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Original article

TANGO PRACTICED BY PARKINSON'S DISEASE PATIENTS, AN INNOVATIVE FORM OF IMPROVING THE QUALITY OF LIFE

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Abstract

Objective. Studies performed on the subject, have related that dancing, especially tango, can be an useful instrument in improving the quality of life in patients with Parkinson's disease. Argentine tango enhaces cognitive caracteristics that include the multiple tasking area that is important in Parkinson's disease patients.

Methods. The purpose of this study was to compare the outcomes of two lifestyles: tango courses and normal routine. Eight subjects with Parkinson's disease were randomly assigned to a tango group, consisting of four subjects, being compared to a control group consisting of four subjects who did not perform physical activities. The subjects from the tango group performed a total of 25 tango courses and were evaluated at the beginning of the period and at the end of the period.

Results. The tango group has shown significant improvements in general Unified Parkinson's Disease Rating Scale (UPDRS) score and subjective improvements, in the area of emotions and mental activity. In addition, the tango group showed significant improvements on the Berg Balance Scale. Future research is needed with a larger batch of patients to check and expand our hypothesis that tango can be a successful intervention to improve functional mobility problems in people with Parkinson's disease.

Conclusions. Future studies with a larger sample are needed to confirm and extend our observation that tango may be an effective intervention to target functional mobility deficits in individuals with Parkinson's disease.

Keywords: Parkinson's disease, tango, dance therapy, quality of life.

Introduction

Parkinson 's disease is a frequent neurological condition, which is estimated to affect more than 4 million people worldwide. Despite the scientific and medical efforts that are being made, no cure has yet been found to cure patients of Parkinson 's disease, but the new treatment schemes significantly improve their quality of life.

Parkinson's disease is a degenerative disease that occurs as a result of the slow and progressive destruction of neurons. since the affected area plays an important role in the control of movements, patients exhibit rigid, jerky and uncontrollable gestures, tremor and postural instability. Disorders related to Parkinson's disease occur most often after the age of 57. At first, symptoms can be confused with the normal aging process, but as they worsen, the diagnosis becomes evident.in the time of the first symptoms, it is believed that between 60% and 80% of the cells in the area of control of the activities motors are already destroyed. Parkinson's disease has a progressive evolution, and signs and symptoms accumulate over time. Although this condition is potentially invalid, it evolves slowly so that most patients benefit from many years of active life after diagnosis. Moreover, unlike other serious neurological conditions, Parkinson's disease is treatable. The treatment is medicinal and chirugical but can also consist of implanting a device to stimulate the brain.

Signs and symptoms

The three cardinal signs of Parkinson's disease are: resting tremors, stiffness and bradykinesia.In 70% of cases, uncontrollable rhythmic gestures of the hands, head or legs are the first symptom and manifest mainly rest and during stress periods. Tremor is diminished during movements and disappears in the sleep, is stressed and tired. Tremor becomes less apparent as the disease progresses

Stiffness refers to increased resistance to passive mobilization of muscles and is more evident with the voluntary movements of the counterlateral limb. Bradykinesia refers to the slowness of the misses, but it includes the decrease in spontaneous movements and the decrease in the amplitude of movements. Bradykinesia is visible by micrography (small, illegible handwriting), hypomyaemia (diminishing mimics), rarely blinking and hyposophthabemia (diminished voice).

Postural instability refers to balance and coordination disorders. Its appearance is an important stage in the evolution of the disease, because postural instability is difficult to treat and is a common source

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of disability in the advanced stages of the disease.

Dementia occurs belatedly in the evolution of Parkinson's disease and affects 15% –30% of patients. Recent memory is affected.

Recent studies state that dancing can also be useful as a therapeutic tool to improve mobility features as well as balance and complex tasks of going to healthy elderly people. Dance therapy has been prescribed for the elderly in order to improve or preserve their possible movement capacities. In one study, a group of patients with parkinson's disease who participated in outdoor movement showed improvements in the initiation of movement.

Falls are one of the major causes of deaths and producing comorbidities in older adults, and falls can cause different pathologies in the psychosomatic sphere, namely: fear of falling, reduced quality of life, withdrawal from activities, and narrowing of everyday activities. Changes in joint movements of resistance, myoartokinetics and reception and sensory integration contribute to decreased steady stability with increased age, and these changes are present in patients with Parkinson's disease

Methods

Two groups of patients with Parkinson's disease were observed over 6 months. One group was assigned non-drug therapy through dance, with tango lessons and hours, and the control group was advised to continue their activities naturally. The tango group was given 25 courses, in which patients with Parkinson's disease learned dance steps and practiced these steps, according to the possibilities of each one. Before and after 6 months, each patient from both groups was performed the UPDRS and Berg Balance Scale questionnaires.

