

## THE “BIODANZA SRT” PROPOSAL IN NEURODEGENERATIVE DISEASES

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### ABSTRACT

**Introduction:** Recent evidence suggests that therapeutic dance may be an appropriate form of physical activity for some individuals with Neurodegenerative Diseases. Rolando Toro's Biodanza System (SRT) is a therapeutic strategy of human development and growth that integrates movement, music and emotions to induce motor, relational and emotional experiences.

**Case presentation:** By drawing on Neuroscientific research, the authors describe therapeutic aspects and the use of “Biodanza SRT” in clinical cases of Neurodegenerative Diseases. By involving people on a physical, mental, emotional, and social level, the aim is to create new movement patterns integrating the individual's emotional and motor components, in order to generate adaptive responses aimed at strengthening the self-esteem and self-efficacy of the communication-relational skills.

**Conclusion:** “Biodanza SRT” represents an innovative and effective strategy that, in short terms, allows for the increase of psychological, general motor, and emotional-relational well-being, and the consequent improvement of Quality of Life (QoL).

**Keywords:** Autism, Pet-Therapy, Motor Disorder.

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### Motor deficits

Neurodegenerative diseases such as Alzheimer's disease (AD), Parkinson's disease (PD), Multiple Sclerosis (MS), Amyotrophic Lateral Sclerosis (ALS), constitute an important portion of the numerous pathologies of the Central Nervous System, with a progressive chronic degenerative course. In clinical terms, they are characterized by the appearance of motor and/or cognitive dysfunction, dementia, memory disorders, the formulation of ideas, language, personality and affectivity, changes in the sleep-wake rhythm, moodiness; over time, they determine an inexorable loss of autonomy in patients by greatly affecting the quality of life, and requiring pharmacological and human support in an ever more indispensable way.

There has been a growing interest for a long time in research regarding purely rehabilitative

treatments through Motor Activities, aimed at improving the motor symptomatology of these patients<sup>(1-6)</sup>.

In recent years there has been an exponential increase also in the use of some Complementary Physical Therapies like Dance, proposed not only to optimize the patient's mobility and the motor skills but, at the same time, to induce a pleasant moment useful to improve Well-being, Social Inclusion and quality of life<sup>(7-13)</sup>, thus trying to close the gap left by Conventional Physical Therapies sometimes associated with poor adherence and long-term compliance. In particular, dance has proved to be a very beneficial activity thanks to the combination of attentive solicitations with highly selective and specific motor tasks.

In addition to being a highly engaging and aggregating physical activity, dance seems to enhance body awareness and well-being perception,

improving the control of movement through the use of sensorial stimuli, cognitive strategies, creativity, and rhythm. The American Dance Therapy Association (ADTA) defines Dance/Movement Therapy (DMT) as “the psychotherapeutic use of the movement to promote the individual's emotional, cognitive, physical and social integration”. While in the teaching of Dance emphasis is placed on learning Dance as an artistic practice, often focusing on particular dance styles (contemporary, contact improvisation, tango, Irish Dances, Popular Dances, and Ballroom Dance) that can also help relieve the symptoms and improve the quality of life.

Starting from a lack of research that examines the physical, mental, social and emotional benefits of dance and the way they are closely related to each other, it appeared necessary to have an increasingly broader framework with the growing trend regarding a global (holistic) approach, which sets the attention not only on the changes of clinical signs but on how dance particularly influences people in all aspects of their life; this a framework that allows (and more and more encourages) the analysis of dance experiences for people with Neurodegenerative Diseases at different levels: physical, mental, emotional, and social/relational. “Biodanza SRT (Rolando Toro's system) is part of the Dance/Movement Therapy as an alternative treatment in the framework of the integrated interventions among the Complementary Physical Therapies.

