

## 162 - EDUCATION MOVEMENT IN THE PREVENTION OF ELDERLY FALLS: TECHNIQUE IVALDO BERTAZZO

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### 1. AGING AND THE INCIDENCE OF FALLS

The aging population is being met. Research has shown that in 1900, less than 1% of the population had more than 65 years of age and it is believed that in the year 2050 the elderly will be one fifth of the world. (Papaléo Netto, 2001). In this sense, increases are also programs, research and projects aimed at that segment, whose aim is to improve health, maintenance of functional capacity, quality of life and independence of the person that age.

Aging is characterized by: a reduction in the mechanism of homeostasis of the body, decline in the functions of various organs, reduced muscle mass and bone mass and other factors. This decline shows great variability in the rate of deterioration in different organ systems and in different individuals. As a general rule it is assumed that occurs every year from age 30, lost 1% of the function.

According to Theberge (1983), as well as major factors contributing to the aging as time, heredity and environment, there are other aspects of life such as diet, lifestyle and level of exercise. These may affect beneficially, by inhibiting the decrease in efficiency and capacity, keeping the elderly active, independent and quality of life. Thus, Theberge said: "The fullness and richness of the years we still are in our hands." (1983, p.15). There is need to seek the determinants of current health and life of the elderly and the aging process so that the challenge is met through adequate planning.

Alves Júnior (2006) puts us one of the problems that can dramatically change the active life of the elderly is the incidence of falls because they no longer as a direct consequence of decreased quality of life. The social cost is huge and becomes larger when the elderly person loses autonomy and independence, or is the need for institutionalization. Fall is losing his balance without being able to retrieve it. And this can not be recovered when the ability to adapt postural are outdated or overloaded. (Reigewirtz: 2000 apud Alves Júnior, 2006, p.20).

Lascaux (1998 apud Alves Júnior, 2006) reports on research conducted in 1998, that eleven thousand persons have died of an accidental fall in France, which matched the number of traffic accidents that year. Serge Reigewirtz (2000 apud Alves Júnior, 2006) analyzed the French data concludes that two million annual declines in France. And Nevitt (1994 apud Alves Júnior, 2006) has also given high U.S. where 1 / 3 of people over 65 fall each year. Daley [et al] (2000 apud Alves Júnior, 2006) addresses the problem that the fall represents a significant portion of the rate of mortality in people over 65 years. Schultz (1992 apud Alves Júnior, 2006) reiterates, adding data showing that the fall represents 40% of deaths due to injury and 1% of all deaths in this age group. Thus, we find that the incidence of falls is a major problem in the aging process, maintaining the health and quality of life.

According to Alves Júnior (2004), the maintenance of postural stability is an extremely complex skill, which depends on the coordination of numerous physiological and biomechanical. Normal aging is associated with deficits in postural stability in elderly explained by the reduction of: muscular strength, peripheral sensation, vision, vestibular function and processing of the central nervous system. Papaléo Netto (2001), reporting on risk factors for incidence of falls, determines that some of these should be checked to assess the risk of falls in the elderly as gait deficiencies, use of a sedative, limitations in physical mobility and functional; dysfunction of sensory, neurological diseases, deficiencies in the balance and neuromuscular among others.

Bertazzo (1998) argues that modern society suffers from a numbness of the limbs, as if the gestures were connected on autopilot, devoid of autonomy and feel. This affects coordination, psychomotor and proprioceptive stimuli of the elderly and as a result, there is a high rate of falls that may undermine the autonomy and independence. Thus, this research, of a qualitative bibliográfico, aims to investigate whether the Education Movement, a technique created by Bertazzo, can reduce the number of falls among the elderly.

Proposing to interject the factors that increase the incidence of falls and the contributions made by the method of Bertazzo aimed to support in the literature obtained in periodicals virtual portals such as MEDLINE and Web of Science and books published in the 70, 80, 90 and 1st decade of the century. Also an interview was conducted at the School of Education Movement in São Paulo, with Bertazzo, author of the method. In this, the interviewee emphasized the importance of some specific practices of physical exercise for the elderly.

### 2. SENSORY SYSTEM IN MAINTAINING THE BALANCE

According to Cunha and Guimarães (1989 apud Papaléo Netto, 2001), falls are the result of total loss of postural balance, probably due to the sudden influence of neural mechanisms and osteoarticular. It affects people of all ages, but are significant in the elderly, because it will lead to disability, injury and death. Mochizuchi and Amadio (2006) define the balance in the upright position is exercised by the performance of postural control, which gets sensory information systems of visual, vestibular and somatosensory. On the influence of the visual control of postural balance, to Roberts (1995 apud Junior Alves, 2006, p.40) "mechanisms for identification of visual stimuli are essential for the control of postural balance, indicating the CNS, turnover the body in relation to the environment."