Results

The first patient from tango group, S.S., male, 58 years old, diagnosed with Parkinson's disease 5 years ago. The patient has global bradykinesia, hypomimia, and resting tremor more pronounced on the left limbs. At the Unified Parkinson's Disease Rating Scale, the patient scored 63 points. The patient has mild intellectual impairment, no thought disorder, sustained depression with vegetative symptoms (depression, loss of interest), loss of initiative or disinterest in routine activities. The patient's speech is mildly affected, his salivation and swallowing are normal. Also, his writing is moderately slow and small. He can feed himself, with minor difficulties in cutting food and handling cooking utensils. Its dressing mode is slowed down, especially when handling shirts with buttons. His way of maintenance from the point of view of hygiene is slowed down. The patient had no falls and rarely had episodes of freezing. His walking is slow, with the tendency to stretch his legs. The patient's tremor is moderate. Occasionally the patient has numbness, tingling, or mild aching. His speech presents light loss of expression. The patient presents with minimal hypomimia. His tremor at rest and his intentional tremor are moderate in amplitude and persistent. His rigidity on passive movement is mild to moderate. His finger taps, hand movements and rapid alternating hands movements and leg agility are moderately impaired. In his arising from a chair, the patient pushes himself up from the arms of the seat and presents a moderately stooped posture. Also, his gait consists of walking with difficulty, with absence of postural response. The patient presents with a mild degree of slowness and poverty of movement which is definitely abnormal. Alternatively, some reduced amplitude. On the other hand, the patient presents with mildly disabling, mild painful dyskinesias for 1-25% of the day. The patient presents with insomnia many days per week and occasionally nausea. The patient is stage 3 at Modified Hoehn and Yahr Staging. The patient is not completly independent at Schwab and England Activities of Daily Living Scale. The patient obtined 30 points at Berg Balance Scale. After the 6 months of tango sessions, the patient obtined 58 points at the Unified Parkinson's Disease Rating Scale, with the decrease of depression and insomnia symptoms and improvements in the patient’s walk, also, he obtained 36 points at Berg Balance Scale, with improvements in the following: turning to look behind, turning 360 degrees, sitting to standing, standing on one foot and standing with one foot in front.

The second patient from tango group, T.S., female, 63 years old, diagnosed with Parkinson's disease 7 years ago. The patient presented with global bradykinesia, hypomimia, and resting tremor more pronounced on the right limbs. At the Unified Parkinson's Disease Rating Scale, the patient obtined 72 points. The patient has moderate intellectual impairment, with rare „benign” hallucinations, moderate depression with vegetative symptoms (depression, anhedonia), loss of initiative or disinterest in non-routine activities. The patient's speech is moderately affected, she presents hypersalivation, but the swallowing is normal. Also, her writing is moderately slow and small. She can hardly feed herself, with important difficulties in cutting food and handling cooking utensils. Her dressing process is slowed down. Her hygiene maintenance is slowed. The patient had no falls and rarely had episodes of freezing. Her walking is slow, with the tendency to stretch her legs. The patient's tremor is moderate. Frequently the patient has numbness, tingling, or mild aching. Her speech presents moderate loss of expression. The patient presents minimal hypomimia. Her tremor at rest and her intentional tremor are moderate in amplitude and persistent. Her rigidity on passive movement is moderate. Her finger taps, hand movements and rapid alternating hands movements and leg agility are moderately impaired. In her arising from a chair, the patient pushes herself up from the arms of the seat and presents a moderately stooped posture. Also, her gait consists of walking with difficulty, with absence of postural response. The patient presents with a moderate degree of slowness and poverty of movement which is definitely abnormal. Alternatively, some reduced amplitude. On the other hand, the patient presents with mildly disabling, mild painful dyskinesias for 1-25% of the day. The patient is stage 3 at Modified Hoehn and Yahr Staging. The patient is not completly independent at Schwab and England Activities of Daily Living Scale. The patient obtined 36 points at Berg Balance Scale. After the 6 months of tango sessions, the patient obtined 68 points at the Unified Parkinson's Disease Rating Scale, with the decrease of depression from moderate to mild and a decrease in insomnia symptoms

and improvements in the patient's ability to eat. Also, the patient diminued her rigidity to pasive movements from moderate to mild. She obtained 42 points at Berg Balance Scale, with improvements in the following: transfers, turning to look behind, turning 360 degrees, sitting to standing, standing on one foot and standing with one foot in front.

