

**27 - INCLUSION OF AN INTELLECTUAL DISABILITY STUDENT IN PHYSICAL EDUCATION CLASSES**

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**INTRODUCTION**

Neurodevelopmental Disorders is a set of changes that has its onset in the child's developmental period, manifesting itself in the first years of life, even before the child begins his school phase. As a characteristic, the individual has deficits that may affect personal, social, academic or professional functioning. These deficits may fluctuate as in learning or in the control of executive functions, and may also have global impairments in social skills and intelligence. Neurodevelopmental Disorder involves a group of disorders including: Intellectual Disability, Communication Disorder, Autistic Spectrum Disorder, ADHD, Specific Learning Disorder, Motor Disorders, Tic Disorder (AMERICAN PSYCHIATRIC ASSOCIATION, 2014).

The onset of Intellectual Disability occurs during the child's development period, as speech, motor and social failures can be noticed in the first two years of life, being the mildest levels identified in the school phase. There are cases where intellectual disability may be linked to a genetic syndrome, leading to a characteristic physical appearance such as Down Syndrome that may also be linked to behavioral syndromes. Acquired intellectual disability can be caused by meningitis, encephalitis or brain trauma in its development phase. In cases when intellectual disability causes loss of some cognitive skills due to traumatic brain injury, the diagnosis given may be intellectual disability as well as neurocognitive disorder (AMERICAN PSYCHIATRIC ASSOCIATION, 2014).

Intellectual disability can be characterized into three major groups, namely Physical Disability, Sensory Disability and Intellectual Disability. Each of these three groups have specific characteristics that follow a set of interconnected factors, such as the structure of one's own disability, the organic constitution and the subjective of the person, as well as their experience and socio-environmental conditions (DIAS; OLIVEIRA, 2013).

The diagnosis can have four levels of severity of the disorder, which are mild, moderate, severe and profound, which change according to the individual, and also use application changes as a conceptual, social and practical domain. Having each of these levels and their specific International Classification of Diseases (ICD) (AMERICAN PSYCHIATRIC ASSOCIATION, 2014).

Stimuli are extremely important to have an evolution in cognitive development, being essential for people who have some difficulty or disorder (RICCI, 2016).

Until recently, the pedagogical training of the physical education teacher aimed at its contents in the disciplines with a technical-sportive, corporal and biological objective. Thus, graduation prioritizes physical capacity and skill development skills, which are characterized by physical, technical and body performance. In this way, the competitive and sports culture of physical education can create an environment that has a look of exclusion and not the inclusion of people who are perceived as unfit to perform well in a given competition (AGUIAR; DUARTE, 2005).

Bringing a more recent look at inclusive education, BNCC has as Special Education in the Inclusive Perspective, communication (oral, written, signed, digital), in both directions, seeking the complete autonomy of the student through stages, levels and modalities. Special education is added to regular education, being foreseen in the pedagogical political project and aims to guarantee the demand for specialized educational assistance. (BRASIL, MINISTÉRIO DA EDUCAÇÃO, 2016).

Objective of this study was to identify the effectiveness of motor stimulation in a student with intellectual disabilities in physical education classes.

**METHODS**

This study deals with a related case, or a case of a 15-year-old adolescent with intellectual disability (Intellectual Development Disorder), diagnosed by a psychologist from APAE (Association of Parents and Friends of the Exceptional) and a CEAPEM (Center for Multidisciplinary Pedagogical Support) giving the same ICD - F70 diagnosis as the Intellectually Disabled.

The Informed Consent Form (ICF) was delivered and explained to the guardians, following the norms and ethics of Resolution No. 510 of the National Health Council, where the guardians are in common agreement and authorized the applications of motor development scale tests.

As an instrument of evaluation the motor evaluation manual of Francisco Rosa Neto was used. The motor development scale tests are formulated to promote difficulty oscillation and passing through various segments of motor development, being performed by an individual aiming to evaluate their performance against the tests following the application standards (ROSANETO, 2009).

The tests were applied in 50-minute sections in order to apply all the tests in the manual, namely: Fine Motor IM1 (assess visuomotor coordination), Global Motor IM2 (assess gestures and displacement), Balance IM3 (assess postural tone), Body Scheme IM4 (evaluate the represented body image with a form of equilibrium), Spatial Organization IM5 (evaluate the notion of space), Temporal Organization IM6 (evaluate language and temporal structures as sounds and times) and IM7 Laterality (to evaluate the dominance of feet, hands and eyes), with applications from the age of two years to eleven years, to obtain an initial diagnosis.

Stimulation occurred twice a week for 10 weeks. Each section lasted 50 minutes. The activities for stimulation consisted of tests that put into practice the skills of fine motor skills, overall motor skills, balance, body scheme, spatial organization, temporal organization, and laterality. IM7.

