150 - AN ASSESSMENT CONCERNING THE MOTOR PERCEPTIVE PROFILE IN ELDERLY WOMEN SUBJECTED TO A SOUND RHYTHMIC TASK

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INTRODUCTION

Aging is seen as a period in human's life of extremely complex changes, simply because it depends on several bio-psychosocial order factors which are connected and act directly in the individual's daily life. Jordão Netto (1997) defines aging as a natural, dynamic, progressive and irreversible process which settles down in each individual when he is born and follows him in his lifetime, culminating only when death comes. There are innumerous definitions for aging which share the progressive functionality loss notion as he gets older. Thus, human aging can be defined according to the focus directed to the other factors: biological, environmental, genetic, psychological, social, cultural, among others.

Aging is a process that is characterized by the body natural degradation and registers some alterations in several levels (HERDMAN; WHITNEY, 2002). Among these levels, the referred authors point out :

a)skeletal muscle – muscle strength weakening, mainly in the lower members and, in special, in the foot and tibia tarsic joints, muscle flexibility lessening, arthroses manifestations and posture alterations (named dorsal ciphosis because it modifies the position of the semicircular canals and otolithic organ space);

b)cardio-respiration – capacity decreasing due to the efforts;

c)neurological – manifestations of peripheral neuropathy, slower reflexes, disorientated posture strategy;

d)vestibular – vestibular receptors disturbance with a decrease in the ciliad cell number and vestibular neurons and otolithic macula degenerative alterations, what brings a decrease in the gain of the vestibule-ocular reflex and the risk of benign paroxysmal positional vertigo (BPPV);

e)visual – visual acuity decrease (mainly over the cephalic movement), visual accommodation decrease, ocular following the targets which move at uniform speed decrease, contrast clearness decrease, the disability to adapt to dark places and, in certain cases, visual depth perception alteration;

f)proprioceptive – alterations in the vibration sensitivity, sensitivity decrease on the foot bottom, capacity decrease to detect the foot passive mobilization and increase in the efector muscle response time;

g)cognitive – of motor coordination, which forces to slower movements, and of concentration, which are interpreted in the difficulty in performing two or more tasks simultaneously.

According to Santos (1993), one of the main characteristics observed in the elderly women's motor behavior is how slow they respond because of the somato-sensorial alterations of the motor vias which, in around 74,5% of the cases, leads to motor coordination impairment and an increasing loss in the motor output, because the motor coordination, according to Rauchbach (1990), is the basis of the homogeneous and effective movement, which demands an extensive organization of the nervous system using certain muscles at the right time and in the right density without energy consumption, what impairs, for example, the motor perception of a sound rhythmic stimulus.

Such comparison process is seen as perception. In this context, perception is a “construction” of the central nervous system from sensorial stimulus variations. The nervous system encourages the motor action based on pre-defined parameters and, thus, the perception is formed by several sensorial stimuli which converge on one mechanism responsible for identifying the dynamics and the environment variability (WELCH; WARREN, 1986; SHADMEHR; HOLCOMB, 1997).

The loss of the sensorial system multiplicity doesn't allow the individual to recognize and discriminate objects and the constant changes that happen in the environment, since it's through it that the information sending process about body perception (position, speed, direction, among others) and environment characteristics, which are essential for the movement control, start. Such loss can also be influenced by factors like selective attention, detection sensorial capacity, high level perceptive processes and memory, such as the anticipation and prediction, which are common to happen with the human being's chronological advancements (BOOTH et al., 2003).

For Brunnia (1999), the anticipatory behavior and the attention to the movement (preparation) are achieved by the same means, once again focusing the attention role on the motor control.

Bear, Connors, Paradiso (2002) affirm that the motor perceptive system is, indeed, responsible for the neural motor behavior origin, compound of muscles and neurons. Our motor action control is done together with the Central Nervous System (CNS) and with the Peripheral Nervous System (PNS). For the same authors, the brain is the home of thoughts. Through feelings it perceives information, interprets through perception mechanisms which are able to decide through decisory processes and, after that, makes the structuralization, which is the action and reaction programming phase necessary to meet the organic and environmental needs with which the human body interacts.

OBJECTIVE

Based on what was presented concerning the problematic which involves several sensorial and perceptive aspects related to aging and to the body motor, the objective in this study was to assess the motor perceptive profile through sound rhythmic stimuli in elderly women aged between 60 and 65 living in Gurupi – TO.

METHODOLOGY

In this research, the context assessment method was used, and it allowed to carry out a descriptive and co-relational study concerning the sound rhythmic motor perceptive profile in women aged between 60 and 65. The results of this assessment will also allow to plan future relevant interventions or with a socially positive impact for the researchers, and can be developed through

other complementary or resulting scientific studies.