The third patient from tango group, A.S., male, 63 years old, diagnosed with Parkinson's disease 8 years ago. The patient has global bradykinesia, hypomimia, and resting tremor more pronounced on the left limbs. At the Unified Parkinson's Disease Rating Scale, the patient scored 69 points. The patient has mild intellectual impairment, no thought disorder, sustained depression with vegetative symptoms (depression, loss of interest), loss of initiative or disinterest in routine activities. The patient's speech is mildly affected, his salivation and swallowing are rarely impaired. Also, his writing is severely affected. He can feed himself, with moderate difficulties in cutting food and handling cooking utensils. His dressing mode is a lot slowed down and he needs help. His way of maintenance from the point of view of hygiene is moderately impaired, needing help occasionally. The patient had no falls and rarely had episodes of freezing. His walking is slow, with the tendency to stretch his legs. The patient's tremor is moderate. Frequently the patient has numbness, tingling, or mild aching. His speech presents a moderate loss of expression. The patient presents with moderate hypomimia. His tremor at rest and his intentional tremor are moderate in amplitude and persistent. His rigidity on passive movement is mild to moderate. His finger taps, hand movements and rapid alternating hands movements and leg agility are moderately impaired. In his arising from a chair, the patient pushes himself up from the arms of the seat and presents a moderately stooped posture. Also, his gait consists of walking with difficulty, with absence of postural response. The patient presents a mild degree of slowness and poverty of movement which is definitely abnormal. Alternatively, some reduced amplitude. On the other hand, the patient presents with mildly disabling, mild painful dyskinesias for 1-25% of the day. The patient presents with insomnia many days per week and occasionally nausea. The patient is stage 3 at Modified Hoehn and Yahr Staging. The patient is not completly independent at Schwab and England Activities of Daily Living Scale. The patient obtined 36 points at Berg Balance Scale. After the 6 months of tango sessions, the patient obtined 67 points at the Unified Parkinson's Disease Rating Scale, with the decrease of depression symptoms and improvements in the patient's gait, also, he obtained 40 points at Berg Balance Scale, with improvements in the following: turning to look behind, turning 360 degrees, sitting to standing, retrieving object from floor.

The fourth patient from tango group, B.V., female, 62 years old, diagnosed with Parkinson's disease 6 years ago. The patient has global bradykinesia, hypomimia, and resting tremor more pronounced on the right limbs. At the Unified Parkinson's Disease Rating Scale, the patient scored 69 points. The patient has mild intellectual impairment, no thought disorder, mild depression without vegetative symptoms, loss of initiative or disinterest in non-routine activities. The patient's speech is mildly affected, her salivation and swallowing are normal. Also, her writing is severely slow and small. She can feed himself, with moderate difficulties in cutting food and handling cooking utensils. Her dressing mode is slowed down, especially when handling shirts with buttons. Her way of maintenance from the point of view of hygiene is importantly slowed. The patient had rare falls and rarely had episodes of freezing. Her walking is slow. The patient's tremor is moderate. Occasionally the patient has numbness, tingling, or moderate aching. Her speech presents moderate loss of expression. The patient presents with moderate hypomimia. Her tremor at rest and her intentional tremor are moderate in amplitude and persistent. Her rigidity on passive movement is moderate. Her finger taps, hand movements and rapid alternating hands movements and leg agility are moderately impaired. In her arising from a chair, the patient pushes herself up from the arms of the seat and presents a moderately stooped posture. Also, her gait consists of walking with difficulty, with absence of postural response. The patient presents with a mild degree of slowness and poverty of movement which is definitely abnormal. Alternatively, some reduced amplitude. On the other hand, the patient presents with moderately disabling, mild painful dyskinesias for 25-50% of the day. The patient presents with insomnia. The patient is stage 3 at Modified Hoehn and Yahr Staging. The patient is not completly independent at Schwab and England Activities of Daily Living Scale. The patient obtined 33 points at Berg Balance Scale. After the 6 months of tango sessions, the patient obtined 67 points at the Unified Parkinson's Disease Rating Scale, with the decrease of depression symptoms and improvements in the patient's gait, also, she obtained 37 points at Berg Balance Scale, with improvements in the following: sitting unsupported, turning 360 degrees, sitting to standing and transfers.

