39 - PSYCOMOTOR PROFILE IN RETROGENESIS: DIFFERENCES BETWEEN ACTIVE AND INACTIVE AGED ADULTS COMPARATIVELY TO THE CHILDREN ONTOGENESIS

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1.INTRODUCTION

Human development goes on phases. The great changes from infancy to adolescence, from adolescence to adulthood, from adulthood to oldness, are inevitable, they reach all areas of human behavior and, naturally, of psycomotricity.

The first phase (infancy) points the beginning of the formation of the psycomotor development (bio-psyco-social) of the individual that evolves. It is from the motor development that the child organizes the basic functions for his/her cognitive and social advance. The basic motor organization of first infancy starts to be the main support that, when evolving in the phases of specialization of the movements, they determine the motor health of the elderly (FONSECA, 1998).

So as to conceptualize retrogenesis is going to be necessary "to equate the concept of human being evolution" (FONSECA, 1998), which means to understand that the man, since his/her conception to his/her death goes through an inside path of a process of pre-determined evolution, that occurs organizedly with some unique properties of structuration and behavior. In this order in ontogenetics processes of ascending-vertical nature of structuration and behavior acquisitions always occurring from the simplest to the most complex, being of conectivity between phases of the human evolution that go auto-completing themselves, i.e., from the just-born one to the adult man. It is in this phase of transition from the adult to the aged one that an inverse process occurs, but not less organized, being a vertical-descending disorganization in the process of the human evolution. These modifications reflect themselves to a large extent, as degenerative effects in neurological, osteoarticular and muscular levels providing a reduction on the motor, cognitive and mental performance of the individual. The aging brings together a reduction on the physiological capacities of the organism, being recognized in corresponding literature (MEIRELLES, 2000; NEGREIROS, 2003; SHEPHARD, 2003).

2. DEVELOPMENT

2.1 MATERIAL AND METHOD

To study the relation during the process of development of the motricity between ontogenesis and retrogenesis two groups have been selected: a) 30 healthy elderly, from seventy- two to eighty-two years old (incomplete) of both genres and inhabitants of Rio de Janeiro; b) 30 healthy children, from five to six years and eleven months old of both genres and inhabitants in Rio de Janeiro. The Psycomotor Battery (BPM) was used for the event of evaluation of the psycomotor profile of the investigated groups, formulated by FONSECA (1995), whose nature is characterized by the references to the Theory of the Functional Organization of the Brain divided by Functional Psycomotor Units, proposed by Luria (1973), as it configures the cited set of test. The set of tests is composed for thirty-nine tests that possess the objective to evaluate seven psycomotor factors, namely: tonicity, lateralization, and balance, notion of the body, space-time structuration, fine and global praxis. Next box is to show the scores of the results during the research and statistical study.

Table 1 - Associated to the psycomotor dimensions, Tonicity and Balance, tested in the elderly and children groups (Pattern-deviation, between brackets).

BLOCK 1			ELDERLY Age Average: 77,6	CHILDREN Age Average: 3,2
2. TONICITY	T	Psycomotor Dimensions	Average/PD2,7(0,5)	Average/PD 3,1(0,7)
		2.1 Extensability MsIs	2,5(0,5)	4,0(0,0)
		2.2 Extensibility MsSs	2,7(0,5)	3,9(0,4)
		2.3 Passiveness Ms Is	2,5(0,5)	3,4(0,8)
		2.4 Passiveness Ms Ss	2,6(0,5)	3,4(0,8)
		2.5 Paratonia	2,7(0,5)	4,0(0,0)
		2.6 Diadococinesia	3,0(0,4)	2,3(1,1)
		2.7 Sincinesias	3,4(0,5)	1,9(1,5)
3. BALANCE	B	Psycomotor Dimensions	Average/PD 3,0(0,6)	Average/PD 2,3(1,1)
		3.1 Imobility	3,9(0,3)	2,6(1,0)
		3.2 Static Balance	2,9(0,8)	2,2(0,8)
		a)Retilinious Support	3,5(0,7)	2,7(1,0)
		b)Balance Maintenance	2,9(0,9)	2,0(1,0)
		c) Unipedal Support	2,4(0,8)	1,9(0,9)
		3.3 Dynamic Balance	2,8(0,6)	2,4(1,0)
		a)Controlled Jogging	3,6(0,9)	2,7(1,1)
		b) Bar Evolution	2,5(0,7)	2,1(1,2)
		c) Unipedal Jumps	1,9(0,7)	1,7(1,0)
		d) Two-foot Jumps	3,1(0,9)	2,9(1,3)