The vestibular system has the function to send information about the Earth's gravitational field (Merfeld 1999 apud Mochizuchi and Amadio, 2006), and contributes mainly at the end of a dynamic balance task (Shupert and Horak 1999 apud Mochizuchi and Amadio, 2006). Mochizuchi and Amadio (2006) report that the vestibular system is somatosensory, differing from the others, because their receptors are found throughout the body and respond to different stimuli such as touch, body position and temperature. These sensors are classified as mechanoreceptors and proprioceptive receptors, whose function is to identify the position of the body to help identify the things around us and guide movements. In the absence of information from the receivers, the movement is impaired.

Thus, the postural control consists of arrangements of body segments based on sensory information from different sources. These allow you to make an internal representation of the outside world, recognizing and reporting the position and movement of each body part. It is observed that the abundance of information is a fact that guarantees stability even in the posture of a system failure.

## 2.1. Decline of physiological and biomechanical

The limitation of mobility, physical performance and decrease in age may also be a result of the decline of physiological functions, such as reduced bone mass and muscle from the stress joint and postural disruptions. After 65 years, as stated Podifadlo [et al] (1991 apud Alves Júnior, 2004) is the reduction of mobility, making it difficult maneuvers used during walking and daily control of how to turn the body and remain in a standing position, generating the serious problem of functional dependence.

Another problem that can lead to falls, which is due to the decline of physiological functions is the reduction of muscle strength, which generates extreme inability to support his weight. According to Egri [et al] (1999 apud, Alves Júnior, 2006) with aging is the erosion of joints and changes in hyaline cartilage, making them thinner and begin to appear cracks and crevices on the surface. It also occurs in the intervertebral discs increased fibrous elements, reduction of elastic and loss of water in the core, making it prone to degeneration of the joints apofisiárias.

Papaléo Netto (2001) in their studies reported that the skeleton undergoes reduction of its mass due to the imbalance between the absorption and resorption, with a predominance of the latter. It is the decrease in bone density called osteoporosis, which is one of the most common causes of fractures in case of falls. Alves Júnior (2006) asserts that one of the mechanisms to ease this process is to stimulate, through physical activity, increased information of the sensory system, which will ensure postural stability and reducing the process of decline of muscle and bone mass. And also, can improve the motion, reducing joint wear, activating the muscle action and restructuring the position.

## 3. THE METHOD OF EDUCATION OF THE MOVEMENT

### 3.1. Interview

To strengthen the theoretical and methodological proposal interviewed the Bertazzo, author of the method of "Education Movement," in order to collect views on the relationship of method to the prevention of falls in older people, in order to detect relevant information to the methodological strategies used. The feasibility of consent and participation of the film was made possible and facilitated by reference to the fact the author of this article at the time of writing attend the last module of the training method. The interview was filmed at the School of Education Movement in São Paulo, during the interval between lunch and start the course. It ordered the respondent to make a brief explanation on the subject, which is presented which read as follows:

"Hi, have some very interesting that we end up not reflecting on. You see that in our culture we spend hours sitting in chairs and with the years preventing the shortening, ... You ever see your grandmother sewing a button sitting on the floor? So sit on the floor and cross your legs requires elasticity, but I think more than ever you get out "of standing," you go to the floor and it's an adaptation and modification of the muscle very interesting that we reduce our lives.

One of my greatest delights in the work of seniors, are you putting it on trampolines, of course holding hands, for it to work to propel the body will lose through the years due to the impact on each step, arthritis in already built. It is rolling on the floor, rolling on the floor because it is not just for the kid who does judo or the master of kung fu. Roll gently to the ground, curl up and running, so for the elderly is critical, he did not fear that the ground is down there, because if the body falls is fracture.

One of the important things are the psychomotor exercises for that intelligence is always associated with the need to build mass in the muscular muscular. Se existing fibrosis and retraction, I understand that we do mass in the elderly, but with great care, because often it takes the dumbbell and fibrosis more inserts. So, small exercises with sticks are more important and useful in that it does not age here. For ages the gesture first, second skin and finally muscle. Muscle is what survives in the bone rota. Agora everything depends on it. Bone needs many setbacks ... bone-like percussion ... bone like to be vibrated. Bone likes to fight against gravity (Bertazzo, 2007).

