101 - ACQUISITION OF STANDARD MOTOR USING THE OVER HEAD MODE IN ADULTS WITH AUTISM: A STUDY CASE

PATRICIA MARIA DA CONCEIÇÃO SANTOS
CHRYSTIANE VASCONCELOS DE ANDRADE TOSCANO
UNIVERSIDADE FEERAL DE ALAGOAS – MACEIÓ – ALAGOAS - BRASIL
patricia.cm.18@hotmail.com

INTRODUCTION:

According to studies by Shumway-Cook and Woollacott (2010) three factors contribute to the development of manipulative skills. They are (1) the restrictions of the individual, (2) the type of task, and (3) the specific constraints of the environment. In individuals with autism, it is possible to identify the acquisition of manipulative skills may change depending on the characteristics of the spectrum. Smith (2008) brings in his studies that individuals with autism have a developmental disorder that significantly affects verbal and nonverbal interaction in their social context. Its difficulty in perceiving the stimuli available in the environment often prevents a functional motor action in manipulative exploration.

According to DSM-IV the person with autism manifests:

"A wide range of behavioral symptoms, which includes hyperactivity, attentional areas very brief, impulsivity, aggression, and self-injurious behavior, particularly in children, tantrums. There may be strange responses to sensory stimuli. For example, high levels of pain, hypersensitivity to sounds or being touched, exaggerated reactions to light and odors, fascination with certain stimuli "(American Psychiatric Association, 1994, p.67-68).

According to the collective of authors (De Myer, 1976,1980; Singlenton, 1974; Jones & Prior, 1985; Maurer & Damasio, 1982; Reid, Collier & Morin,1983 ; Morin & Reid, 1985) apud Rivieré (2004), children with autism compared with children with mental retardation and normal, show lower scores on measures of motor skills, physical grace, strength in the hands of seizure, abdominal strength and flexibility, especially for trunk flexion. They were below the chronological age in tasks requiring physical integration attitudes, well below the level of normal and retarded children in imitation tasks body movements (static and dynamic) in qualitative motor performance: immature motor patterns for throws, jumps , running - accompanied by arm movements and inappropriate non-functional even as adults.

Studies of reference, as that contributed by Singlenton (1974) reports the existence of minor differences in performance on most tasks compared groups of individuals with autistic older younger. According to the author, skills damaged, diminished energy production, low functioning in relation to body image, abnormalities in the setting and correction of posture, bradinesia, akinesia, dystonia, and hypotonia Herton also characterize the motor behavior of individuals with autism.

By these theoretical assumptions can be selected as the study's objectives: evaluate the motor pattern for throwing up in adults with autism and identify effective instructional procedures to facilitate the acquisition, retention and transfer of manipulative skill for 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 sample consisted in four (4) adults who had the following profile:

a) Clinical diagnosis of autism (ICD F.84.0);

b) chronological age (IC) between 19 and 25 years;

c) Stage mature locomotors pattern directed walk;

d) Frequency systematic at the Extension Project in motor activities directed at adults with autism (PREMAUT) for a minimum period of 18 months.

INSTRUMENTS AND PROCEDURES FOR DATA COLLECTION:

At first, the research was conducted: (1) document analysis of the file of PREMAUT for sample selection. (2) Semi-structured interviews with parents and guardians to authorize the child's participation in the research by signing the Consent and identification of manipulative difficulties in adults in the tasks of daily living. (3) Application of motor tests, pre inclusion of adults in motor intervention program lasting 18 months to evaluate the pattern of manipulative skills (throw over).

The testing was performed from three manipulative tasks which considered the sequence of development over the pitch (defined in the initial, elementary and mature), the accuracy of the throw and the distance between the individual and the target Gallahue and Ozmun (2005, p . 303).

Manipulative Task (Low Complexity):

It was used a bow, marked with three circles with diameters of 70, 60 and 50 cm, placed in a fixed point at a height of 1.5 meters and a distance of 1.5 meters from the launch site. It was marked by a strip 10 cm wide by 1 meter in length. In the release there was a cardboard box with 50 cm wide by 40 cm long, containing within it five tennis balls that should be thrown by a target in a set.

Manipulative Task (Medium Complexity):

It was used a bow, marked with three circles with diameters of 40, 30 and 20 cm, placed in a fixed point at a height of 1.5 meters and a distance of 2.5 meters from the launch site. It was marked by a strip 10 cm wide by 1 meter in length. In the release there was a cardboard box with 50 cm wide by 40 cm long, containing within it five tennis balls that should be thrown by a target in a set.