It is clear that an average advantage of performance between the elderly and children group can be verified, an advantage that is associated with one better performance, of the first group, in almost all sub-items of the factor tonicity. Differently from the factor tonicity, in that it corresponded to the factor balance, as it had already been expected, the group of aged was clearly superior to the composed group of children. That happens because, although we comprehend the nervous and physical deteriorations imposed by the age, the fact of the group of children to be very young, implies in great restrictions in corporal balance, since this variable has great relation with the neural matureness of the individual. Some development-authors define that one of the nervous structures that better substantiates the ability of balance of an individual, the cerebellum, proceeding in functional and maturacional development until next age - the puberty. Thus, the difficulties found by the young group of children, on balance tasks, can be thought as from high maturacional origin Carrying on the analyses of the tests and,

considering the averages of the groups, relative to several items in Block 2, we can observe that in factors that demand higher cognitive analyses, the aged ones showed themselves more efficient than the group of children.

Table 2 - Associated to the psycomotor dimensions, Body Notion, Lateralization and Space-Time Organization (Block 2), tested in the elderly and children group (Pattern-Deviation between brackets)

BLOCk 2			ELDERLY	CHILDREN
4.LATERALITY	L	Psycomotor Dimensions	Average/PD 1(0)	Average/PD 1(0)
		4.1 Visual Laterality	1(0)	1(0)
		4.2 Audio Laterality	1(0)	1(0)
		4.3 Pedal Laterality	1(0)	1(0)
5. BODY NOTION	BN	Psycomotor Dimensions	Average/PD 3,1(0,3)	Average/PD 2,6(0,5)
		5.1 Kinesthetic Sense	4,0(0,0)	3,0(1,2)
		5.2 D X E Recognizing	4,0(0,0)	2,3(1,3)
		5.3 Auto-image	3,9(0,3)	2,9(1,5)
		5.4 Gesture imitation	3,3(0,6)	2,3(1,0)
		5.5 Draw of the body	1,2(0,6)	1,7(0,5)
6.SPACE-TIME STRUCTURATION	STS	Psycomotor Dimensions	Average/PD 2,5(0,5)	Average/PD 1,3(0,5)
		6.1 Organization	2,8(0,8)	1,3(0,5)
		6.2 Dynamic Structure	2,4(0,5)	1,3(0,5)
		6.3 Topographic Representation	2,5(0,5)	1,3(0,5)
		6.4 Rhythm Structure	2,6(0,5)	1,1(0,4)

Starting from the laterality, in which the groups have been equally well in their performance, as soon as the cognitive demand was higher in terms of tasks, i.e., for the item body notion, in which the difference in performance between the groups was of half a point on the score, in the most complex item, space-time structuration, the difference pro aged was of 1.2 points. These results indicate that the cognitive demand interacts with the age of the groups.

Table 3 - Associated to the psycomotor dimensions, Fine and Global Praxia (Block 3), tested in the elderly and children group (Pattern-Deviation between brackets).

BLOCO 3			ELDERLY	CHILDREN
7.GLOBAL PRAXIS	GP	Psycomotor Dimensions	Average/PD 2,5(0,7)	Average/PD 2,3(1,0)
		7.1Visual-Manual Coordenationl	2,5(0,7)	2,0(1,0)
		7.2Visual-Pedal Coordenation	2,1(0,5)	2,0(0,8)
		7.3 Dismetry	2,5(0,8)	2,3(1,0)
		7.4 Dissociation	2,3(0,7)	1,8(0,6)
		a) Superior Members	2,7(0,8)	1,9(0,7)
		b) Inferior Members	2,4(0,8)	2,0(0,8)
		c) Four Extremeties	1,8(0,6)	1,3(0,5)
8. FINE PRAXIS	FP	Psycomotor Dimensions	Average/PD 2,3(0,5)	Average/PD
		8.1Dynamic-Manual Coordenation	3,2(0,4)	-
		8.2 Digital Dissociation	2,6(0,8)	-
		8.3 Speed-Precision	1,0(0, 0)	-
		a)points	2,3(0,8)	-
		b)crosses	2,3(0,8)	-
GENERAL AVERAGE TOTAL	GA		2,7(0,5)	2,3(0,5)

