

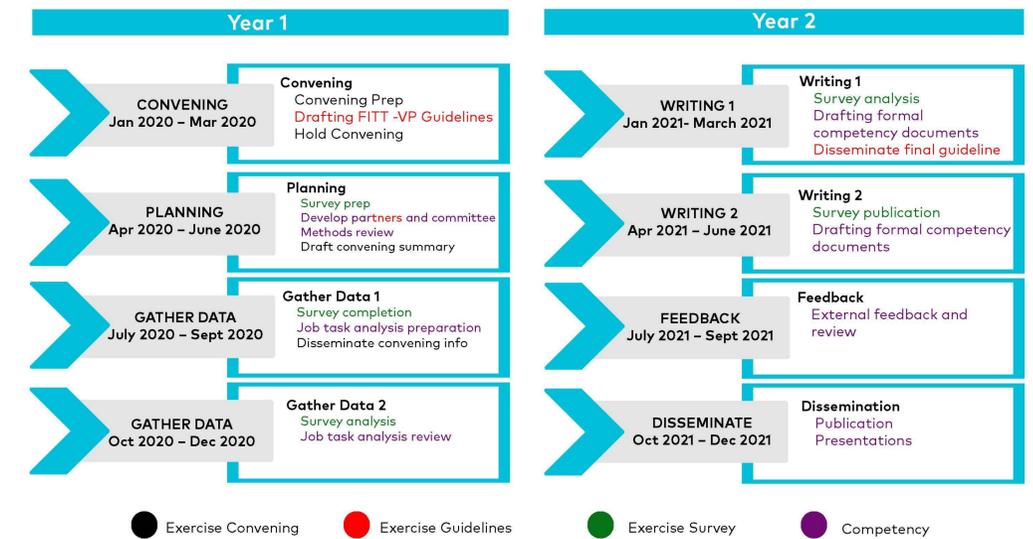
Background

- Exercise is an important component in the treatment of Parkinson's disease (PD).
- It can be difficult for people with PD (PwP) to find an appropriate exercise class given the variety of classes available.
- Safety and efficacy of the class is dependent on the instructor's skill in working with PwP.
- There is no quality assurance for exercise professionals to ensure they are teaching effective programs for PwP.

Completed and Ongoing Methodology

- On March 5-6th, the Parkinson's Foundation convened thought leaders in exercise for PwP (Fig1). These experts discussed:
 1. Recommended exercise guidelines
 2. Models of education for exercise professionals
 3. Delivery models that integrate community exercise with traditional interprofessional care
- Post convening, a Leadership Committee (LC) was formed including key stakeholders from the PD exercise, physical therapy, and exercise communities. The LC is engaging a psychometrician methodological consultant to assist with development.
- Developing the exercise competencies include gathering data from surveys, focus groups and a job task analysis.
- The convening should be completed in late 2021 (Fig 2.).

Figure 2. The Competency Development Timeline.



Purpose

Describe the process of developing Competencies for Exercise Professionals Working with PwP.



Figure 1: Convening Participants.
Top Row L.Kahn, L.Karlisch, M.Hackney, T.Galati, J.Goldman, F.Lobelo, N.Yarab, S.Palmer, A.Hutber, K.Follmar, C.Timberlake, D.Zid, B.Rossi, G.Winters, K.Jaffe, F.Neric, S.Rosenfeld, G.Kasman, B.Farley, J.Lehr,
Bottom Row: A.Long, E.Kahn, T.Ellis, P.Trotter, L.Hoffman, J.Russell, M.Rafferty, E.Pollard, K.Kahl, D. Perret

