The Subject (D) elementary stage in the tasks of low and medium complexity and mature stage in the task of high complexity, the subject (E) initial in the tasks of low and medium complexity and elementary stage in the task of high complexity.

CONCLUSION

From the results, can be concluded that the group selected for study demonstrated effectiveness in the acquisition,

retention and transfer of skill stabilizer, high elevation when subjected to four didactic sequences circuit structured variability of tasks, plans and teaching resources during the process of stabilizing skills training. It can be also concluded from the motor tests, the subjects after insertion in the Training Program moved to motor upper stages of development when assessed the ability to high elevation.

REFERENCES

- Anzalone, M. E., & Williamson, G. G. Sensory processing and motor performance in autism spectrum disorders. **Autism spectrum disorders. A transactional developmental perspective** (pp.143-166). Baltimore: Paul H. Brookes, 2000.
- BARRELA, J. A. **Aquisição de habilidades motoras: do inexpressante ao habilidoso**. MOTRIZ - Volume 5, Número 1, Junho/1999. Disponível em: http://www.rc.unesp.br/ib/efisica/motriz/05n1/5n1_ART15.pdf. Acesso em: 11 de abril de 2011.
- DSM-IV. **Manual Diagnóstico e Estatístico de Transtornos Mentais**. (4rd ed). Porto Alegre: Artmed, 1995.
- GALLAHUE, D.; OZMUN, J. **Compreendendo o Desenvolvimento Motor: bebês, crianças, adolescentes e adultos**. São Paulo: Phorte Editora, 2005.
- GALLAHUE, D.; OZMUN, J. **Compreendendo o Desenvolvimento Motor: bebês, crianças, adolescentes e adultos**. São Paulo: Phorte Editora, p. 295, 296, 2005.
- KANDEL, E.R.; SCHWARTZ, J.H.; JESSEL, T.M. **Principles of Neural Science and Behaviour**, 4a ed.. Ed. Nova Jersey: Appleton & Lange, 2000.
- MAGILL, R.A.; HALL, K.G. A review of contextual interference effect in motor skill acquisition. **Human Movement Science**, v. 9, p. 241-289, 1990.
- MOTA, A. C. W. **Avaliação da maturação perceptivo- cognitiva e do comportamento motor em crianças com transtorno autista: indicadores ao trabalho do educador**. Revista electronica de investigacion y docência (REID), 1, PP. 71-98 Santa Catarina set. 2008. Disponível em: <http://www.revistareid.net/revista/n1/REID1art4.pdf>. Acesso em: 12 de abril de 2011.
- RODRIGUES, D. **Atividade motora adaptada: a alegria do corpo**. São Paulo: Artes Médicas, 2006.
- ROGERS, S. J., & Bennetto, L. Intersubjectivity in autism: the roles of imitation and executive function. In A. M. Wetherby & B. M. Prizant (Orgs.), **Autism spectrum disorders. A transactional developmental perspective** (pp.79-107). Baltimore: Paul H. Brookes, 2000.
- SCHEUER, C., Andrade, R. V., Gorgati, D., Dornelas, D. **Neuropsicologia do Autismo** (1rd ed). São Paulo: Memnon, 2005.
- TANI, Go. **Comportamento Motor: aprendizagem e desenvolvimento**. Rio de Janeiro: Guanabara Kogan, 2008.

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TRAINING STANDARD MOTOR WITH HIGH ELEVATION IN CHILDREN WITH AUTISM: A CASE STUDY.