The first patient from control group, C.A., male, 61 years old, diagnosed with Parkinson's disease 6 years ago. The patient has global bradykinesia, hypomimia, and resting tremor more pronounced on the left limbs. At the Unified Parkinson's Disease Rating Scale, the patient scored 65 points. The patient has mild intellectual impairment, no thought disorder, loss of initiative or disinterest in routine activities. The patient's speech is mildly affected, his salivation is increased. Also, his writing is mildly slow and small. He can feed himself, with minor to moderate difficulties in cutting food and handling cooking utensils. His dressing process is slowed, needing help rarely. His way of hygiene maintenance is slowed. The patient had rare falls and rarely had episodes of freezing. His walking is moderately slowed. The patient's tremor is moderate. Occasionally the patient has numbness, tingling, or mild aching. His speech presents light loss of expression. The patient presents with minimal hypomimia. His tremor at rest and his intentional tremor are moderate in amplitude and persistent. His rigidity on passive movement is moderate. His finger taps, hand movements and rapid alternating hands movements and leg agility are moderately impaired. In his arising from a chair, the

patient pushes himself up from the arms of the seat and presents a moderately stooped posture. Also, his gait consists of walking with difficulty, with absence of postural response. The patient presents a mild degree of slowness and poverty of movement which is definitely abnormal. On the other hand, the patient presents with mildly disabling, mild painful dyskinesias for 25-50% of the day. The patient presents with insomnia many days per week and occasionally nausea. The patient is stage 3 at Modified Hoehn and Yahr Staging. The patient is not completly independent at Schwab and England Activities of Daily Living Scale. The patient obtined 36 points at Berg Balance Scale. After the 6 months, the patient obtined 67 points at the Unified Parkinson's Disease Rating Scale, with the increase of loss of interest symptoms, also, he obtained 35 points at Berg Balance Scale.

The second patient from control group, B.C., female, 60 years old, diagnosed with Parkinson's disease 5 years ago. The patient has global bradykinesia, hypomimia, and resting tremor more pronounced on the rigth limbs. At the Unified Parkinson's Disease Rating Scale, the patient scored 68 points. The patient has mild intellectual impairment, moderate depression with vegetative symptoms (depression, loss of interest), loss of initiative or disinterest in all activities. The patient's speech is moderately affected, her voice being lower, her salivation and swallowing are normal. Also, her writing is moderately slow and small, being intelligible. She can feed herself, with moderate difficulties in cutting food and handling cooking utensils. Her dressing mode is slowed down, especially when handling shirts with buttons. Her way of maintenance from the point of view of hygiene is being decreased. The patient had no falls and rarely had episodes of freezing. Her walking is slow, with rare difficulties. The patient's tremor is moderate. The patient has numbness, tingling, or mild aching. Her speech presents severe loss of expression. The patient presents with minimal hypomimia. Her tremor at rest and her intentional tremor are moderate in amplitude and persistent. Her rigidity on passive movement is moderate. Her finger taps, hand movements and rapid alternating hands movements and leg agility are moderately impaired. In her arising from a chair, the patient pushes herself up from the arms of the seat and presents a moderately stooped posture. Also, her gait consists of walking with difficulty, with absence of postural response. The patient presents with a mild degree of slowness and poverty of movement which is definitely abnormal. On the other hand, the patient presents with mildly disabling, mild painful dyskinesias for 25-50% of the day. The patient presents mild insomnia. The patient is stage 3 at Modified Hoehn and Yahr Staging. The patient is not completly independent at Schwab and England Activities of Daily Living Scale. The patient obtined 42 points at Berg Balance Scale. After the 6 months, the patient obtined the same results at the Unified Parkinson's Disease Rating Scale and Berg Balance Scale.

