CO59-003-e

Gait and balance training in advanced Parkinson’s disease: Comparative study of three methods
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Keywords: Parkinson’s disease; Dance therapy; Freezing of gait

Background—Objectives.—We compared the short- and mid-term effects of three rehabilitation approaches for gait and balance disorders in Parkinson’s disease (PD).

Methods.—A randomized controlled study with single blind assessment and one month follow-up was performed. Forty-three subjects (mean PD duration: 9.9 years) were randomized into 3 groups, either receiving dance therapy with Latino and Tango music (one-hour sessions, 3 days/week × 4 weeks), or balance training on a balance platform (30-minute sessions 5 days/week × 4 weeks) or treadmill training (30-minute sessions 5 days/week × 4 weeks). Assessments included 10-meter walking time (10MWT), 6-minute walking test (6MWT), Timed Up and Go (TUG), Berg Balance scale (BBS) and Freezing of Gait (FOG) Questionnaire, at baseline (T0), after treatment (T1), and 1 month later (T2).

Results.—At T1, gait velocity and balance similarly improved in all groups (10MWT, P = 0.02; BBS; P = 0.0001; 6MWT, P = 0.001), though more after treadmill training (P = 0.008). TUG score improved in all groups (P = 0.002), though more after Balance training (P = 0.04). At T2, BBS and TUG scores decreased in all groups.

Discussion.—Dance therapy was as effective as task-oriented approaches, acting as a global multimodal treatment of disabling axial symptoms in PD.

http://dx.doi.org/10.1016/j.rehab.2014.03.1208

CO59-004-e

Three weeks of cycle ergometer versus treadmill training for patients with Parkinson’s disease: A randomized controlled pilot trial
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Keywords: Parkinson’s disease; Gait disorders; Aerobic exercise; Treadmill; Cycle ergometer

Background.—Treadmill training improves gait in the elderly and in patients with Parkinson’s disease (PD). Cyclo-ergometer training improves gait in the elderly, but there is no evidence in PD patients.

Methods.—Fourteen patients were trained with treadmill (PD-T) or cyclo-ergometer (PD-C) at the same intensity, assessed with cardiopulmonary exercise testing, for 3 weeks, 1 hour/day in addition to exercises common to both groups for 1 hour/day. Outcome measures included the 6-minutes walking test (6MWT), step length and cadence assessed with a baropodometric walkway, Mini-BEST balance scale, UPDRS and Cumulative Illness Rating Scale (CIRS).

Results.—Age, disease duration, Hoehn-Yahr, CIRS were not different between groups. At the end of treatment, both groups showed similar improvement in distance at the 6MWT, step length, Mini-BEST and UPDRS, without any change in cadence.

Discussion.—Cyclo-ergometer training improves walking parameters and reduces clinical signs of PD, as much as treadmill training. Gait improvement is accompanied by step lengthening to a value similar to normal, without change in cadence. Gait improvement, in contrast with balance, cannot have been produced by the exercises common to both groups, since these exercises did not include gait training.

http://dx.doi.org/10.1016/j.rehab.2014.03.1209

CO66-002-e

Effects on an intensive physical therapy program on spiralography in Parkinson’s disease
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Keywords: Spiralography; Parkinson’s disease; Physical therapy

Background.—Measurements of spiral size and symmetry are useful as clinical markers of Parkinson’s disease (PD). We devised a manual method to determine: (i) the Highest and Lowest Rates of Radius Increase per loop (HRRI, LRRI); (ii) their ratio, or Coefficient of Symmetry (CS); and (iii) the Size-Symmetry Index,SSI = LRRI × CS. This study evaluates the effects of an 8-week, intensive physical therapy program on these parameters.

Methods.—Thirty-four PD patients aged 54–86 (67 ± 8) drew freehand spirals with each hand before and after an intensive home therapy program 1 hour 3 times a week for 8 weeks. The more hypometric hand was defined as that with the lower LRRI.

Results.—At baseline, LRRI, CS and SSI were smaller in the more hypometric hand vs the other hand. After 8 weeks of treatment, only the more hypometric hand was improved in spiralography, with increases in LRRI, CS and SSI to 8.1 mm/loop (P = 0.009 vs baseline), 0.70 (P = 0.08), 6.01 mm/loop (P = 0.016) respectively.

Conclusions.—Eight weeks of intensive physical therapy bring spiral scaling and symmetry on the more affected side close to contralateral values, suggesting an enhanced dopaminergic input in the more affected nigrostriatal pathways after intensive motor training in PD.

http://dx.doi.org/10.1016/j.rehab.2014.03.1210
Conclusions.-- In PD, 8 weeks of intensive physical therapy improve movement scaling only on the more affected side. These findings suggest an enhanced dopaminergic input in the more affected nigrostriatal pathways after intensive motor training in PD.

http://dx.doi.org/10.1016/j.rehab.2014.03.1211

CO66-004-e

Getting up from the ground in Parkinson’s disease: Effects of a standardized intensive physical therapy program
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Keywords: Parkinson’s diseases; Standardized therapy program; Getting up from the ground

Objective.-- Hypometry and bradykinesia alter mobility in Parkinson’s disease (PD), making standing up from the floor difficult. We evaluated the effects of a standardized, intensive home rehabilitation program.

