NEURORESTORE CLINICAL PATHWAY

Living Well with Parkinson's

A Comprehensive Guide to Understanding, Rehabilitation & Management

Attachment: NR-INFO-02
Neurorehabilitation Service
Patient & Carer Education

What is Parkinson's Disease? Parkinson's is a long-term neurodegenerative condition caused by the progressive loss of dopamine-producing cells in the *substantia nigra*. Dopamine regulates smooth, coordinated muscle activation. While progressive, evidence confirms that the nervous system retains remarkable adaptive potential (neuroplasticity). Through proactive, goal-directed rehabilitation in the NeuroRestore Pathway, patients can preserve function, minimize fall risk, and maintain independence.

1 SYMPTOM SPECTRUM: MOTOR & NON-MOTOR

Primary Motor Symptoms

MOVEMENT FEATURES

Results from basal ganglia dopaminergic depletion:

- **Bradykinesia:** Slowness in initiating and executing movements, shorter steps, smaller handwriting (micrographia), softer voice.
- **Resting Tremor:** Rhythmic 4–6 Hz tremor typically prominent at rest, often decreasing during purposeful movement.
- **Rigidity:** Muscle stiffness and resistance to passive movement ("cogwheel" or "lead-pipe"), often causing limb aching.
- **Postural Instability:** Impaired balance reflexes, retropulsion, and episodic "freezing of gait" (feeling glued to floor).

Non-Motor Symptoms

SYSTEMIC FEATURES

Equally impactful symptoms arising from broader brainstem networks:

- **Autonomic Function:** Orthostatic hypotension (lightheadedness on standing), bowel constipation, bladder urgency.
- **Sleep Disturbances:** Insomnia, restless legs, and REM Sleep Behaviour Disorder (vivid dream enactment).
- **Cognitive & Emotional:** Slower processing speed, executive planning difficulties, apathy, mood fluctuations or anxiety.
- **Sensory & Pain:** Dystonic cramps, localized shoulder stiffness, or reduced sense of smell (hyposmia).

2 REHABILITATION SCIENCE: THE POWER OF NEUROPLASTICITY

Specialized neurological therapy uses targeted principles to bypass damaged automatic pathways and rewire movement control:

Mechanism	How It Works	Clinical Goal
High-Amplitude Training	Focuses on exaggerated, large-scale movements (e.g., LSVT BIG principles) to recalibrate internal sensory perception of movement size.	Overcoming bradykinesia; restoring normal step length and arm swing.
External Sensory Cueing	Uses rhythmic visual lines (floor stripes) or auditory beats (metronomes/music) to access intact cortical circuits.	Unfreezing gait episodes; preventing hesitation during doorways and turns.
Proactive Balance Circuits	Multidirectional perturbation training and dynamic dual-tasking exercises (moving while answering questions).	Preventing falls; maintaining rapid equilibrium reactions.
Targeted Voice Therapy	Intensive vocal effort exercises (LSVT LOUD principles) stimulating the vocal cords and respiratory muscle support.	Improving vocal loudness, articulation clarity, and swallow coordination.

Cardiovascular Neuroprotection: Engaging in regular moderate-to-vigorous aerobic exercise stimulates Brain-Derived Neurotrophic Factor (BDNF), promoting neural vitality, motor learning, and stabilization of disease progression.

MULTIDISCIPLINARY FRAMEWORK

The NeuroRestore Parkinson's Pathway

Stage-Based Interventions, Coordinated Care & Active Strategies

Proactive & Preventative
Evidence-Based Delivery
Preserving Functional Autonomy

3 STRUCTURED CARE ACROSS DISEASE PHASES

The NeuroRestore Pathway delivers tailored, timely interventions matched to each stage of your journey:

STAGE I: PROACTIVE

Early / Diagnosis

- Comprehensive baseline benchmarking
- High-intensity neuroprotective conditioning
- Education on disease mechanics & pacing
- Early vocal and swallowing baseline checks
- Establishing daily self-management habits

STAGE II: ADAPTIVE

Emerging Motor Fluctuations

- Cueing strategies for freezing of gait
- Balance & fall risk reduction circuits
- Fine-motor retraining for hand function
- Home & workstation ergonomic optimization
- Medication timing coordination with therapy

STAGE III: SUPPORTIVE

Advanced Functional Care

- Complex mobility & transfer strategies
- Axial posture & contracture prevention
- Swallowing safety & texture modification
- Carer education, respite & support
- Integrated community & funding pathways

4 YOUR MULTIDISCIPLINARY CARE TEAM

Rehabilitation Physician
Oversees your holistic medical program, coordinates functional goals, manages autonomic challenges (blood pressure/constipation), and treats secondary issues like focal dystonia or painful muscle overactivity.

Physiotherapist (PT)
Delivers amplitude-focused movement routines, postural correction, balance training, safe transfer techniques, and individual sensory cueing strategies to prevent falls and overcome freezing.

Occupational Therapist (OT)
Assesses upper-limb dexterity, handwriting, home environment adaptations, assistive equipment, sleep positioning systems, and strategies for simplifying daily personal care routines.

Speech Pathologist (SLP)
Specialized voice amplification therapy (e.g., LSVT LOUD), facial expression exercises, speech intelligibility training, and comprehensive swallowing safety assessments (dysphagia).

Dietitian
Optimizes nutrition, bowel regularity, and manages dietary protein timing to prevent interference with levodopa absorption in the digestive tract.

Social Work & Psychology
Provides emotional adjustment support, strategies for coping with anxiety or mood shifts, carer wellbeing guidance, and assistance navigating NDIS / aged care supports.

5 PRACTICAL DAILY SELF-MANAGEMENT STRATEGIES

- **Strict Medication Adherence:** Take your dopaminergic medications at precise, scheduled intervals to maintain consistent motor "on" performance and avoid symptom dips.
- **Think Big Movements:** Constantly cue yourself to take deliberate, wide steps and exaggerate arm swings while walking to reset your brain's internal rhythm.
- **Unfreezing Mantras:** If feet freeze, stop fighting it. Take a deep breath, shift weight from side to side, and step forward over a visual landmark or count "1-2-3-Step."
- **Adequate Hydration & Salt:** Maintain fluid intake to prevent postural hypotension. Change positions slowly from lying to standing.

Questions about your pathway? Contact your NeuroRestore Coordinator: [Coordinator Contact / Extension]

Clinic: NeuroRestore Specialist Movement Service