Manipulative Task (high complexity):

It was used a bow, marked with a circle with a diameter of 10 cm, placed in a fixed point at a height of 1.5 meters and a distance of 3.5 meters from the launch site. It was marked by a strip 10 cm wide by 1 meter in length. In the area of release was placed a cardboard box with 50 cm wide by 40 cm long, containing within it five tennis balls that should be thrown by a target in a set.

The motor action in each of the tasks was classified according to (Gallahue and Ozmun (2005, p. 303) in:

A. Initial Stage:

1. Action is taken mainly from the elbow;
2. Elbow of the throwing arm remains in front of the body; action seems pushing;
3. Fingers are separated by releasing the ball;
4. Monitoring the ball forward and down;
5. Stem remains perpendicular to the body;
6. small turnover during the action of throwing;
7. Body weight moves slightly backwards to maintain balance;
8. Feet remained standing;
9. Generally there is no purpose in moving the feet during the preparation of the feet during the throw.

B. Elementary stage

1. In preparation, the arm is tilted upward, sideways and down, elbow flexed position;
2. Ball is held behind the head;
3. Arm is tilted forward, well above the shoulder;
4. Stem turns to the side of the pitch during the preparatory action;
5. Shoulders turn to the next pitch d;
6. Trunk is flexed forward with arm movement forward;
7. Definite change in body weight forward;
8. Steps forward with the leg on the same side of the throwing arm;

C. mature stage

1. Arm is bent backwards in preparation;
2. Opposite elbow is raised to balance as preparatory action shot in the arm;
3. Throwing elbow moves forward while extending horizontally;
4. Rotates the forearm and thumb pointing down;
5. Stem turns clearly turns to the side of the pitch during preparatory action;
6. Shoulder pitch drops slightly;
7. Defined by rotation of the hips, legs, back and shoulder during the throwing;
8. Weight on back foot during movement preparation;
9. As the weight moves a step is taken with the opposite foot.

In the second instance, it was made the insertion of the study subjects in Training Program Motor Skills (PTHA) consisting of 120 sections of 50 minutes each, based on studies of Sa (2007).

On the first phase of the program, the subjects were subjected to manipulative challenges, with variability of locomotion plans through structured circuits and semi-structured action aiming at the acquisition of driving shot over. On the second phase, underwent structured circuits without locomotor variability of plans aimed at retaining the motor task by throwing up. On the third stage, motor underwent challenges with variability of locomotor plans and teaching resources through structured circuits aiming to transfer the motor task of walking directed.

Each section of the program was recorded on video camera aimed at a more detailed examination of the acquisition, retention and transfer of the manipulative skill of over head mode. The results were analyzed based on the frequency of motor behavior described from qualitative observations.

RESULTS AND DISCUSSION:

The study group consisted of four adults with a clinical diagnosis of autism (CID F.84.0), mean age 19 years and 6 months, mature stage of the standard locomotor directed walk, often systematic Extension Project in Motor Activities for a minimum period of 18 months.

From the interviews, conducted with the mothers of study subjects, we can characterize basic aspects of manipulation. According to testimony: "My son is not attracted by type of object, he has his own objects, his routine. His exploration is restricted, his movements are clumsy, means that touching new objects causes discomfort" (Subject's mother D, 2010). According to studies by Fonseca (2005), the individual with autism uses repetitive activities often with the same objects. Over time these activities are included as standard and crystallized functional even if the environment will nurture other operational challenges.

Other reports reveal that "make my son realize something, when he will use a spoon to eat a yogurt, for example, requires much effort. I put the spoon in front of his eyes, in his hand and then trying to make it hold. "(Mother Sujeito B, 2010). "Display objects to my daughter is a big challenge. When it catches her eyes, she usually smells, shakes and throw away. We need to be careful not to be hit". (Subject's mother D, 2010). "My son is very independent and curious. But is not everything that catches all his attention. When he feels interested: he picks up, dismounts, and explores the object with his hands. However, he fails by giving a function to the objects" (Subject's mother D, 2010). For Ramachandran, et al (2001) at first sight, nothing gets the attention of individuals with autism. They show exaggerated preoccupation with trifles are unaware of key aspects, such as the functionality of the motor action, its social context.

According to studies by Gallahue and Ozmun (2005), the development of manipulative skills to reach, hold and release occurs spontaneously in the first year of life of individuals. In individuals with autism, the acquisition of fundamental skills, such as the over head, requires a different teaching strategy which takes advantage of structured and systematic experimentation.