The third patient from tango group, C.D., female, 57 years old, diagnosed with Parkinson's disease 6 years ago. The patient has global bradykinesia, hypomimia, and resting tremor more pronounced on the left limbs. At the Unified Parkinson's Disease Rating Scale, the patient scored 65 points. The patient has mild intellectual impairment, loss of initiative or disinterest in non-routine activities. The patient's speech is mildly affected, her salivation and swallowing are normal. Also, her writing is mildly slow and small. She can feed herself, with minor difficulties in cutting food and handling cooking utensils. Her dressing mode is slowed. Her way of maintenance from the point of view of hygiene is slowed. The patient had no falls and rarely had episodes of freezing. Her walking is slow, with the tendency to stretch her legs. The patient's tremor is moderate. Occasionally the patient has numbness, tingling, or mild aching. Her speech presents light loss of expression. The patient presents with minimal hypomimia. Her tremor at rest and her intentional tremor are mildin amplitude and persistent. Her rigidity on passive movement is mild. Her finger taps, hand movements and rapid alternating hands movements and leg agility are moderately impaired. In her arising from a chair, the patient pushes himself up from the arms of the seat and presents a moderately stooped posture. Also, her gait consists of walking with difficulty, with absence of postural response. The patient presents with a mild degree of slowness and poverty of movement which is definitely abnormal. Alternatively, some reduced amplitude. On the other hand, the patient presents with mildly disabling, mild painful dyskinesias for 1-25% of the day. The patient presents with insomnia many days per week. The patient is stage 3 at Modified Hoehn and Yahr Staging. The patient is not completly independent at Schwab and England Activities of Daily Living Scale. The patient obtined 34 points at Berg Balance Scale. After the 6 months, the patient obtined 67 points at the Unified Parkinson's Disease Rating Scale, with the increase of loss insomnia and depression symptoms, also, she obtained 33 points at Berg Balance Scale.

The fourth patient from tango group, T.P., male, 62 years old, diagnosed with Parkinson's disease 7 years ago. The patient has global bradykinesia, hypomimia, and resting tremor more pronounced on the right limbs. At the Unified Parkinson's Disease Rating Scale, the patient scored 67 points. The patient has mild intellectual impairment, no thought disorder, mild depression with vegetative symptoms. The patient's speech is mildly affected, his salivation and swallowing are normal. Also, his writing is moderately slow and small. He can feed himself, with minor difficulties in cutting food and handling cooking utensils. His dressing mode is slowed down, especially when handling shirts with buttons. His way of maintenance from the point of view of hygiene is slowed down. The patient had no falls and rarely had episodes of freezing. His walking is slow, with the tendency to stretch his legs. The patient's tremor is moderate. Occasionally the patient has numbness, tingling, or mild aching. His speech presents light loss of expression. The patient presents with minimal hypomimia. His tremor at rest and his intentional tremor are moderate in amplitude and persistent. His rigidity on passive movement is mild to moderate. His finger taps, hand movements and rapid alternating hands movements and leg agility are moderately impaired. In his arising from a chair, the patient pushes

himself up from the arms of the seat and presents a moderately stooped posture. Also, his gait consists of walking with difficulty, with absence of postural response. The patient presents with a mild degree of slowness and poverty of movement which is definitely abnormal. Alternatively, some reduced amplitude. On the other hand, the patient presents with mildly disabling, mild painful dyskinesias for 1-25% of the day. The patient presents with insomnia many days per week and occasionally nausea. The patient is stage 3 at Modified Hoehn and Yahr Staging. The patient is not completly independent at Schwab and England Activities of Daily Living Scale. The patient obtined 37 points at Berg Balance Scale. After the 6 months, the patient obtined 67 points at the Unified Parkinson's Disease Rating Scale, with the increase of loss of interest symptoms, also, he obtained 35 points at Berg Balance Scale, with reduction in mobility for turning to look behind and turning 360 degrees.

Discussions

By far, the most important factor that was labeled by the participants consisted of "stress reduction", because the reduction of the depression and insomnia symptoms that were related to relaxation, pleasure and mood management. The motivations for these beneficial principles are based on the pursuit of pleasure and relaxation, as well as on the belief that dance brings physical, social and emotional benefits.

Conclusions

The aim of this study was to discover whether the functional mobility outcomes are beneficial in Parkinson's disease persons during a tango dancing program. We compared the effects of tango to not performing tango in subjects with Parkinson's disease, following the fuctional outcomes before and after. We predicted that the functional mobility and quality of life is improved with tango lessons compared to the control group.

Our results suggest that tango can be a important tool and both enjoyable and beneficial activity for the patients with Parkinson's disease and that tango may bring benefits that were not gaineded with a more traditional exercise program.

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