Going to the analysis of block 3, a real approach is verified, between the groups in the sub-item namely Global Praxis. However the trend disclosed in Block 2 extends to this block, when the factor complexity is observed. This, mainly in reference to the sub-item dissociation between body members, conditions in which the more complex tasks and, consequently, requires a bigger search of memory and organization of the necessary motor plans to the execution of the same ones.

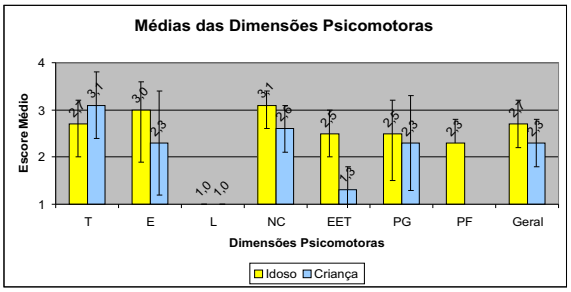
In the next box, the scores inherent to each tests on the three blocks of psycomotor dimensions are summarized.

Table 4 Summary of the averages of the groups on the items of psycomotor dimensions.

Dimensions	Elderly Average/PD	Children Average/PD	Difference/favorable
Tonicity	2,7(0,5)	3,1(0,7)	+ 0.4 / children
Balance	3,0(0,6)	2,3(1,1)	+ 0.7 / elderly
Laterality	1,0(0,0)	1,0(0,0)	Equal
Body Notionl	3,1(0,3)	2,6(0,5)	+ 0.5 / elderly
Space-Time Structuration	2,5(0,5)	1,3(0,5)	+ 1.2 / elderly
Global Praxis	2,5(0,7)	2,3(1,0)	+ 0.2 / elderly
Fine Praxis	2,3(0,5)	-	-
General Average	2,7(0,5)	2,3(0,5)	+ 0.4 / elderly

To facilitate the interpretation of the data above, the referred averages are plotted as below:

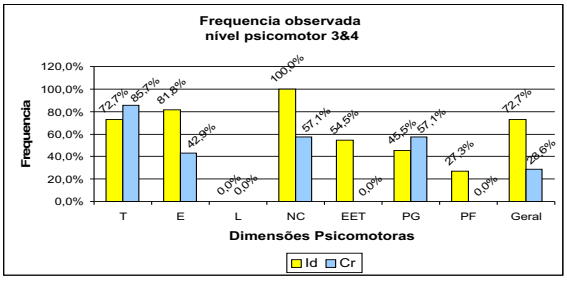
Figure 1- Average of the elderly and children groups, plotted, comparatively, on the tested psycomotor dimensions.



To study the condition of better performance in the tests of the psycomotor dimensions, it was opted to the comparison of the frequency in the highest levels of competence of realization of the tasks (levels 3 and 4), considered "great" and "good", respectively. In this condition, it was observed that the aged ones have been more frequent in replying than the children group, in 4 (Balance 81,8% to 42.9%, Body Notion 100% to 57.1%, Space-Time Structuration, 54,5% to 0.0% and Fine Praxis, 27,3% to 0.0%) of the seven groups of the psycomotor dimensions. The group of children was distinguished in 2 of seven of these groups of dimensions (tonicity, 85,7% to 72,7% and 57.1% to 45.5%).

The observed frequencies are located in Figure 2, being that this procedure has the objective to facilitate the understanding of the reader in terms of the magnitude of the frequencies of the groups for tested item.

Figura 2 - Observed frequencies to the psycomotor levels 3 (good performance) and 4 (great performance) of two groups on the items of the psycomotor dimensions studied.



