

and 3) patients unable to commit to the required dosage. A unique challenge for Japanese clinicians was how to deal with patient comorbidities.

LSVT BIG is being successfully implemented by many therapists in these countries; however, there remain challenges. Understanding barriers may help us facilitate solutions, such as local advocacy, patient/physician education, and access to LSVT resources for certified clinicians. This knowledge may improve adoption and fidelity of evidence-based rehabilitation interventions around the world for people with PD.

#### P22.14

##### Implementation of a cognitive and motor exercise hydrotherapy community-based program for individuals with Parkinson's disease

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**Background:** People with Parkinson's disease (PwP) benefit from non-pharmacological interventions, such as physiotherapy, exercise, hydrotherapy and cognitive training. Combining these different interventions may be potentially beneficial given the positive evidence on multitask training emerging.

**Objective:** Assess the implementation of a hydrotherapy program for PwP that combined cognitive and physical exercises.

**Methods:** The PD-specific program was delivered as a community program provided by the Patient Association (APDPk) at a local hotel pool. Participants had to ambulate independently, be able to understand verbal instructions, and safely participate in pool sessions. The program consisted of a weekly group session (1 hour) incorporating physical exercise (e.g. walking, turning, jumping, standing, arm movements) as a response to cognitive exercises given by a physiotherapist. At 4 months participants assessed the program using a questionnaire, regarding: (1) satisfaction level; (2) adverse events; (3) reasons for absences; (4) interest in continuing to participate, and (5) perceived barriers and facilitating factors regarding ongoing participation.

**Results:** Five participants (60% male), with a diagnosis of PD with average duration of 3 years, mean age of 56 years, Hoehn & Yahr between I-III. Sixteen weekly group sessions were performed over 4 months (1h/week). All participants were very satisfied (100%) and referred that they were willing to continue in the program. Participants reported that what they most liked was the cognitive-physical challenges imposed and social interaction. Cramps were reported by 2 PwP as occasional adverse events. Physiotherapist reported that no major problems arose during sessions but unsafe behaviors in groups had to be continuously monitored. Reasons for absences included: disease related problems (2); work problems (2); laziness (1); and difficulty in schedules (1). Factors facilitated participation included: perceiving benefit (5), easy transportation (1), professionals' experience (3), socializing (1), and clean warm environments (2). Factors perceived as barriers included: difficulties in transportation (1), fluctuation in disease (1), restricted time (2), and work limitations (1).

**Conclusions:** Our results suggest that the combination of cognitive and motor interventions in a hydrotherapy group activity was well received and safe for these PwP.

#### P22.15

##### Music therapy on gait disturbance and gait analysis for Parkinson's disease using a portable gait rhythmogram

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Gait disturbance is one of the most frequent and intractable motor symptoms in Parkinson's disease (PD). However, we do not have a good method to evaluate accurately daily profile of gait in the patients. The aim of this study is to develop the application of music therapy and a new method of gait analyses in PD.

The subjects of this study were 20 outpatients with Parkinson's disease (PD) with gait disturbance. We examined whether music therapy is effective as rehabilitation for gait disturbance in PD, by using a portable gait rhythmogram (PD patients' profile: H&Y: 2 or 3, duration: 6.0±5.5years, UPDRS-III: 17.3±4.7).

PD gait speed was significantly slow, the steps were small, the cadence was also slower compared as that of normal control. By the addition of 3-dimensional acceleration measurement, the strength of PD gait was apparently weak compared as normal control (Image). The regression line indicates that gait force (acceleration) is an essential factor for gait speed. We checked a trajectory of the accelerometer, which indicates that PD patients have a large amplitude of the mediolateral direction.

The patients carried out common walking training tasks carrying a portable gait rhythmogram. The walking training tasks were walking 5m in a straight line at subjects' usual walking speeds (task 1), fast walking (task 2), walking with hand clapping (task 3), walking in step with music of 90 BPM (beat per minute) (task 4), music of 100 BPM (task 5), music of 110 BPM (task 6), and music of 120 BPM (task 7), and fast walking without music (task 8).

We recognized an effect of the music therapy by comparing walking before and after accompanied by stimulation with music. Significant improvements were observed in stride, gait speed, cadence, acceleration, and trajectory, suggesting music therapy is effective at reducing gait disturbance in PD. It is expected that music therapy will be utilized in the rehabilitation of gait disturbance in PD in the future.

PD (ID: 27)