This research universe was compound of 30 women aged between 60 and 65 and they take part in the Program of "Body Expression for the Aged" Gurupi – TO that, according to the Sampling Theory developed by Cochran (1956), formed a group called volunteer.

This research project was submitted to the Research Ethics Committee involving Human Beings of the Castelo Branco University (UCB/RJ) and approved under protocol number 0158/2008.

The data collection was done according to the resolution 196/96. Thus, at first, a volunteer group members' authorization was required through a Clear and Free Authorization Term explaining the nature of the study so that the study could be carried out.

The methodological strategy used in this study was administered through the Rhythm Pattern Test (RPT) developed by Buono (2001). It presents a protocol whose objective is to assess the motor perceptive profile associated with the sound rhythmic pattern. This happens when a value is established around 10 items according to Figure 1 shown below. The total score in each item varies from 0 to 10 points.

WALKING: Rhythmic repetition in the legs movement and rhythm maintenance in the required tempo.

STANDING SHORT JUMPS: Performing the movement stress together with the music beats; flexed knees alternating cycle maintenance in the music pace.

LATERAL DISPLACEMENT: Lateral jump and its conclusion performed in the tempo; rhythm pattern maintenance.

KNEES ALTERNATED ELEVATION: Leg alternating in a cycle for the required tempo and rhythm maintenance in alternating.

STATIC MARCH: Foot bumping at musical beats and musical rhythm maintenance.

To apply the rhythm pattern test (RPT) the following procedures were used:

1.Place for the test: the test was applied in a 3x2m² rectangular area outlined with an adhesive tape.

2.Assessments: they were carried out, filmed and controlled by the researcher.

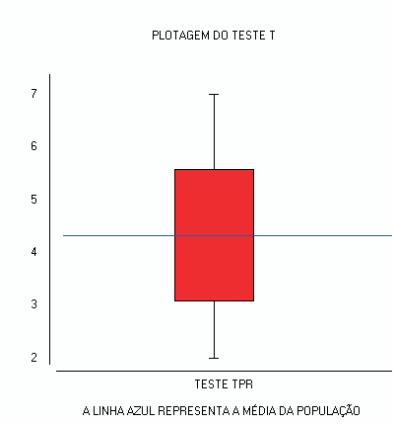
3.Adaptation to the test: the participants had the chance to practice once before performing for the real test.

RESULTS AND DISCUSSION

For the context assessment about the referred items: walking, standing short jumps, lateral displacement, knees alternated elevation and static march, the descriptive statistic was used counting on the test t, which revealed that the assessed women's average was 4,33, where the pattern error was 0,22. Consequently, providing p – value < 0,05, and a CI (confident interval) of 95% varying from 3,87 to 4,79.

So, it's possible to say that the minimum score achieved was 2 points and the maximum was 7 points, in other words, 83,33% of the assessed people had a score below or up to 5 points, only 16% of the people had a score equal or above 6 points, as it can be observed in Figure 1 below.

Test T Sample



Test RTP

The blue line represents the average of the people

Based on the results presented, it's possible to say that the motor development is related to the motor behavior change characteristics through time, as experience and maturation result, influenced by different environmental situations.

Another motor performance aspect that can be observed when analyzing the results is the reaction low speed confronted with the sensorial stimulation because of the systematic elevation of the reaction time to visual stimulus and reaction time to sound stimulus presented by all the people, since no one could reach a score above 7 points.

The assessed elderly women's low production is mainly due to the central process slowing down because of the generalized speed reduction used to perform the sensory motor processes. This brings a global deterioration to the good performance in tasks which require attention, among them, the sensory motor tasks (CERELLA, 1985).

Another factor that may have contributed to the difficulty applying the RPT successfully is the muscle contraction and relaxing speed frequency which are less intense in the elderly, thus, causing motor units loss and higher percentage of connective tissue in the muscle structure, besides the fast fibers reduction and lower neuromuscular coordination (FARIA JÚNIOR et al., 1999).

It's possible to conclude that, in the group, the assessed individuals had an effectiveness decrease in the tactile-kinesthetic processing, and that a higher number of sensorial integration problems are produced leading to a loss of discrimination skills, such as pressure, texture, shape and even a progressive deterioration in the motor performance, affecting the induction, deduction generalization and abstraction, notion loss of time, space, object and body.

CONCLUSION

Based on the presented and discussed results, it's concluded that there is a decline in the motor perceptive output in most of the cases in the elderly subjected to a sound rhythmic task.