The results related to motor assessment, based on the postulates of Gallahue and Ozmun (2005), indicates that, in the pre-test, which, the initial stage of low complexity task of the standard motor the study subjects (A, B and C). Systematic

observation led to the characterization of manipulative action, over head, while the action of pushing the ball, throwing arm's elbow remains ahead of the body, torso perpendicular to the ball, turning the small action on the pitch, feet parallel. The tasks of medium and high complexity manipulative were not performed properly. The Subject of study (D) showed an elementary pattern by training in three levels of complexity of the task manipulative, over head, characterized by movement: arm bent backwards with flexion of the elbow, ball held behind the head, arm positioned well above the shoulder, trunk flexed forward.

The motor activity program consisting of three phases, a total of 120 sections of 50 minutes each. The first phase, had aimed to adapt the research subjects to the context of the Project. Prioritized the holding of free spaces interventions and teaching resources (balls, hoops and ropes of different diameters of different lengths) required during the development of the Project. Were dispensed, the first phase, 40 sections to this stage. Considering the difficulties founded in the study group interaction with the environment and people involved in the process, was to expand the number of human resources. Two features was available for each subject of study, being an intern responsible for the detailed explanation of the instructional procedure of adaptive activities and a mother of the subject of intervention, responsible for the mediation (of motor actions) required the adaptation phase.

On the second phase of the program, called Training of Motor Skills (THM) consists of 80 sections, the subjects of study were submitted to challenges related to motor manipulative possibilities. The tasks are organized into circuits structured and semi-structured, both consisting of 40 sections of the motor with variable motor task with the teaching strategy that allowed modification of the type of motor circuit structured to semi-structured, for each cycle of 8 sections recorded 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's motor task from a model desired action performed by the mediator of the intervention, (3) testing the child with direct assistance of the mediator, (4) testing the child with oral advice of the mediator when the child does not have autonomy to develop actions.

The analysis of visual records have identified that: 87.5% of the sections organized into structured circuits all subjects demonstrated appropriate motor behavior in the task manipulative when the circuit had no variability of the task and teaching resources. The efficiency in execution of the manipulative task circuits structured to fall to 30% when using the variability of the task and feature sections. Could see also that the sections of semi-structured circuits without variability of the task and resources, only one of the four individuals had motor behavior appropriate in the implementation of manipulative task in 60% of observed sections. The remaining subjects, three of the four studied, showed efficiency in motor action in less than 45% of the sections even when did the variability of the task and resources.

The results related to post-test enabled the identification: mature stage in the task of low complexity of the standard motor, over head, the subject of study (A) elementary stage in the task of medium and high complexity. Subject of study (B) elementary training for tasks of low, medium and high complexity. Subject (C) mature stage for tasks of low and medium complexity and planning stages for tasks of high complexity. Subject (D) mature stage for tasks of low, medium and high complexity.

CONCLUSION:

From the results, it can be concluded that the use of structured circuits without variability of the task and learning resources, is more efficient in the process of acquisition of the standard motor using the over head mode when compared to semi-structured circuits in adults with autism. The results of the pre-and post-test showed that all subjects selected for the study, acquired standard motor using the over head mode in different stages of development.

REFERENCES:

FONSECA, Vera Regina J. R. M. AS relações interpessoais nos transtornos autísticos: uma abordagem interdisciplinar da psicanálise e da etologia. Tese de doutorado, Instituto de Psicologia da Universidade de São Paulo, são Paulo, 2005.

GALLAHUE, David L. OZMUN, John C. **Compreendendo o desenvolvimento motor: bebês, crianças, adoslescentes e Adultos.** São Paulo: Phortes Editora, 2005.

HIRSTEIN, W. IVERSON P. RAMACHANDRAN, V. Automic responses of autistic children to people and objects. In:Proceedings of the Royal Society of London B, vol. 268, p. 1883-1888, 2001

SÁ, Cristina dos Santos Cardoso de. **Aquisição, retenção e transferência de habilidades motoras em crianças de 7 e de 12 anos**. Tese de doutoramento apresentada ao Instituto de Psicologia da Universidade de São Paulo, 2007.

SHUMWAY-COOK, Ane. WOOLLACOTT, Marjorie. Controle motor: teoria e aplicação prática; tradução Martha Cecily B. Chaim. 3ª ed. Barueri, S. Paulo: Manole, 2010.