To define or not the existence of statistics significance to the data above presented, it was used inferential statistics previously according to what was planned. At the first moment, in the direction of comparing the average values calculated for the two groups, Aged and Children, the T Test of Student was applied, observing a level of significance p < or = 0, 05, being found the following results: In the comparison of the general average, the groups had shown equal situation, i.e., considering the performance of the two groups through the several items tested, the statistical test disclosed there is not a significant difference between them. Pointing out the comparisons for each sub-item, between the groups, we can get significance statistics benefiting aged in sub-items Body Notion and Space-Time Structuration with p< 0,05, in both cases. In the other sub-items, through the 3 blocks, none other significant difference was found, i.e., the other groups have shown the same situation. When the results are treated according to the concept of qualitative data and with a discrete nature, it is observed that, comparing the respective Distributions of Frequencies of the two groups, Aged and Children, the results are presented more favorable to the aged ones.

Table 5 - Summary of the tests hold concerning the verification of possible differences, statistically significant, between the performances of the groups, Aged and Children, on the facts of the Psycomotor Dimensions studied.

3&4	T	B	L	BN	STS	GP	FP	General
Elderly	72,7%	81,8%	0,0%	100,0%	54,5%	45,5%	27,3%	72,7%
Children	85,7%	42,9%	0,0%	57,1%	0,0%	57,1%	0,0%	28,6%
Significant	0,3114	0,0110	-	0,0010	0,0001	0,4596	0,0120	0,0052
	Equal	Different	Equal	Different	Different	Equal	Different	Different

Significant statistical differences have been verified for the factors Balance, Body Notion, Space-Time Structuration and Fine Praxis, all with p< 0.05. Although that, the group of children sufficiently came close to the significant statistics difference in Global Praxis and Tonicity. Within the results above presented, we can conclude that it was in dimensions BN (Body Notion) and STS (Space-Time Structuration) that the groups have shown themselves more different in terms of the psycomotor dimensions studied. In other words, the more sensitive relations on the differentiation of both groups have been identified, in which the group of the aged ones, in both of the cases, revealed to be sufficient to the levels observed in the composed group for children. In a manner of speaking, the results shown here identified themselves with others already disclosed which have shown that the process of retrogenesis has descending steps, which are equivalent to the ascending steps of the ontogenesis process of the child, steps whether collated or not, tend to show themselves equally. This clearly occurred in relation to the two groups studied here, whose retrogenic confrontation (aged with average age of 77.6 years) x ontogenic (children with average age of 3.2 years) showed to equality statistics of average of performance in 5 (five) of 7 (seven) factors of the tested blocks of psycomotor dimensions. Equality also was observed, when the comparison was accomplished with the averages of the groups, these gotten through all the tests of the Battery. Despite this strong and almost systematic equality (exception for the factors of Body Notion (BN) and Space-Time Structuration (STS), whose cognitive demands, of the respective tests are very high for the age of the children from this study), the qualitative comparisons (frequency) of the performance of the groups have revealed well favorable to the group of aged. This fact was understood, after examination of the homogeneity of performance of the groups, as being motivated for, a group, inside of the group of the aged ones, that it tended to keep a relative balance in the performance through all the tests. This group, besides the best scores, was identified as composed by individuals with history of systematic physical exercising and good quality of life. This group, then, was called qualified aged. By holding an analysis, based on the Kruskal-Wallis Test, with posterior tests (Tukey-b) of this group, a superiority of itself was verified, in comparison to the performances of the group of children in all the 7 (seven) factors of the tested psycomotor dimensions, including the ones that, previously, the children have shown more efficient in. The interaction between the groups and items of test p < 0,001 and comparisons as shown

in Table 6

It is unnecessary to show here that in frequency terms, qualified aged ones have disclosed, also, statistically superior in all the averages of performance in the factors of the 3 (three) tested. Those last results have a force to believe in the possibility of being able to be prepared to the oldness, at least in terms of motricity, a preponderant factor to the quality of human life, as well as of the social effectiveness.

Table 6 - Results of the comparisons between the groups (aged qualified X children) on the seven items on the Psycomotor Battery by Vitor da Fonseca: Blocks 1, 2 e 3.