To use the initial and final diagnosis, the age of the teenager was used or the following calculation:

$$IM1+IM2+IM3+IM4+IM5+IM6+IM7$$

Total Number of IM

To perform the comparison between the values obtained in the tests, Student's t test for dependent samples was used. The adopted significance level was 5%.

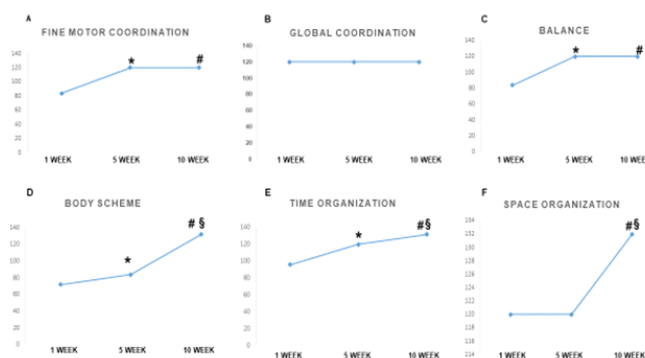
RESULTS

The first evaluation was used to verify the size of the deficit and to start the stimulation process and for future comparisons. Thus, in the initial diagnosis, the value of approximately 82.3 months of age was found.

Having the initial result, the stimulation process was started for a period of 10 weeks, and thus reaching the following results as we can see in table 1.

After an initial evaluation, two further analyzes were performed during the 10-week stimulation period, one at week 5 and one at week 10. We can observe the evolution in fine motor coordination skills IM1, balance IM3, body scheme IM4, temporal organization IM5, and a statistically significant improvement was observed in the 5th week of stimulation, a spatial organization IM6 showing statistically significant improvements in the 10th week and as a physical method. IM4, temporal organization IM5 showed statistically significant improvements at week 5 and 10, altered that showed statistically significant improvement at both reduced temperatures. In the laterality evaluation IM7, it was found that the individual is completely destroyed.

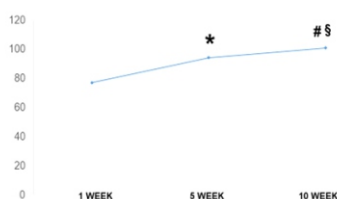
Graph 1 - Motor skills.



Graph 1: Image of Motor Skills. A: Fine Motor Coordination, B: Global Coordination, C: Balance, D: Body Scheme, E: Temporal Organization, F: Spatial Organization. \* = Statistically significant difference between 1st and 5th Weeks, # = Statistically significant difference between 1st and 10th Weeks. § = Statistically significant difference between the 5th and 10th Weeks.

Considering all the skills evaluated we arrived at the following results regarding motor quotient (QM), we can observe that in the initial phase the volunteer had in months its initial motor age of 82.3 months. Beginning the stimulation process, at week 5 we observed that there was an evolution of 15.4 months compared to the initial evaluation, reaching a total of 97.7 months and at week 10 there was also an evolution of 10.3 months reaching a total of 108 months, making a comparison between week 1 and week 10, there was an evolution of 25.7 months in its motor development (Graph 1).

Graph 2 - Motor Quotient



Graph 2: Image of Motor Quotient. \* = Statistically significant difference between 1st and 5th Weeks, # = Statistically significant difference between 1st and 10th Weeks. § = Statistically significant difference between the 5th and 10th Weeks.

We obtained a statistically significant difference between week 1 and week 5, week 5 and week 10, and week 1 with week 10. Being able to observe a significant evolution in the 10 weeks of stimulation.

DISCUSSION

We can observe in this study that already in the 5th week we obtained a statistically significant result in the fine motor skills, balance, body scheme and temporal scheme, placing as positive the stimulation of the individual at the beginning of his evaluation in physical education classes.

One explanation for such an evolution is that it was the stimulation program, as Bianconi points out; Van Munster (2011) A program designed with pleasurable activities, starting with interesting activities for students and the willingness with which students participate in the program can influence adherence and consequently the results.

In the final Motor Quotient we reached an increase of 25.7 months when compared to the initial Motor Quotient with 10 weeks of stimulation, further confirming that stimulation is viable with the Intellectual Disability individual.

As in this study, Almeida et. al. (2019) found in the overall performance evaluation of an individual with Attention Deficit Hyperactivity Disorder (ADHD), an improvement in the average motor quotient when evaluated before and after stimulation protocol through recreational activities.

Comparing the initial and final Motor Quotient, we see that if the individual with Intellectual Disabilities is stimulated for a longer period and in their early phase they can reach their adolescence with a smaller lag in their motor skills.