### 3.2. Method

The Method of Movement Education, created by Ivaldo Bertazzo in the 70's, is composed of three lines that interacts in his technique of Indian dance; chains muscle and joint pain, motor coordination.

The first line, the Indian dance, has great complexity of rhythmic structures executed with precision. Sequence is produced at different speeds, directions and plans, working concepts of laterality, depth and verticality, and especially in abdominal strength. This dance has implications for the direction of the body, and complex elements that each part of the body can transmit. Tensions act alternating movements, seeking stability, and the body has intermittent struggle against gravity, in constant opposition to restoring the balance (Bertazzo, p.18, 2004).

Bertazzo (2004) states, in turn, the muscle chains, which constitute the second line of the method, together three approaches, which are presented by Struyf (1995), author of Muscular Chains technique. The first is the reading of the types of individuals seeking to individualize the choice of techniques according to the specific need of the patient. The second is in a dialogue to define a psychophysiological field, defining the strengths and weaknesses for an approach and an appropriate body of work. And the third is the awareness of the use of body smoothly to preserve its mechanics.

So, think, view, perceive a bone, that is, our bone structure, our customer, is a process that consolidates the mind-body and is essential to define how to live as one to be active and creative (Struyf, 1995, p.14). Thus, Struyf states that the erroneous image that has the body and its functioning, must be experienced to be built right images essential to work more easily and to prevent incorrect movements to accelerate the wear.

Alves Júnior (2006) defines the method of Struyf (1995) as a study of the integration of body functions and its links with the psychology. Struyf (1995) examines the human form in standing position and the overall drive and reports that the gesture is marked by the psyche. Describes six muscular chains through which the body is expressed and correlates the prevalence of these chains with postural change as a modeling method of adjustment osteoarticular and regulation of muscle tension. The body is shaped and developed through support, exercises involving isometric contractions, stretching, posture and modeling associated with massage.

Bezériers and Piret (1992), authors of the third line of the method of the Movement Education, define what is taught how to behave in practice it is the ideal motor coordination, which allows the recovery of the fundamental movement. Anatomy and physiology of motion unite in a gap between the body structure and gesture that is. This fact is seen as the main reason of small or large deformities that prevent the comfort of the body. Every gesture is born psychic, but by means of motor coordination can then restructure the individual according to the movement. The body works as a whole. Alves Júnior (2006) also refers to the technique Piret and Béziers, which reports that the authors explain the importance of accessing the muscles pluriarticulares monoarticular in the organization and coordination of the latter. It also exposes the existence of a right by which one can roll up and straighten the body and cross-system, through which one can twist the trunk and switch legs and arms. Thus, the subject acquires knowledge of motion and how are the twists that make the muscles through the execution of these movements during daily life.

So Bertazzo reports that the exchange of these three languages, self-awareness, experimentation with organic opportunities and the integration of the body, which are submerged in the method of re-education of movement, which leads to "reach presentification your device body ( Bertazzo, 2004, p. 13).

The movement, comes to a body structure that provides freedom of movement. The body posture occurs

spontaneously as a result of a sequence of movements which are linked and trigger and the balance of bodily tensions. Bertazzo (2004) proposes that the concentration in the perception of gesture and multiple sensations of fluctuations and voids could lead us to know the more intimate experience of each one of us and also the general operation of motor mental functions.

Bertazzo (1998) compares the movement and exercise to our body with the work of the potter's wheel: i) in its ride around in to move it represents the will to create something to take shape, ii) the constant movement Rotary is the matter that is subject to the gravitational force acting continuously on the human body, iii) the clay before the turn around is equivalent to the human body continually pressured by the law of gravity and mobilized by their elementary particles. And his continuing search for movement and form that will provide the balance iv) touching the touch of the potter in search of the structuring function of the movement, v) the appropriate pressure on the clay for the making of the pot to the intensity or endurance exercise.

Bertherat (2001, p 95) supports this idea and states that "the work is to make the autonomous individual, owner of his body." In the conquest of independence, the subject must become aware of the organization's own motion, seeking to know yourself. If not, will always seek authority outside of himself to the doctor, the medicine and treatment. "Never again will belong to the body if he does not decide the possession of it" (Bertherat, 2001, p 95).

According to Dychtwald (1984) self-consciousness is different from being aware, ie can be aware of events external to me, without being aware of me. Being aware of itself requires the simultaneous presence and integrated all the components of the structure: attention, sensation, movement, awareness of size, among others. The author summarizes the intent of this idea by stating that "The harmony between what is perceived about themselves and what it is, it is the origin of any task of rebuilding the image of himself" (p. 10).

