Spin for Well-being (SWAN): Therapeutic Table Tennis for People with Neurodegenerative Diseases

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Introduction

Neurodegenerative diseases (NDDs) such as Alzheimer's and Parkinson's progressively erode motor control, cognition, and social participation. Physical activity is known to reduce NDD risk and slow progression, yet adapted sports programmes remain scarce, and coaches, care staff, and caregivers lack validated curricula to deliver them. Table tennis is a promising non-pharmacological intervention because a single rally engages motor, cognitive, and social domains at once: fast visual processing, anticipation of trajectories, and precise coordination, all within an interactive setting. Despite its low cost, its therapeutic use for NDDs has rarely been structured, standardised, or rigorously evaluated.

Objective

SWAN aims to make the therapeutic use of table tennis accessible to people with NDDs across Europe. It synthesises evidence on the effectiveness of table tennis for this population from both research and practice. Building on this evidence, it develops an adapted training curriculum, educational materials, and practical exercise guidebooks for practitioners. Its central objective is to implement a structured table tennis intervention and evaluate its effectiveness. Throughout, the project promotes social inclusion, health-enhancing physical activity, and equal sporting opportunities.

Methodology

The project follows a phased design over 34 months (Dec 2024 - Sep 2027). First, a literature review, a mapping of good practices, and a needs survey of coaches and clubs established the evidence base. A multidisciplinary expert team then translated these insights into a 24-session curriculum, with adaptations for mild and moderate cognitive impairment. Professionals are expected to be trained in the theoretical understanding of NDDs, table tennis, safety/communication and adaptation of the curriculum through an online "train-the-trainers" course. Based on the curriculum, an intervention is going to be implemented in people with NDDs from Greece, Bulgaria, and Spain. Participants will be assessed before, during, and after the intervention on cognitive, physical, as well as social measures.

Progress to Date

The evidence synthesis phase was completed and has informed both the curriculum and the educational materials for train-the-trainers. The 24-session curriculum has been developed and harmonised. The trainer-training resources are being finalised for delivery to professionals interested in expanding their knowledge of the topics included in the online course. Sessions progress from sensorimotor baselines and basic strokes to advanced cognitive-motor dual-tasking, inhibitory control, and social autonomy. A clinical evaluation is also expected in at the midpoint of the programme.

Next Steps

The next phase pertains to the roll-out of the train-the-trainers online course and to complete the recruitment for the intervention of the table tennis programme in the pilot countries. The methodology for evaluating the outcomes of the intervention pre-, mid-, and post-intervention is also ongoing. The results will be analysed to determine the intervention's effectiveness and response. Findings will be consolidated into an open resource kit combining academic outputs and a practical handbook for organizations and professionals in the health and sports sectors.

Expected Impact

SWAN aims to build a lasting ecosystem of universities, hospitals, healthcare providers, sports clubs, Alzheimer's and Parkinson's centres, rehabilitation centres, and federations. By equipping practitioners with validated tools, the project seeks to make therapeutic table tennis a sustainable, community-based option across Europe. Ultimately, it aims to improve the health, well-being, and social participation of people living with NDDs.



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