### Case Presentation

“Biodanza SRT” (Rolando Toro's System) stems from Rolando Toro Araneda's personal experiences, studies and research; the Chilean psychologist and anthropologist, in the 1960s, starting from the centrality of body and movement as an expression of life, decided to create the “Biodanza Pedagogical System”. The term Biodanza comes from the Greek prefix Bios, which means “Life”, and the French word Danse, meaning an “Integrated emotional movement”, and its translation is: “The Dance of Life”. Biodanza is a system of Human Integration, of organic renewal, of emotional re-education and of re-learning of the original life functions, which favors an Existential (biopsychosocial) Rehabilitation and a Personal Empowerment. It sets itself as Holistic Social Pedagogy with bod-

ily mediation based on a Biocentric education (life put at the center), and finds its foundations in the sciences concerning life and, in particular, in biology and physiology, by also taking inspiration from the foundations of Psychology, Anthropology, Sociology and the most recent Neuroscientific and Human Sciences research. Through the Biocentric Education, the “Biodanza SRT” methodology aims to promote the integration between learning and “embodied” knowledge by means of the body languages and emotions, in order to facilitate affective education and the person's overall and harmonious development.

“Biodanza SRT” is a system of personal growth and human evolution that awakens the attention paid to oneself, others and context, to sensitivity and empathy, so as to gradually increase self-confidence, self-esteem, self-efficacy, ability to listen and the strengthening of the identity, improving the well-being and the quality of personal and social life. The Innovative Methodology of “Biodanza SRT” proposes experiences lived in the “group” (as a strengthener of identity and sense of belonging to a common feeling) and is strictly based on a Gestalt, using specific exercises generated by the interaction between: music (universal language), movement (natural expression of the human being), emotion (existential sensibility), vivencia (the moment lived with intensity in the “hic et nunc”: in the “here and now”), encounter (as a reinforcement of identity and belonging), thus representing a place of human encounters, where the everyone's differences are recognized, valued and accepted in the broadest feeling of belonging to Humanity. Participants in the active treatment groups follow a “Biodanza SRT” program organized into a 2-hour weekly meeting for at least 12 weeks (3 months).

Every “Biodanza SRT” session is structured in two phases: one involving the sharing, verbalization and restitution of initial experiences, and another-motor/experiential/vivencial one, which provides for the proposition of Dances/Exercises structured in relation to the original theoretical model, calibrated according to the type of user and proposed following a physiological curve providing for a first activation phase (intensification of the self-consciousness) and a second regression phase (amplification of the self-consciousness); they can be performed individually (to develop self-perception), in pairs (to develop the perception of feedback, active listening, respect and care), in small groups and/or

with the whole group (to experience healthy relationships through an affective communication with oneself and others, and with the surrounding world). The Biodanza group function is essential that to realize a process of personal and social change, because it induces new forms of communication and emotional bond. The group is a matrix of rebirth in which each participant finds the affective and permissive control of his own change.

The presence of the "similar" changes the person's functioning at all his levels, both organic and existential<sup>(13)</sup>. During the Biodanza session a real "empathic network" is developed, which constitutes, in all respects, a group intersubjective space within which there is a continuous exchange of experiences, an emotional resonance and a mutual recognition allowing the participants to be reflected in each other, to recognize themselves, to discover one another reciprocally, by strengthening one's own identity and restoring awareness of one's own transformation and change process<sup>(14)</sup>.

Owing to the discovery of the Mirror Neurons, happened by chance thanks to a group of Italian researchers<sup>(15)</sup>, further research provided other experimental data that indicate the possible role of the MNs not only in learning complex motor sequences by imitation, but also in understanding others' intention and emotional states (mechanism of empathy). It is the body that, starting from the prenatal age, allows us encountering the world. We are "embodied minds"; mental processes are developed and modulated by our corporeity, and empirical data show that intercorporeity is the basis of intersubjectivity<sup>(16)</sup>, which can be defined as the ability to understand immediately the neighbor's emotions, desires and intentions, and share these experiences with others. Empathy is at the root of intersubjectivity without which most social relationships would not be possible. It is indispensable for the preservation of the human race which, otherwise, would have been brought to self-destruction<sup>(17,18)</sup>.