ABSTRACT:

The aim of this study was to evaluate the standard high elevation in children with autism and identify procedures to facilitate the efficient acquisition, retention and transfer of skills for stabilizing the variability of motor action. It was a study case in the Extension in Motor Activity Project to children and teenagers with autism (PREMAUT) from the physical education course of Federal University of Alagoas in Maceió. The sample consisted of five children, aged by 5 to 11 years, diagnosed with autism and the minimum stay in PREMAUT for 18 months. The instruments were: documentary analysis, semi-structured motor tests based on postulates of Gallahue and Ozmun (2005). The Training Program for Motor Skill (THM) consisted of two phases (adaptation and experimentation). The pre-test results showed that subjects (B, C and E) did not perform the task of low complexity of the standard high elevation. The Subjects (A) showed mature stage and (D) elementary stage. In the task of medium complexity, the subjects (B and E) failed to accomplish the task, (A), presented elementary stage, (C and D) initial stage. In the task of high complexity subjects (B) did not perform the task (A and C) and had elementary stage, (D) mature stage (E) initial stage. The Training Motor Skills Program (THA) allowed the subjects to adapt and experiment circuit structured and semi-structured with and without variability of stabilizers plans and teaching resources. The post-test identified positive migration for all subjects assessed in the pre-test. It was concluded that children with autism, from the Program THA, demonstrated acquisition, retention and transfer of skill stabilizer, high elevation, when subjected to circuits with structured variability of tasks, plans and teaching resources in the process of skills training stabilizing.

KEY WORDS: motor learning, high elevation, autism.

STANDARD MOTEUR DE FORMATION JUMP TO AUGMENTATION CHEZ LES ENFANTS AVEC L'AUTISME: UNE ETUDE DE CAS.

SOMMAIRE

Le but de cette étude était d'évaluer tendance chez les enfants avec des talons hauts atteints d'autisme et d'identifier les procédures pour faciliter l'acquisition efficace, la rétention et le transfert des compétences de stabilisation la variabilité au cours de l'action du moteur. Il était une étude de cas menée dans le projet d'extension dans les activités motrices pour les enfants et adolescents atteints d'autisme (PREMAUT) cours d'éducation physique, Université Fédérale d'Alagoas à Maceió. Exemple de cinq enfants âgés de 5 à 11 ans. Séjour minimum de 18 pendentif PREMAUT mois. Instruments: analyse de documents, entretien, tests moteurs basée sur Gallahue et Ozmun (2005). Le Programme de Formation pour Motor Skill (THM) se composait de deux phases (adaptation et expérimentation). Les résultats du pré-test a montré que les sujets (B, C et E) ne pas effectuer la tâche de faible complexité du saut moteur standard élevé. Les sujets (A) a montré stade de maturité et (D) élémentaire. Dans la tâche d'une complexité moyenne, les sujets (B et E) pas réussi à accomplir la tâche, (A) élémentaire, (C et D) en premier. Dans la tâche de sujets de haute complexité (B) n'a pas accomplir la tâche (A et C) stade élémentaire, (D) et matures (E) d'origine. Le moteur du programme Skills Training (THA) a permis aux sujets de s'adapter et de circuits expérimentation structurée et semi-structurées la variabilité avec et sans stabilisateurs et les plans des ressources pédagogiques. Les tests post-migratoires positifs identifiés pour tous les sujets évalués. Il a été conclu que les enfants atteints d'autisme, du programme de (THA), démontré

acquisition, la conservation et le transfert de compétences du stabilisateur, saut en hauteur, lorsqu'il est soumis à des circuits structurés avec la variabilité de la tâche de planifier les ressources et l'enseignement dans le processus de stabilisation de formation professionnelle.

MOT-CLÉ: l'apprentissage moteur, saut en hauteur, l'autisme.

ENTRENAMIENTO DEL ESTÁNDAR MOTOR SALTO DE ALTURA EN LOS NIÑOS CON AUTISMO: UN ESTUDIO DE CASO.