	T	B	L	BN	STS	GP	FP	General
QA	3,7(0,3)	3,3(0,4)	2,0(0,2)	3,3(0,3)	2,6(0,3)	2,9(0,2)	2,9(0,1)	2,9(0,3)
CH	3,1(0,7)	2,3(1,1)	1(0)	2,6(0,5)	1,3(0,5)	2,3(1,0)	-	2,3(0,5)
S	0,0432	0,0393	0,0499	0,0399	0,0001	0,0498	-	0,0338
Co	Different	Different	Different	Different	Different	Different	Different	Different

QA: qualified aged; CH: children; S: Significance and Co: Comparisons.

3. CONCLUSION

The qualified and quantified performances of the qualified group, verified as being very much superior to the ones of the group of children and, consequently, of ordinary aged ones, point out that the retrogenic process can be thought as being of differentiated evolution, dependent on some factors, amongst which the quality of life and the physical exercising have remarkable and consequent power on the elderly lives.

It is forceful, in conclusive terms, the recommended necessity of a psycomotor stimulation that contemplates the improvement of the motor ontogenia to a retrogenia with quality, inserted in the programs of motor and development activities come back towards the child. As well as programs of psycomotor re-education directed to the aged adults and with the objective of rescuing the motor conditions to a better quality of life. Thus, the implantation of places with easy-to-get accesses to adult and aged individuals, mainly in typical considered places of low income, as well as schedules extended in the lessons of Physical Education turned to the practice of varied motor activities.

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PSYCOMOTOR PROFILE IN RETROGENESIS: DIFFERENCES BETWEEN ACTIVE AND INACTIVE AGED ADULTS COMPARATIVELY TO THE CHILDREN ONTOGENESIS

ABSTRACT

By facing the current concern with the human aging (increasingly inverting the population pyramid) and the factors that involve this process, the human motricity has been focus of a lot of researches directed to the quality of life of individuals in the aged phase of the life. The aging imposes disfunctions and disintegrations that vary from individual for individual. The field of motricity, which is focused on this study, tries to explain using a Psycomotor Battery (BPM) adapted (FONSECA, 1995), as a means of observation of the motor organism that undergoes this evolutive-involutive process, between the cycles of the ontogenesis (childhood - oldness). Human development is explained from the ontogenetic organization of the cellular formation until the matureness of the puberal organism, which is a continuous process of psycomotor functions (tonicity, balance, laterality, notion of body, space-time organization, fine and global praxis, developed in an ascendant-vertical form, from the simplest to the most complex. This ontogenetic process goes through the deleterious process of the aging that is the retrogenesis of the human development and it can be thought as being a differentiated evolution of the psycomotor profile, being dependent on some factors, amongst which the quality of life and the exercising that they not only allow the motor profit, but motricity as process of evolution psychic and social appropriation.

KEYWORDS: ontogenesis, retrogenesis, motor profile.

PROFIL PSYCHOMOTEUR DANS LA RÉTROGÈNES: LA DIFFÈRENCE ENTRE LES PERSONNES AGÉES PRODUCTIVES ET IMPRODUCTIVES COMPARATIVEMENT À L'ONTOGENÈSE DES ENFANTS.

Résumé:

Dû le souci du vieillissement humain(qui augment et qui invere la pyramide de la population) et les facteurs qui comportent ce processus, la matricité de l'être humain est de plus en plus le centre de beaucoup de recherches concernant la qualité de vie des individus dans la phase agée de la vie. Le vieillissement impose des dysfonctionnements et des désintégrations qui changent d'individu á individu. Le domaine de la motricité, centre de cette étude, essaye d'expliquer en utilisant la Batterie Psychomoteur (FONSECA,1995), adaptée comme moyen d'observation de l'organism moteur qui passe par ce processus évolutif-involutif entre les cycles de l'ontogènes (infance-vieillese). Le développement humain est expliqué a partir de l'organization ontogénétique de la formation cellulaire jusqu'á la maturité de l'organism puberal, et cela c'est un processus continu á partir des fonctions psycomoteurs (la tonicité, l'équilibre, la lateralité, la notion de corps, l'organization spacial-temporal, la praxis globale et la praxis fine) developeés de façon ascendante-verticale, à partir les plus simples jusqu'aux les plus complexes. Ce processus délétère du vieillissement, que c'est la rétrogenèse du développement humain et que peut être pensé comme une évolution différenciée du profil psycomoteur dépendant de plusieurs facteurs, parmi lequels la qualité de vie et l'exercice physique qui permettent non seulement le gain moteur, mais aussi une motricité comme processus d'évolution psychique et d'appropriation sociale.