SINGLENTON, D. A. **A Physical Education Program for the Autistic Child:** Paper presented at The National conference on physical activity program and practices for the exceptional individual, Long Beach, 1974.

SMITH, Deborah Deutsch. Introdução à educação especial: ensinar em tempo de inclusão. Tradução Sandra M. de Carvalho. 5ª ed. Porto Alegre: Artmed, 2008.

RIVIÉRE, Ángel. **O autismo e os transtornos globais do desenvolvimento.** In: COLL, César; MARCHESI, Álvaro; PALÀCIOS, Jesús. Desenvolvimento psicológico e educação: transtornos de desenvolvimento e necessidades educativas especiais. trad. Fátima Murad, 2 ed. Porto Alegre: Artmed, 2004.

ACQUISITION OF STANDARD MOTOR USING THE OVER HEAD MODE IN ADULTS WITH AUTISM: A STUDY CASE

ABSTRACT:

The aim of this study was to evaluate the standard motor using overhead mode in adults with autism and identify effective instructional procedures to facilitate acquisition, retention and transfer of manipulative skill for the variability of motor action. It was a case study. The sample consisted of four adults with clinical diagnosis of autism (CID F.84.0) chronological age between 19 and 25; standard mature motor of walking directed; systematic frequency, at least 18 months, 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. Materials and methods: documentary analysis, interviews and the application of motor tests based on postulates Gallahue and Ozmun (2003). The results, pre-test showed that subjects (A, B and C) are at an initial stage in the task of low complexity of the standard motor for overhead. In tasks of medium and high complexity were not properly performed by the group. Subject (D) in the elementary stage three levels of complexity. The program Motor Skills Training (HAT) allowed the subject: to know the space and feature freely available on the THA (adaptive phase) circuits and experience

structured and semi-structured and non-locomotor variability of plans and teaching resources (training phase). The post-test identified: mature stage in the task of low complexity and elementary stage in the task of medium and high complexity (Subject A). Elementary training for low, medium and high complexity tasks (Subject B). Mature stage for tasks of low and medium complexity and initial high complexity tasks (Subject C). Mature stage for low, medium and high complexity tasks (Subject D). It is concluded that the use of structured circuits without variability of the task and learning resources, is effective in the acquisition, retention and transfer skills in overhead mode.

ACQUISITION DE STANDARD MOTEUR JETER PAR-DESSUS CHEZ LES ADULTES AVEC L'AUTISME: UNE ETUDE DE CAS

RÉSUMÉ

Le but de cette étude était d'évaluer le schéma moteur tiré par le haut chez les adultes atteints d'autisme identifier les procédures pour l'enseignement encourager l'acquisition, la rétention et le transfert des compétences de manipulation la variabilité au cours de l`action motrice. Il était une étude de cas. Exemple de quatre adultes atteints d'autisme; entre 19 et 25 ans; schéma moteur mature de la marche dirigé; fréquence systématique, le projet de prolongement de l'activité motrice (PREMAUT) Cours d'éducation physique, Université Fédérale d'Alagoas à Maceió. Matériel et méthodes: L'analyse des documents, des entrevues et l'application de tests de moteurs Gallahue e Ozmun (2003). Les résultats, pré-test a montré Les sujets qui (A, B e C) sont à un stade précoce la tâche de faible complexité le modèle de moteur pour vomir. Dans les tâches de complexité moyenne et haute n'ont pas été correctement effectué par le groupe. (D) stade élémentaire les trois niveaux de complexité. Le programme de formation des compétences du moteur (THA) autorisées sous réserve de: connaître l'espace et les ressources disponibles et de l'expérience dans les circuits de la phase adaptative structurés et semi-structurées avec et sans la variabilité des régimes de locomotion et des ressources pédagogiques (phase de formation). post-test identifié: Stade de maturité dans la tâche de faible complexité stade élémentaire dans la tâche d'une complexité moyenne et haute (Sujet A). Formation élémentaire pour des tâches de complexité faible, moyen et élevé (Sujet B). Stade de maturité pour des tâches de complexité moyenne et basse tâches initiales d'une grande complexité (Sujet C). Stade de maturité pour des tâches de complexité faible, moyen et élevé (Sujet D). Il est conclu que l'utilisation de circuits structurés sans variabilité la tâche et des ressources d'apprentissage, est efficace dans l'acquisition, la conservation et le transfert de la capacité à vomir.