Key Findings

Seven Key Take-aways from the Exercise Convening

- 1 PwP should find ways to exercise regularly, targeting aerobic fitness, strengthening, flexibility, as well as balance, agility and dual tasking.
- 2 Skilled and knowledgeable exercise professionals provide personal training and/or group exercise instruction for PwP, along with social support and motivation. They have a wide range of backgrounds, from high school diplomas to doctorate degrees.
- 3 Exercise professionals may have more contact with PwP than the traditional interprofessional healthcare team, providing great opportunity for positive impact on quality of life.
- 4 Competencies for exercise professionals should be established based on the knowledge, skills and abilities considered to be essential entry-level performance. Knowledge includes exercise guidelines (See Table) developed through rigorous research review on the frequency, intensity, time, type, volume and progression of exercise.
- 5 Stakeholders should develop common language regarding guidelines and competencies to reduce variability in the delivery of exercise.
- 6 Establishing exercise competencies will provide PwP peace of mind knowing their exercise instructor understands the needs of PwP.
- 7 PwP participate in exercise through research grants, community grants, non-profit organizations and/or paid programs. Evidence-based guidelines and competencies may aid in opportunities for insurance reimbursement for exercise classes or PwP.

Recommended Exercise Guidelines

F.I.T.T.-V.P.	Aerobic	Strength	Balance, Agility, & Dual-Tasking	Flexibility
Frequency	At least 3 days per week.	2-3 days/ week, all major muscle groups on nonconsecutive days.	2-3 days/week focused workout, with daily integration as possible.	≥ 2-3 days/week, with daily being most effective.
Intensity & Progression	Moderate Intensity: 40% - 60% HRR (or VO ₂ R), RPE of 12-13/20 or 3-4/10. Progress to vigorous intensity: 60-85% HRR; RPE 14-17/20 or 5-7/10), when physiologically appropriate and safe. Teach client to self-assess.	40-50% of 1-RM for beginners. 60-70% 1-RM for more advanced exercisers. Progress number of repetitions and resistance, working muscles to fatigue.	Appropriate challenge delivered in a safe manner given the setting (individual vs group). Progress as patient improves and can tolerate additional challenge.	Full extension, flexion, or rotation stretch to the point of slight discomfort. Progress as patient can tolerate
Time & Volume	≥30 min of continuous or intermittent exercise per session. Build to at least 150 minutes/week.	10-15 reps in adults starting an exercise program. ≥1 set of 8-12 repetitions (~60% 1-RM) and progress to 3 sets of 8 -10 to fatigue. Build to 2-3 hours/week.	30-60 minutes per workout. Build to 2-3 hours/week.	60 sec/muscle. Static stretch for 15-60 sec; 2-4 repetitions of each stretch. Dynamic stretching: 8-10 movements each direction.
Type	Prolonged, rhythmic activities using large muscle groups.	Major muscle groups of the upper and lower body using weight machines, resistance bands, or body weight. Focus on extensors. Could use resistance training with instability.	Multi-directional stepping, weight shifting, reaching, large amplitude movements, functional agility (steps, turning, obstacles, backwards, floor activities, sit-to-stand). Dual-task training (motor, cognitive, distractions). Static and dynamic balance with varied surfaces, limb support, perturbations.	All major muscle groups first thing in the morning, before bed, or after exercise. Dynamic stretching prior to intense aerobic and strengthening exercise. Include diaphragmatic breathing and meditation.
Disease-Related Considerations	Prioritize safety (ambulatory status, physical assistance, equipment). Risk of FOG. Consider common comorbidities, Risk of autonomic dysfunction, including orthostatic hypotension, blunted heart rate response to exercise, arrhythmias associated with PD or medications.	Posture and body mechanics. Estimate 1-RM safely. Progressive with high repetitions. Timed for ON periods of optimal functioning. For safety, avoid free weights. Consider comorbidities (e.g. spinal stenosis, osteoporosis, osteopenia).	Consider varied ability levels related to cognitive engagement and attention. Allow upper extremity support when needed. Consider comorbidities (e.g. peripheral neuropathy, cognitive decline). Risk of freezing of gait. Use of gait belt for safety.	Consider dystonia (tonic or activity-induced) and general worsening of flexed posture with disease progression. Consider comorbidities (e.g. osteoporosis, pain, dystonia).
Consider collaborating with a licensed physical therapist specializing in PD to assist with full functional evaluation and individually-tailored exercise recommendations, considering complex medical problems.				