TERMS CLÉS: ontogênese; profil psychomoteur; retrogenèse.

PERFIL PSICOMOTOR EN LA RETROGÉNESIS: DIFERENCIA ENTRE LOS IDOSOS ACTIVOS E INACTIVOS, COMPARATIVAMENTE A LA ONTOGÉNESIS DE LOS NIÑOS

RESUMEN

Mediante la preocupación con el envejecimento humano (que aumenta invirtiendo la pirámide de la población) y los factores que envuelven este proceso, la motricidad humana ha sido foco de varias investigaciones dirigidas hacia la calidad de vida de individuos en la fase idosa de la vida. El envejecimiento impone disfunciones y desintegraciones que varian de individuo a individuo. El envejecimiento impone disfunciones y desintegraciones que varían de individuo a individuo. El área de la motricidad que es el foco de este estudio intenta explicar utilizando la Bateria Psicomotora (BPM) adaptada (FONSECA, 1995), como medio de observación del organismo-motor, que pasa por ese proceso evolutivo-involutivo entre los ciclos de ontogénesis (infancia-vejez). El desarrollo humano se explica a partir de la organización de la ontogenética de la formación celular hasta el enmadurecimiento del organismo puberal, siendo un proceso continuo a partir de funciones psicomotoras (tonicidad, equilibración, lateralidade, noción del cuerpo, organización espacial- temporal, praxia global e fina) desarrollados de forma ascendente vertical, desde las más simples hasta las más complejas. Este proceso ontogenético sobrepasa al proceso delitérico del envejecimiento que es la retrogénesis del desarrollo humano y que puede ser pensado como si fuese una evolución diferenciada del perfil psicomotor dependiendo de varios factores, entre los cuales, la calidade de vida y de ejercitación fisica que permite la motricidad como proceso de evolución psíquica y de relaciones sociales.

PALABRA CLAVE: ontogénesis, perfil psicomotor, retrogénesis.

PERFIL PSICOMOTOR NA RETROGÊNESE: DIFERENÇA ENTRE IDOSOS ATIVOS E INATIVOS COMPARATIVAMENTE A ONTOGÊNESE DE CRIANÇAS

RESUMO

Mediante a preocupação com o envelhecimento humano (crescente invertendo a pirâmide populacional) e os fatores que envolvem esse processo, a motricidade humana tem sido foco de várias pesquisas direcionadas a qualidade de vida de indivíduos na fase idosa da vida. O envelhecimento impõe disfunções e desintegrações que variam de indivíduo para indivíduo. A área da motricidade, foco desse estudo tenta explicar utilizando a Bateria Psicomotora (FONSECA, 1995), adaptada como meio de observação do organismo motor que passa por esse processo evolutivo-involutivo, entre os ciclos da ontogênese (infância-velhice). O desenvolvimento humano é explicado a partir da organização ontogenética da formação celular até o amadurecimento do organismo puberal, sendo um processo contínuo a partir de funções psicomotoras (tonicidade, equilibração, lateralidade, noção de corpo, organização espacial-temporal, praxia global e praxia fina) desenvolvidos de forma ascendente vertical, das mais simples as mais complexas. Esse processo ontogenético perpassa o processo deletério do envelhecimento que é a retrogênese do desenvolvimento humano que pode ser pensada como sendo uma evolução diferenciada do perfil psicomotor, dependente de vários fatores. Dentre os quais a qualidade de vida e a exercitação física que permitem não só um ganho motor, mas uma motricidade como processo de evolução psíquica e de apropriação social.

Palavras-Chave: ontogênese, perfil psicomotor, retrogênese,