Through the test (RPT) applied, it was possible to say that the general profile of the assessed elderly women's motor perceptive performance was below the average of the acceptable performance. This happens because of the degenerative process of the following items: decrease in the sensory-motor functions, decrease in the reaction speed confronting the sensorial stimulus, central process slowing down, decrease in the nerve impulses, lower neuromuscular coordination, sensorial integration problems, decrease in the proprioceptive function of the articulations and visual muscles, muscle weakening, time and space notion loss and other several factors. It's possible to affirm that it's possible to minimize the impact caused by the natural process of aging in the

neural mechanisms of the motor perceptive system through specific programs of sound rhythmic stimulus.

Consequently, an interdisciplinary strategy planning for the professionals to act shows to be necessary. The objective is to provide them with possible solutions to reduce or eliminate the problems caused by the aging natural process.

It's suggested that specific and interdisciplinary studies of stimulus of the motor perceptive system are done to confirm the importance of promoting the general state prevention and the individual's well being during this period of life.

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AN ASSESSMENT CONCERNING THE MOTOR PERCEPTIVE PROFILE IN ELDERLY WOMEN SUBJECTED TO A SOUND RHYTHMIC TASK

ABSTRACT

The objective in this study was to assess the motor perceptive profile in 30 women aged between 60 and 65 subjected to a sound rhythmic task. The Rhythm Pattern Test (RPT), developed by BUONO (2001), was used as assessment strategy. The data were assessed through the descriptive statistics, counting on the test t with significance $p < 0,05$. Based on the data, it's possible to conclude, as for the elderly women's performance, low speed reaction predominance in relation to sensory stimulation, central process slowing down and the discrimination capacity decreasing when the motor perception is associated with a sound rhythmic task.

KEY WORDS: Assessment, Sensory Function, Perception, Elderly, Rhythmic.

UNE ÉVALUATION DU PROFIL PERCEPTIF-MOTEUR DE FEMMES ÂGÉES SOUMISES À UNE TÂCHE RYTHMIQUE-SONORE

RÉSUMÉE

Cet Étude a eu comme objective l'évaluation du profil perceptif-moteur de 30 femmes âgées de 60 à 65 ans, soumises à une tâche ryththmique-sonore. On a utilisé comme stratégie d'évaluation le Test de Standard Rythmique (Teste de Padrão Rítmico - TPR) élaboré par BUONO (2001). Les données ont été analysées à travers la statistique descriptive, en ayant recours au test t avec signification statistique $p < 0,05$. À partir de ces études on peut conclure, par rapport au performance des personnes âgées, qu'il il y a une prédominance d'une basse vitesse de réponses en face de la stimulation sensorielle, que les processus centraux deviennent plus lents et qu'i y a une réduction du pouvoir de discrimination quand la perception kinesthésique est associée à une tâche rythmique sonore.

MOTS-CLÉS: Évaluation, Perception, Personne Âgée.

UNA EVALUACIÓN SOBRE EL PERFIL PERCEPTIVO-MOTOR DE MUJERES MAYORES SOMETIDAS A UNA TAREA RÍTMICA SONORA

RESUMEN

Este estudio tuvo por objetivo evaluar el perfil perceptivo- motor de 30 mujeres con una edad comprendida entre 60 a 65 años, sometidas a una tarea rítmica-sonora. Como estratégia de evaluación se utilizó la Prueba de Estándar Rítmico (TPR) (Respuesta Física Total) elaborado por BUONO (2001). Los datos se analizaron por medio de la estadística descriptiva, recurriendo a la prueba t con significado $p < 0,05$. A partir de los resultados se puede concluir, con relación al desempeño de las mujeres, la predominancia de baja rapidez de reacción frente a la estimulación sensorial, lentitud de los procesos centrales y reducción del poder de discriminación con relación a la percepción motora que está asociada a una tarea rítmica sonora.

PALABRAS- CLAVE: Evaluación, Percepción, Mujeres Mayores.

UMA AVALIAÇÃO ACERCA DO PERFIL PERCEPTIVO-MOTOR DE MULHERES IDOSAS SUBMETIDAS A UMA TAREFA RÍTMICA-SONORA

RESUMO

Este estudo teve por objetivo avaliar o perfil perceptivo-motor de 30 mulheres com idade compreendida entre 60 a 65 anos, submetidas a uma tarefa rítmica-sonora. Como estratégia de avaliação utilizou-se o Teste de Padrão Rítmico (TPR) elaborado por BUONO (2001). Os dados foram analisados pela estatística descritiva, recorrendo ao teste t com significância $p < 0,05$. A partir dos resultados pode-se concluir, quanto ao desempenho das idosas, predominância de baixa rapidez de reação frente à estimulação sensorial, lentificação dos processos centrais e redução do poder de discriminação quando a percepção motora está associada a uma tarefa rítmica sonora.

PALAVRAS- CHAVE: Avaliação, Percepção, Idoso.

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