There is a close relationship over the thought Bertherat, Bertazzo, Dychtwald and Struyf and students of neuroscience and psychomotor. As an example of this fact, Fonseca (1995) confirms the ideas about body awareness and explicit in his speech about the concept of the body, which states that the child's progress is synonymous with the knowledge and awareness ever deeper in your body. Thus, the child is his body, because it is through him that draws all life experiences and organize the entire personality. The notion of the body in a word is the psychic. It is the body that we recognize what we are.

According Keleman (1992), which discusses the emotional anatomy, the anatomical procedure is a powerful and profound wisdom, which originate in the internal images of feelings. The external forms of the body and forms of internal organs tell us about cell motility, the organization and the movement of the psyche and soul. Feelings are the glue that keeps us whole and are based on anatomy. And Godwin (1992) interacts with the idea of other authors discussed in this study to claim that the forms reveal who we are and where we are in our universe, through the forms and formats that a man lay down his life, classifies it as an owner or victim of life (apud Godwin Keleman, 1992, p. 8)

In the area of psychology find Lowen (1982) that shares and helps with the lines above, relating the importance of acting in the body blocks, which generate insensitivity and chronic muscle tension and blocking free speech. It also points out that it is through the body that makes contact with the world, uncovering, expressing the intensity of the presence in the world, pointing to the self of each one. Reich (1995 apud Junior Alves, 2006) found that the body is contained in the history of each individual and exemplified the muscle armor that come from the chronic stress acquired throughout life, whose function is to protect the individual from painful experiences and threatening.

Struyf (2001 apud Junior Alves, 2004) cites Mézières that demonstrates the relevance of the fact that the tension and muscle contraction affect mainly the areas of the posterior muscles of the trunk and lower limbs, the internal rotators of the hip and the diaphragm. And the importance of stretching the muscles retracted as opposed to strengthen those who are unable to act. The body also is seen compressed by the force itself and from the shortening of the large muscle groups has caused the most deformation, the joint pain that can be treated by exercise alone. Knowing your own body the individual learns to stretch and relax the muscles tense and withdrawn. (Struyf, 2001 apud Junior Alves, 2004, p.88). Bertherat (2002) who was a disciple of Mézières, explains that the posterior chain is a force that dominates the rest of our muscles, inhibiting the abdomen, diaphragm, our impulses and erotic movements. The author emphasizes the importance of body awareness is the first step towards the welfare.

Bertazzo (2004) corroborates stating that "People should be present in your body and get your body to present itself, so the gestures take on meaning when the body is repositioned in the life" (p. 13). Alves Júnior (2004) adds saying that should use this knowledge presented by the authors, assuming that there is a tendency to remove the individual attention of one's body and take it to other outbreaks. Bertazzo (2004) raises a major issue on the very fast pace of our society, pouring much more information than we can absorb. He believes that understanding the coordination, allowing perceive routine activities like walking, repeating a trend observed, brings out inner feelings that make up your map refinement of gestures.

Cury (1998), author of the method of intelligence multifocal, through the bias of Psychiatry, adds new information that support the principles of this discussion. It portrays the existential manifestation of the syndrome, resulting from a socio-educational trajectory in which the subject internalizes little, little demand for himself and knows little of himself. The author presents a rich symptomatology expressed by the contrast between the excess of information about the world extrapsychic over the intrapsychic. Thus, proves to be a serious crisis of interiority that makes the subject vulnerable because it reduces the ability to work the existential angst, the development of humanism and citizenship, the ability to cope with loss and frustration and questioning of psycho-cultural paradigms. Those who experience this syndrome becomes an existential hole, which passes through life without putting down roots, struggling to expand the art of thinking and accept criticism, admitting weakness, overcoming frustrations and failures using them to solidify the foundation of wisdom (Cury, 1998, p.19).

Alves Júnior (2006) exposes the great value of studies Bertherat (2002), Struyf (1995), Beziers and Piret (1986) and Mezières (2001) when he says that further understanding of the coordination of movement, knowledge of one's body and muscle chain. Reports, too, the fact that the innate potential adaptive body, which declines progressively, reducing the adaptability and flexibility in terms of trauma, injury, postural defects and emotional problems. Realize, too, the importance of prevention work as a series of changes characteristic of aging.

#### 4. CONCLUSION

As stated in the theoretical content of this work, aging is a gradual process and some factors may be crucial to reduce the decreases due to aging.

Thus, the Method of Movement Education, Ivaldo Bertazzo technique, is presented as a proposal to reduce the incidence of falls in older people, and benefits to promote a better quality of life.