The way we work is also influenced by the physical and social environment in which we are. Starting from Hebb's research, followed by that carried out by Rosenzweig and Bennet and Van Praag H, Kempermann G. and Gage FH<sup>(19,20)</sup>, a series of experiments were carried out on rats in different test conditions, enriching the environment with inanimate stimuli (wheels and tunnels) and with social stimuli (increasing the number of rats per cage), thus demonstrating the association between

environmental enrichment and cerebral changes (increase in the cerebral cortex). The Enriched Environment is an environment that, by providing motor, perceptive, cognitive and social stimuli, modifies the brain both functionally and structurally. The general definition of this term is "A combination of inanimate and social stimulation". The brains of people living in richer and stimulating environments therefore show an increase in the number of synapses and glial cells, due to synaptic plasticity and neurogenesis.

The central issue in modern neurobiology is Neuronal Plasticity: the ability of neurons to change the connections of their dendrites and neurites, and create new synapses, i.e. the possibility of a continuous renewal of the nervous system. From the research on the effects of a three-month "Biodanza SRT" treatment in patients with Parkinson's disease, a significant improvement of the Gait parameters emerged, with a parallel improvement of the clinical status too. Improved gait spatial-temporal and kinematic parameters in the UPDRS-III score were observed, while, in the neuropsychological parameters, a significant increase in the performance of the deferred re-enactment of verbal material included in the PD-CRS was observed; in addition, a reduction in cognitive apathy with a tendency to relevance was found<sup>(19)</sup>.

Some research proved the effectiveness of Biodanza on the regulation of one's own behavior, on the stress management, on the promotion of a certain degree of serenity, optimism, autonomy, on the mastery of the environment in which a person finds himself, on the adoption of autonomous actions and on the establishment of positive relationships with others<sup>(20,21)</sup>. From the study "Passi verso la felicità: il valore della Biodanza per promuovere l'inclusione" (Steps towards happiness: the value of Biodanza to promote inclusion<sup>(22)</sup>), experienced in the field of mental health, participants discovered a greater ability to "perceive one's own individuality and, at the same time, one's own similarity with others, not perceiving themselves as "different" but as part of a group".

Participants rediscover their uniqueness, and in this way they experience the joy of existing, which becomes contagious in this context, thus rediscovering the pleasure linked to the body, the ability to get excited and enter into a relationship with the other with whom, during the dance, a meaningful emotional and empathic bond is established, so much so that we speak of Biodanza as

poetics of the encounter<sup>(23)</sup>. The “Biodanza SRT” system is not considered as a therapy as it does not act on symptoms, conflicts, and disorders; in a therapeutic way, it stimulates the "healthy part" and its inclusion in programs or protocols: it is not intended as an "alternative" proposal but as a further strategy to be integrated with the actions already implemented in the different contexts. A fundamental characteristic of the “Biodanza SRT” system is represented by its Universality as it is an educational method with a heterogeneous and transversal application; in fact, it is suitable for men and women of all ages, and is promoted in specific groups (children, adolescents, adults, elderly people, families, professionals, athletes, etc...) in educational, mental health, socio-health, rehabilitation, penal, and business contexts, and so on.

## Discussion

Biodanza is a system of acceleration of the integration/inclusion processes: it is existential, psychological, neurological, immunological and endocrinological (PNEI). His practice is carefully based on the creation of an environment enriched with selected stimuli. The proposal, through music and exercises, can generate dynamic experiences that stimulate neuronal plasticity. Experiences stimulate the creation of new synaptic networks that awaken a series of possibilities, which had no form of expression before. It is a highly integrative process bringing healing and preventive effects". According to this definition it must be agreed that Biodanza itself is an enriched environment: a space in which we welcome and are welcomed by the other, we stimulate and we are stimulated by the other, and where human relationships are at the basis.

We believe that Biodanza can respond to a model updated and adapted to rehabilitative treatment pathways in neurodegenerative diseases, due to the presence of an environment particularly rich in stimuli; it allows for the development of neuroplasticity as it has proved to be a form of effective rehabilitation even in the short term, able to produce by increasing psychological well-being, acting positively on mood, self-esteem, self-efficacy, affectivity, acceptance of oneself and one's own illness, and socialization. Moreover, it allows for the improvement of physical well-being and motor skills in general (balance, walking, postural attitude, coordination, proprioception), improving the quality of life.

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