Methods.-- Twenty-one PD patients (age 68 ± 10) were evaluated using the Global Mobility Test (GMT, involving filming and timing of the task of standing up from the floor) in the practically defined OFF-state before and after an 8-week intensive home therapy program involving aerobic and strengthening exercises, 1 hour 3 times a week for 8 weeks, and re-assessed 3 months after the end of the program (n = 10).

Results.— Time to stand up from the floor was improved at 8 weeks (D1, 37.8 ± 7.4 s; D60, 26.9 ± 4.6 s, P < 0.05, Wilcoxon). The most improved part was the getting up from “knight position” (D1, 12.3 ± 4.1 s, D60, 5.2 ± 1.3 s, P < 0.01). Improvements persisted at D150 (n = 10; D1 39.2 ± 9.9 s; D60 25.6 ± 5.1 s; D150 19.6 ± 4.7 s, P < 0.05).

Conclusion.— An 8-week intensive home therapy program in PD involving appears to produce functional effects comparable to those of dopaminergic drugs. This study also suggests persistence of these effects 3 months after the end of the program, probably as patients retained the teaching of exercises that they continued to practice at home.

http://dx.doi.org/10.1016/j.rehab.2014.03.1212

Posters

P401-e

Neurocognitive rehabilitation in Parkinson’s disease: Case report
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Keywords: Gait; Neurocognitive rehabilitation; Balance

Objective.— Our aim is to verify the validity of neurocognitive rehabilitation grounding on the observation of perceptive as well as motor disorders in Parkinson’s disease (PD).

Methods.— A 49-year-old woman with a clinical history of PD since 2001 was enrolled. She attended twenty sessions (1 hour each) of neurocognitive rehabilitation, twice a week over 3 months. Outcomes included self-confidence in gait (primary), the course of disease and pain as a freezing’s prodrome (secondary), Unified Parkinson’s Disease Rating Scale, Tinetti Balance and Gait Evaluation, Visual Analogue Scale, at the beginning (T0) and at the end of the treatment (T1), with a follow-up 3 months after the end (T2).

Results.— A decrease in the risk of falling, both when standing and during gait, was observed between T0, T1 and T2.

Discussion.— Neuro-cognitive rehabilitation may be considered effective in people with PD.

Further reading
http://dx.doi.org/10.1016/j.rehab.2014.03.1213

P403-e

Comparative efficacy and safety of botulinum toxin type A and B in treating Parkinson’s disease-related sialorrhea: A pre-test post-test study
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Keywords: Parkinson’s disease; Botulinum toxin; Sialorrhea

Objective.— We compared the efficacy and safety of botulinum toxin type A (BTX-A) and B (BTX-B) in Parkinson’s disease (PD) patients suffering from disabling drooling.

Methods.— Forty-four subjects (PD duration: 14.8 ± 6.6 years) with severe drooling were randomized into two groups, either receiving BTX-A (50 U Bototox in each side) or BTX-B injections (2000 U Neurobloc in each side) in the parotid glands. Outcome measures included visual analogue scale for the assessment of drooling-related family (VAS-FD) and social (VAS-SD) distress, the Sialorrhea Scoring Scale (SSS), UPDRS-III and cognitive performances.

Results.— Prefrontal stimulation abolished FOG events, though providing a lower effect on TUG time than parietal stimulation. Parietal cortex iDCS improved single-TUG time up to 34%, with minor impact on dual-task time, and negligible effect on FOG events. UPDRS-III decreased after both prefrontal and parietal stimulation (by 31% and 36% respectively). Cognitive tasks scores increased after prefrontal stimulation, though not after parietal stimulation. No changes in motor or cognitive outcomes resulted from sham stimulation.

Discussion.— Prefrontal cortex iDCS may improve specific motor and cognitive performances in Parkinson’s disease.

http://dx.doi.org/10.1016/j.rehab.2014.03.1214

P402-e

tDCS to treat freezing of gait in Parkinson’s disease: A single-case design
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Keywords: Parkinson’s disease; Transcranial direct current stimulation; Freezing of gait

Objective.— We investigated the effects of transcranial Direct Current Stimulation (tDCS) in a 50-year-old subject suffering from Parkinson’s disease, complicated by drug-resistant freezing of gait (FOG).

Methods.— Three sessions of 2.0 mA cathodal tDCS were carried out, 30 days apart from each other. In the first session, tDCS was delivered to the prefrontal cortex, in the second one to the parietal cortex, while in the last, a sham-stimulation of the prefrontal cortex was done. Right and left hemispheres were separately stimulated in each session. Outcomes included performance time and number of FOG events during the Timed Up-and Go test, UPDRS-III and cognitive performances.

Results.— Prefrontal stimulation abolished FOG events, though providing a lower effect on TUG time than parietal stimulation. Parietal cortex iDCS improved single-TUG time up to 34%, with minor impact on dual-task time, and negligible effect on FOG events. UPDRS-III decreased after both prefrontal and parietal stimulation (by 31% and 36% respectively). Cognitive tasks scores increased after prefrontal stimulation, though not after parietal stimulation. No changes in motor or cognitive outcomes resulted from sham stimulation.

Discussion.— Prefrontal cortex iDCS may improve specific motor and cognitive performances in Parkinson’s disease.

http://dx.doi.org/10.1016/j.rehab.2014.03.1214