ADQUISICIÓN DEL ESTÁNDAR MOTOR LANZAMIENTO POR ARRIBA EN ADULTOS CON AUTISMO: UN ESTUDIO DE CASO.

RESUMEN

El propósito de este estudio fue evaluar el estándar motor, lanzamiento por arriba en los adultos con autismo e identificar los procedimientos de instrucción eficaces para facilitar la adquisición, retención y transferencia de habilidad en la variabilidad de la acción motora. Se trata de un estudio de caso. La muestra se constituyó de cuatro adultos con autismo, entre 19 y 25 años, de la marcha direccionada, frecuencia sistemática en el Proyecto de Extensión en Actividad Motora (PREMAUT) del Curso de Educación Física de la Universidad Federal de Alagoas, en Maceió. Materiales y métodos: análisis documental, entrevistas y pruebas motor Gallhue y Ozmun (2003). Los resultados del pre-test, mostraron que los sujetos (A, B y C) se encuentran en una etapa inicial en la tarea de baja complejidad del estándar motor de lanzamiento por arriba. Las tareas de mediana y alta complejidad no se realizaran correctamente por el grupo. El sujeto (D) etapa primaria en los tres niveles de complejidad. El programa de Entrenamiento de Habilidades Motoras permitió a los sujetos: conocer el espacio y los recursos en la fase de adaptación y experimentar a los circuitos estructurados y semi-estructurados, con o sin la variabilidad de los planes locomotores y recursos en el entrenamiento. El post-test identificó: etapa de madurez en la tarea de baja complejidad y etapa primaria en la tarea de mediana y alta complejidad (Sujeto A). Etapa primaria para los tres niveles de complejidad (Sujeto B). Etapa de madurez para las tareas de baja y mediana complejidad y las tareas iniciales de alta complejidad (Sujeto C). Etapa de madurez para las tres tareas (Sujeto D). Se concluye que el uso de circuitos estructurados sin la variabilidad de los recursos, es eficaz en la adquisición de competencias, la retención y la transferencia en el lanzamiento por arriba.

PALABRAS CLAVE: Autismo, aprendizaje motor, lanzamiento por arriba.

AQUISIÇÃO DO PADRÃO MOTOR ARREMESSO POR CIMA EM ADULTOS COM AUTISMO: UM ESTUDO DE CASO

RESUMO:

O objetivo do estudo foi avaliar o padrão motor, arremesso por cima, em adultos com autismo e identificar procedimentos didáticos eficientes para favorecer a aquisição, retenção e transferência da habilidade manipulativa durante a variabilidade da ação motora. Tratou-se de um estudo de caso. Amostra foi constituída por quatro adultos, com diagnóstico clínico de autismo (CID F.84.0); idade cronológica entre 19 e 25 anos; padrão motor maduro da caminhada direcionada; freqüência sistemática, período mínimo de 18 meses, no Projeto de Extensão em Atividade Motora (PREMAUT) do Curso de Educação Física da Universidade Federal de Alagoas em Maceió. Materiais e métodos: Análise documental, entrevista e aplicação dos testes motores baseados nos postulados de Gallahue e Ozmun (2003). Os resultados, pré-teste, demonstraram que os Sujeitos (A, B e C) encontram-se no estágio inicial na tarefa de baixa complexidade do padrão motor arremesso por cima. Nas tarefas de média e alta complexidade não foram executadas adequadamente pelo grupo. Sujeito (D) estágio elementar nos três níveis de complexidade da tarefa. O programa de Treinamento de Habilidades Motoras (THA) possibilitou aos sujeitos: conhecer livremente o espaço e recurso disponíveis no THA (fase adaptativa) e experimentar circuitos estruturados e semi-estruturados com e sem variabilidade de planos locomotores e recursos pedagógicos (fase de treinamento). O pós teste identificou: Estágio maduro na tarefa de baixa complexidade e estágio elementar na tarefa de média e alta complexidade (Sujeito A). Estágio elementar para tarefas de baixa, média e alta complexidade (Sujeito B). Estágio maduro para tarefas de baixa e média complexidade e inicial para tarefas de alta complexidade (Sujeito C). Estágio maduro para tarefas de baixa, média e alta complexidade (Sujeito D). Conclui-se que a utilização de circuitos estruturados, sem variabilidade da tarefa e recursos pedagógicos, é eficiente no processo de aquisição, retenção e transferência na habilidade arremesso por cima.

PALAVRAS-CHAVE: Autismo, aprendizagem motora, arremesso por cima.