RESUMEN

El objetivo del estudio fue evaluar el salto de altura en los niños con autismo e identificar los procedimientos eficaces para facilitar la adquisición, retención y transferencia de conocimientos para la estabilización de la variabilidad de la acción motora. Fue un estudio de caso del Proyecto de Extensión en las Actividades Motoras de los niños y adolescentes con autismo (PREMAUT) del Curso de Educación Física de la Universidad Federal de Alagoas de Maceió. La muestra fue de cinco niños, de 5 a 11 años, con autismo y en la estancia mínima en el PREMAUT durante 18 meses. Instrumentos: análisis documental, entrevista, pruebas motoras basadas Gallahue y Ozmun (2005). El Programa de Formación de habilidades motoras (THM), consiste de dos fases (adaptación y experimentación). Los resultados anteriores mostraron que los sujetos (B, C y E) no llevaron a cabo la tarea de baja complejidad del estándar motor salto de altura. Los sujetos (A) mostraron un estadio maduro y (D) la etapa primaria. En las tareas de mediana complejidad, los sujetos (B y E) no lograron éxito, (A) presenta la etapa primaria, (C y D) inicial. En la tarea de alta complejidad los sujetos (B) no lograron éxito, (A y C) en etapa elemental, (D) la etapa de madurez, (E) inicial. El Programa de Entrenamiento de Habilidades Motoras (THA) permitió a los sujetos adaptarse y experimentar circuito estructurado y semi-estructurado, con y sin la variabilidad de planes estabilizadores y recursos didácticos. El post-test identificó migración positiva para todos los sujetos evaluadas en el pre-test. Se concluyó que los niños con autismo, del Programa de THA demostraron la adquisición, retención y transferencia de habilidades estabilizadoras, salto de altura, cuando se somete a los circuitos estructurados con la variabilidad de las tareas, planes y recursos didácticos en el proceso de entrenamiento de habilidades estabilizadoras.

PALABRAS CLAVE: aprendizaje motora, salto de altura, autismo.

TREINAMENTO DO PADRÃO MOTOR SALTO COM ELEVAÇÃO EM CRIANÇAS COM AUTISMO: UM ESTUDO DE CASO.

RESUMO

O objetivo do estudo foi avaliar o padrão salto com elevação em crianças com autismo e identificar procedimentos eficientes para favorecer a aquisição, retenção e transferência da habilidade estabilizadora durante a variabilidade da ação motora. Tratou-se de um estudo de caso realizado no Projeto de Extensão em Atividade Motora dirigido a crianças e adolescentes com autismo (PREMAUT) do Curso de Educação Física da Universidade Federal de Alagoas em Maceió. Amostra foi constituída por cinco crianças, faixa etária de 5 a 11 anos, com diagnóstico de autismo e permanência mínima no PREMAUT por 18 meses. Os instrumentos foram análise documental, entrevista semi-estruturada, testes motores baseados nos postulados de Gallahue e Ozmun (2005). O Programa de Treinamento de Habilidade Motora (THM) foi constituído por duas fases (adaptação e experimentação). Os resultados pré-teste demonstraram que os Sujeitos (B, C e E) não realizaram tarefa de baixa complexidade do padrão motor salto com elevação. Os Sujeitos (A) apresentou estágio maduro e (D) estágio elementar. Na tarefa de média complexidade, os Sujeitos (B e E) não conseguiram realizar a tarefa, (A) apresentou estágio elementar, (C e D) estágio inicial. Na tarefa de alta complexidade os Sujeitos (B) não realizou a tarefa, (A e C) apresentaram estágio elementar, (D) estágio maduro e (E) estágio inicial. O programa de Treinamento de Habilidades Motoras (THA) possibilitou aos sujeitos adaptar-se e experimentar circuitos estruturados e semi-estruturados com e sem variabilidade de planos estabilizadores e recursos pedagógicos. O pós-teste identificou migração positiva para todos os sujeitos avaliados no pré-teste. Concluiu-se que crianças com autismo, a partir do Programa de THA, demonstraram aquisição, retenção e transferência da habilidade estabilizadora, salto com elevação, quando submetidos a circuitos estruturados com variabilidade de tarefa, plano e recursos pedagógicos durante o processo de treinamento de habilidades estabilizadoras.

PALAVRAS CHAVES: aprendizagem motora, salto com elevação, autismo.