It is evident the benefits of adequate motor stimulation, as in our study, Cardeal et. al. (2013) bring in their study that individuals who had a large gap in skills such as spatial organization, temporal organization and temporal scheme before stimulation, right after the stimulation protocol, there was a significant contrast between two moments, the pre and post-test. The same author also points out that the test not only improved the motor aspect, but also had a significant improvement in executive, selective and reasoning functions, becoming more agile for problem solving.

#### CONCLUSION

Analyzing the student's motor skills through the Motor Development Scale, we noticed that from the 5th week onwards, there was a motor evolution of the student and it became even more evident in the 10th week of the motor skills stimulation program.

Having seen that the individual is 15 years old and his initial motor quotient was 82.3 months, which represents chronological age equals 6 years and 8 months, and after the 10 weeks stimulation process the student obtained the motor quotient of 108 months, equivalent to the chronological age of 9 years, these 10 weeks of stimulation culminated in an evolution of 25.7 months, ie, 2 years and 1 month. Thus, it is noticeable that stimulation in physical education classes can bring improvements to the various audiences inserted in its practice.

From the results it can be seen that the volunteer showed significant evolution during the stimulation process in Physical Education classes, proving that if the child is stimulated respecting his limitations there will certainly be an evolution.

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#### INCLUSION OF AN INTELLECTUAL DISABILITY STUDENT IN PHYSICAL EDUCATION CLASSES

**ABSTRACT**– Neurodevelopmental Disorders is a set of changes that has its onset in the child's developmental period. One of the manifestations of this disorder is Intellectual Disability, which occurs during the child's development, causing motor, speech and social failures. The stimuli are extremely important to have an evolution in the cognitive, motor, affective and social development, besides promoting inclusion. Objective of this study was to identify the effectiveness of motor stimulation in a student with intellectual disabilities in physical education classes. The present study is a case report that developed in a 15 years old with intellectual disability Intellectual Development Disorder. The Francisco Rosa Neto Motor Development Scale was used as an assessment instrument. The tests were applied in 50-minute sections to apply all the tests in the manual, namely fine motor skills, overall motor skills, balance, body scheme, organization. spatial, temporal organization and laterality. After initial evaluation, two further evaluations were performed during the 10-week stimulation period, one on the 5th and the 10th week. Having some evolutions in certain abilities such as fine motor coordination, balance, body schema, temporal organization, being verified statistically significant improvement already in the 5th week of stimulation, the spatial organization showed statistically significant improvement in the 10th week and the body schema skills, temporal organization presented statistically significant improvement on week 5 and 10, indicating that there was a statistically significant improvement in both periods evaluated. In the evaluation of laterality, it was found that the individual is complete right-handed. It is concluded that motor stimulation acts positively on the motor skills of children with intellectual disabilities.

**Keywords:** Intellectual Disability, Physical Education, Motor Development Scale, Inclusion

#### INCLUSION D'UN ÉTUDIANT EN INHIBITION INTELLECTUELLE DANS LES COURS D'ÉDUCATION PHYSIQUE

**RÉSUMÉ** - Les troubles neurodéveloppementaux sont un ensemble de changements qui commence au cours de la période de développement de l'enfant. L'une des manifestations de ce trouble est la déficience intellectuelle, qui survient pendant le développement de l'enfant et provoque des défaillances motrices, motrices et sociales. Les stimuli sont extrêmement importants pour évoluer dans le développement cognitif, moteur, affectif et social, en plus de la promotion de l'inclusion. Le but de cette étude était d'identifier l'efficacité de la stimulation motrice chez un élève ayant une déficience intellectuelle dans les cours

d'éducation physique. La présente étude est un rapport de cas élaboré chez un enfant de 15 ans ayant une déficience intellectuelle. La balance de développement moteur Francisco Rosa Neto a été utilisée comme instrument d'évaluation. Les tests ont été appliqués en sections de 50 minutes pour appliquer tous les tests manuels tels que la motricité fine, la motricité générale, l'équilibre, le schéma corporel, l'organisation spatiale, temporelle et de latéralité. Après l'évaluation initiale, deux évaluations supplémentaires ont été réalisées au cours de la période de stimulation de 10 semaines, l'une sur les cinquième et dixième semaines. Avec certaines évolutions de certaines compétences, telles que la coordination motrice fine, l'équilibre, le schéma corporel, l'organisation temporelle, avec une amélioration statistiquement significative de la 5ème semaine de stimulation, l'organisation spatiale montre une amélioration statistiquement significative de la 10ème semaine et les compétences du schéma corporel, L'organisation temporelle a montré une amélioration statistiquement significative au cours des semaines 5 et 10, indiquant qu'il y avait une amélioration statistiquement significative au cours des deux périodes. Lors de l'évaluation de la latéralité, il a été constaté que l'individu est complètement droitier. En conclusion, la stimulation motrice agit positivement sur la motricité des enfants ayant une déficience intellectuelle.

