NeuroRally Spin Neurodivergent Children Protocol

Movement and learning through the Table Tennis Experience

At NeuroRally Spin, we use table tennis to give neurodivergent children an engaging experience of movement, attention and learning. Following a ball, choosing a target and making a return give each child a clear reason to notice, prepare and act. Every attempt offers feedback and another opportunity to learn.

Children may have differences in attention, communication, coordination, sensory experience or learning. We build on each child's strengths and interests.

Experience and repetition support learning

The brain can adapt through experience and practice, a capacity called neuroplasticity. We use purposeful repetition to help children develop the skills they are learning. A familiar game gives them repeated opportunities to remember a rule, prepare a movement, see the result and adjust the next attempt.

We revisit successful patterns across sessions, then introduce a manageable change. The experience remains recognisable while the child learns something new. Our aim is to build skills and confidence in a way that respects how the child learns and communicates.

Brain systems involved in learning

Learning involves connected brain systems working together. The examples below explain the functions involved in these activities.

Prefrontal and attention networks. Help hold a goal in mind, select relevant information, pause a response and switch rules. A colour-choice rally brings these skills into movement.

Visual and parietal areas. Help process the ball's movement and relate its position to the body. Tracking a ball and locating a target give this information a purpose.

Motor and premotor cortex. Help plan and carry out actions. Repeated ball contacts give the child opportunities to refine how the hand and arm move toward a goal.

Cerebellum and basal ganglia. Contribute to movement timing, adjustment and learning action patterns. Repeating a DRILL or short sequence provides practice in these skills.

What we practise and how it relates to daily life

These examples connect a table tennis activity with skills used in everyday learning. They show shared demands; carryover to school or home is explored with the child and family.

Training focus	General exercise example	Connection to everyday learning
Visual tracking	Follow a rolled or fed ball and locate the next target.	Noticing moving information and directing attention where it is needed.
Hand and eye coordination	Return the ball toward a large marked area.	Using vision to guide the hand in drawing, handwriting or handling objects.
Movement planning and body awareness	Prepare the racket, make contact and return to a starting position.	Organising actions in play, dressing and moving around the classroom.
Reaction and anticipation	Notice where the ball is going and prepare a response.	Responding to a cue and adjusting an action during a game or activity.
Attention and focus	Stay with a short rally goal and refocus on the next ball.	Selecting relevant information and returning attention to a learning task.
Memory and sequencing	Remember a short order of targets, then use it during play.	Remembering instructions and carrying out steps in order.
Colour recognition and choice	Match a colour cue to the target for the next return.	Recognising a visual rule and choosing an action that matches it.
Inhibition	Return for one cue and hold the response for another.	Pausing before acting and waiting for a relevant cue or turn.
Flexible thinking	Change the target when the game's rule changes.	Moving between task rules and trying a different approach.
Dual tasking	Return a ball while counting or following a simple choice rule.	Combining movement with remembering or responding to information.
Shared play and communication	Build a cooperative rally and communicate a choice of game.	Exchanging turns, expressing preferences and participating with others.

Helping each child learn

We adapt the teaching, pace and environment to the child. Their interests, choices and ways of communicating guide the experience.

When attention is difficult to sustain. We use a clear goal and short, engaging games. A familiar target or cue helps bring attention back to the activity.

When instructions or memory are challenging. We demonstrate, give one step at a time and use pictures or a short visual sequence. We repeat a familiar pattern before adding another step.

When coordination or processing takes more time. We slow the ball, enlarge the target or begin with a table-top roll. The child has time to notice, prepare and practise before we change the task.

When communication or sensory needs differ. We accept gestures, pointing, speech or a communication device. We adapt sound, visual clutter and personal space, and make the order of activities predictable.

When the child is ready for more. We introduce another target, a remembered pattern or a new rule. We keep their interests and choices central as the challenge develops.

Connecting progress with home and school

We choose a goal that matters to the child and family, such as remembering two steps, joining a shared game or feeling more confident with ball skills. We discuss changes noticed outside sessions. When useful, a familiar cue can also be used at home or school so the child practises applying the skill in that setting.

An experience that builds confidence

A more controlled return, remembering a new pattern or enjoying a rally with someone else gives a child a concrete sense of progress. We use the table tennis experience to make repeated learning enjoyable, meaningful and personal.

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