NeuroRally Spin Table Tennis Protocol

Movement and learning for people living with Parkinson disease

At NeuroRally Spin, we use table tennis as an active learning experience for people living with Parkinson's. The moving ball gives each participant a reason to look, prepare, reach and respond. Every return offers another opportunity to practise movement while paying attention, making a choice and learning from the result.

Our aim is to support functional movement, coordination and confidence through an enjoyable sport that brings the body and mind into the same activity. We adapt the experience to how each person moves, understands instructions and learns.

Learning through repeated experience

Experience and *purposeful repetition* are central to our approach. The brain can adapt through learning and practice, a capacity called neuroplasticity. Meaningful, repeated activity gives the brain opportunities to refine the skills being used. We build this practice into rallies, target games and achievable challenges.

A participant watches the ball, attempts a return and sees where it lands. That immediate feedback helps them adjust the next attempt. We repeat a familiar pattern, return to it in later sessions and gradually introduce a new choice. Remembering a rule or recalling a movement sequence is part of the learning, alongside making contact with the ball.

Why this matters for Parkinson disease

Parkinson's can make movements slower or smaller and make familiar actions require more conscious attention. We use the ball, a clear target and a steady rally rhythm to give movement a purpose and a cue. Participants practise starting a response, reaching deliberately, controlling a stroke and preparing for the next ball. Task-specific practice and external cues are established principles in Parkinson's movement training. Table tennis also asks a person to keep attention on something that changes. The ball may arrive in a different place, a target may change, or a familiar rule may need to be remembered. We use these moments to practise movement and thinking together at a level the participant can understand and enjoy.

What we practise through table tennis

These examples show how we connect an activity to a movement or cognitive skill. We select and combine them to suit the participant; a session can focus on a few familiar activities.

Training focus	General exercise example	What the activity practises
Visual tracking	Follow the ball from the coach's racket through the bounce to contact.	Following a moving object and using its position to guide movement.
Hand and eye coordination	Meet the ball with the racket and return it toward the table.	Connecting visual information with hand position, timing and control.
Reaction and anticipation	Respond to balls arriving at different table positions.	Noticing a change, anticipating its direction and beginning a response.
Movement and rhythm	Repeat a deliberate stroke and build a steady cooperative rally.	Movement initiation, movement size, timing and consistency.
Body awareness and balance	Reach toward the ball, shift weight and return to a ready position.	Awareness of body position and coordination of the trunk, arms and legs.
Target practice	Aim toward a marked area, then alternate between two targets.	Direction, accuracy, force control and adjustment after each attempt.
Attention and focus	Stay with a short rally goal and bring attention back to the next ball.	Sustaining attention and returning focus to relevant information.
Colour recognition and choice	Identify a coloured target and direct the ball toward it.	Using colour as a cue, remembering a rule and selecting a response.
Inhibition	Return the ball for one cue and hold the response for another.	Pausing an automatic action and following the current rule.
Memory and sequencing	Remember and repeat a short pattern of strokes or targets.	Holding information in mind, recalling it and putting actions in order.
Dual tasking	Rally while counting, naming a category or remembering a simple rule.	Sharing attention between a movement task and a thinking task.
Flexible thinking	Change the target or response when the coach changes the rule.	Switching attention, updating a rule and adapting the next action.

Helping each person learn

People with Parkinson's bring different abilities, interests and learning needs. We change how we teach so that each participant can understand the activity, take an active role and experience progress.

When instructions are difficult to follow. We demonstrate the activity, use one short instruction and repeat the same useful cue. A clear target can show what to do without a long explanation.

When attention is difficult to sustain. We use one clear goal and short, achievable challenges. We bring attention back to the ball or target before adding another demand.

When remembering is challenging. We repeat familiar routines, begin with a short sequence and revisit it. A colour or visual reminder can help the participant recall what comes next.

When more time is needed. We slow the feed and allow time to notice the ball, prepare and respond. Participants can show a choice by pointing or moving toward a target as well as by speaking.

When the participant is ready for more. We vary placement, introduce another target or add a thinking rule. Changing one part of a familiar activity creates a new learning opportunity.

Connecting practice with useful function

Our activities practise abilities involved in everyday actions: noticing an object, reaching toward it, starting a movement, adjusting position and remembering an instruction while doing something. We choose goals that matter to the participant and ask about changes they notice beyond the table. Gains in a table tennis task and gains in daily life are considered separately.

An experience that encourages participation

A longer rally, a more accurate return or remembering a new pattern gives a participant a concrete sense of progress. Playing with a coach or partner also creates connection and shared enjoyment. We use that experience to encourage repeated practice and continued learning.

Early table tennis studies in Parkinson's report encouraging movement and functional changes. Our cognitive activities practise attention, memory and decision-making; broader cognitive benefits are still being studied. [1,2]

Supporting sources

[1] Inoue and colleagues 2021. Table tennis pilot study in Parkinson disease.

A Pilot Table Tennis-Based Neurorehabilitation Program to Improve Parkinson's Disease Symptoms

Read source: https://journals.sagepub.com/doi/10.1177/10538135261468787

[2] Barbera and colleagues 2026. Table tennis neurorehabilitation pilot study.

A Pilot Table Tennis-Based Neurorehabilitation Program to Improve Parkinson's Disease Symptoms - Antonio Barbera, Matthew Woodward, Isabelle Buard, Stefan Sillau, Ramon Ortega Montes, Jeanne Feuerstein, 2026

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