Other beneficial effects relevant in the light of the fact that the method has global scope, if present, connecting the psychological, biomechanical, physical and emotional. Such as improved quality of sleep, reduced pain and body tension, improved posture, greater emotional control in daily living, among other factors.

So is the suggestion to extend this study, checking for the hypothesis that the Method of Movement Education can act in different age groups and prevention of future falls, reducing the process of aging and decline in quality of life.

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**EDUCATION MOVEMENT IN THE PREVENTION OF ELDERLY FALLS: TECHNIQUE IVALDO BERTAZZO****ABSTRACT**

The human aging is responsible for decreases in the organic functions, reducing the health and the life quality. A very serious problem which can lead the aged to incapacity, to low life quality and also to precocious death is the incidence of falls. Among others factors, these falls occur due to the losses the aged show in movement coordination and in psychomotor and proprioceptive stimulation. A set of tools which can possibly perform significant reduction of aged people falls can be found in the method of Ivaldo Bertazzo called "Educação do Movimento" (Movement Education). In compliment, qualitative resources have been used, as an interview with the method author. The results point to improve the efficiency of this method application to prevent aged people falls.

**KEYWORDS:** human aging, fall, education movement.**MOVEMENT D'ÉDUCATION DANS LA PRÉVENTION DES CHUTES AGEES: TECHNIQUE IVALDO BERTAZZO****RÉSUMÉ**

Humains entraîne le vieillissement de la baisse des fonctions de l'organisme, réduisant ainsi la santé et la qualité de vie. L'un des graves problèmes que les personnes âgées peut conduire à l'invalidité, la mauvaise qualité de la vie et même la mort précoce est l'incidence des chutes. Entre autres facteurs, tels les chutes se produisent en raison des pertes que les personnes âgées ont en leur coordination motrice et de leur psychomotricité et les stimuli proprioceptifs. Est la méthode de "l'Education" mouvement des Ivaldo Bertazzo un ensemble d'outils qui peuvent agir pour réduire de façon significative l'incidence des chutes chez les personnes âgées. Que des ressources que d'un entretien avec l'auteur de la méthode. Les résultats montrent à l'évidence de l'efficacité de la méthode dans la prévention des chutes chez les personnes âgées.

**MOTS CLÉS - MOTS-CLÉS:** vieillissement, chute; mouvement d'éducation.**MOVIMIENTO DE LA EDUCACIÓN EN LA PREVENCIÓN DE LAS PERSONAS MAYORES CAÍDAS: TÉCNICA IVALDO BERTAZZO****RESUMEN**

El envejecimiento humano conduce a la disminución de las funciones del cuerpo, la reducción de la salud y la calidad de vida. Uno de los graves problemas que los ancianos puede llevar a la discapacidad, la mala calidad de vida e incluso la muerte prematura es la incidencia de caídas. Entre otros factores, tales caídas se producen debido a las pérdidas que los ancianos tienen en su coordinación motora y su psicomotricidad y estímulos propioceptivos. Es el método de "Movimiento de Educación" de Ivaldo Bertazzo un conjunto de herramientas que pueden actuar para reducir significativamente la incidencia de caídas en los ancianos. Dado que lo recurso se utilizaron una entrevista con el autor del método. Los resultados apuntan a la evidencia de la eficacia del método en la prevención de las caídas en los ancianos.

**PALABRAS CLAVE:** envejecimiento; caída; movimiento de la educación.**A EDUCAÇÃO DO MOVIMENTO NA PREVENÇÃO DE QUEDAS DE IDOSOS: TÉCNICA DE IVALDO BERTAZZO****RESUMO**

O envelhecimento humano provoca declínios nas funções orgânicas, reduzindo a saúde e a qualidade de vida. Um dos graves problemas que podem levar o idoso à incapacidade, a baixa qualidade de vida e até à morte precoce é a incidência de quedas. Entre outros fatores, tais quedas ocorrem em virtude de perdas que os idosos apresentam na sua coordenação motora e nos seus estímulos psicomotores e proprioceptivos. Encontra-se no método de "Educação do Movimento" de Ivaldo Bertazzo um conjunto de instrumentos que pode atuar de forma significativa na redução da incidência de quedas em idosos. Como recurso utilizou-se uma entrevista com o autor do método. Os resultados apontam para a comprovação da eficácia da aplicação do método na prevenção de queda de idosos.

**PALAVRAS - CHAVE:** envelhecimento; queda; educação do movimento.PUBLICAÇÃO NO FIEP BULLETIN ON-LINE: <http://www.fiepbulletin.net/80/a1/162>