Mots-Clés: Éducation physique, inclusion, échelle de développement moteur, déficience intellectuelle

#### INCLUSIÓN DE UN ESTUDIANTE DE DISCAPACIDAD INTELECTUAL EN CLASES DE EDUCACIÓN FÍSICA

RESUMEN - Los trastornos del neurodesarrollo son un conjunto de cambios que comienzan durante el período de desarrollo del niño. Una manifestación de este trastorno es la discapacidad intelectual, que ocurre durante el desarrollo del niño y causa fallas motoras, motoras y sociales. Los estímulos son extremadamente importantes para la evolución del desarrollo cognitivo, motor, emocional y social, así como para promover la inclusión. El objetivo de este estudio fue identificar la efectividad de la estimulación motora en un estudiante con discapacidad intelectual en las clases de educación física. Este estudio es un informe de caso desarrollado en un niño de 15 años con discapacidades del desarrollo. El equilibrio de desarrollo del motor Francisco Rosa Neto se utilizó como herramienta de evaluación. Las pruebas se aplicaron en secciones de 50 minutos para aplicar todas las pruebas manuales, como habilidades motoras finas, habilidades motoras gruesas, equilibrio, diagrama corporal, organización espacial, temporal y de lateralidad. Después de la evaluación inicial, se realizaron dos evaluaciones adicionales durante el período de estimulación de 10 semanas, una en la quinta y décima semana. Con algunas evoluciones de ciertas habilidades, como la coordinación motora fina, el equilibrio, el diagrama corporal, la organización temporal, con una mejora estadísticamente significativa de la semana 5 de estimulación, la organización espacial muestra una mejora estadísticamente significativa de la semana 10 y las habilidades en el patrón corporal, organización corporal. el tiempo mostró una mejora estadísticamente significativa en las semanas 5 y 10, lo que indica que hubo una mejora estadísticamente significativa en ambos períodos. Al evaluar la lateralidad, se encontró que el individuo es completamente diestro. En conclusión, la estimulación motora tiene un efecto positivo en las habilidades motoras de los niños con discapacidad intelectual.

Palabras-chave: Educación física, inclusión, escala de desarrollo motor, discapacidad intelectual

#### INCLUSÃO DE UM ALUNO COM DEFICIÊNCIA INTELECTUAL NAS AULAS DE EDUCAÇÃO FÍSICA

RESUMO - Os Transtornos do Neurodesenvolvimento é um conjunto alterações que tem seu aparecimento no período de desenvolvimento da criança. Uma das manifestações deste transtorno é a Deficiência Intelectual, que ocorre no período do desenvolvimento da criança, ocasionando falhas motoras, na fala e sociais. Os estímulos são de extrema importância para se ter uma evolução no desenvolvimento cognitivo, motor, afetivo e social, além de promover inclusão. Objetivo do trabalho foi identificar a eficácia da estimulação motora em um aluno com deficiência intelectual nas aulas de educação física. O presente estudo trata-se de um relato de caso, o qual desenvolveu-se em um adolescente de 15 anos de idade com deficiência intelectual Transtorno do Desenvolvimento Intelectual. Como instrumento de avaliação foi usada a Escala de Desenvolvimento Motor de Francisco Rosa Neto, os testes foram aplicados em seções com duração de 50 minutos visando aplicar todos os testes do manual, sendo elas, motricidade fina, motricidade global, equilíbrio, esquema corporal, organização espacial, organização temporal e lateralidade. Após avaliação inicial, foram realizadas mais duas avaliações durante o período de estimulação de 10 semanas, uma avaliação na 5ª outra na 10ª semana. Tendo algumas evoluções em determinadas habilidades como coordenação motora fina, equilíbrio, esquema corporal, organização temporal, sendo constatada melhora estatisticamente significativa já na 5ª semana de estimulação, a organização espacial apresentou melhora estatisticamente significativa na 10ª semana e as habilidades esquema corporal, organização temporal apresentaram melhora estatisticamente significativa na 5ª semana e na 10ª, apontando que houve melhora estatisticamente significativa nos dois períodos avaliados. Na avaliação da lateralidade, ficou constatado que o indivíduo é destro completo. Conclui-se que a estimulação motora atua positivamente nas habilidades motoras da criança com Deficiência intelectual.

Palavras-Chave: Deficiência Intelectual, Educação Física, Escala de Desenvolvimento Motor, Inclusão