Table F.1.d. People with Parkinson's disease, relationship between physical activity and health-related outcomes

Questions: What is the association between **physical activity** and health-related outcomes?
Population: People with Parkinson's disease
Exposure: Greater volume, duration, frequency, or intensity of physical activity
Comparison: No physical activity or lesser volume, duration, frequency, or intensity of physical activity
Outcome: Physical function, cognitive function

Outcome	Systematic review evidence Review credibility	No. of studies/ Study design No. of participants	Quality Assessment					Summary of findings	Certainty	US PAGAC evidence *(39)*
			Risk of bias	Inconsistency	Indirectness †	Imprecision	Other			
Physical function[a]	Dos Santos Delabary 2018 *(11)* Low	5 RCTs N=159	No serious risk of bias	No serious inconsistency	Serious indirectness	Serious imprecision	None	Mean age of participants ranged from 61 to 72 years; most participants were men. Studies represented older adults at all stage of Parkinson's disease (H&Y stage 0-4). Interventions consisted of any type of dance for at least 3 weeks of practice, with most consisting of Tango classes. Participants in dance groups were found to have more favourable outcomes related to motor symptoms (UPSDRS III scale), functional mobility (TUG test), endurance (6MWT), freezing of gait (FOG_Q), and velocity of forward and backward walking compared with no intervention or another form of exercise; although most differences between groups were not statistically significant.	MODERATE[b]	20 ESRs Strong evidence demonstrates that physical activity improves a number of physical function outcomes, including walking, balance, strength, and disease-specific motor scores in older adults with Parkinson's disease. **PAGAC Grade: Strong.**
	Cugusi 2017 *(8)* Low	6 RCTS N=221	No serious risk of bias	Serious inconsistency	Serious indirectness	No serious imprecision	None	Mean age of participants ranged from 40 to 80 years. Duration of Parkinson's ranged from 1.5 to 7 years since diagnosis at all stages (H&Y stage 1-4). Trials tested the differences between Nordic walking and other exercise protocols (5 studies) or no exercise (1 study) for 4-24 weeks. Mixed findings. 3/5 trials found greater improvements in motor symptoms (e.g., UPSDRS III scale) and functional performance (e.g., 6MWT, TUG) in Nordic walking groups compared with other exercise groups and the remaining 2/5 found superior outcomes in the other exercise groups compared with the Nordic walking group.	MODERATE[c]	

Outcome	Systematic review evidence Review credibility	No. of studies/ Study design No. of participants	Quality Assessment Risk of bias	Inconsistency	Indirectness †	Imprecision	Other	Summary of findings	Certainty	US PAGAC evidence *(39)*
Cognitive function[d]	Stucken-schneider 2019 *(32)* Moderate	11 RCTs N=508	No serious risk of bias	No serious inconsistency	Serious indirectness	No serious imprecision	None	Mean age was 68 years and Parkinson's disease severity ranged from 1-4 on the H&Y. Five studies evaluated aerobic exercise, 1 studied resistance exercise, and 5 studied coordination exercise; intervention duration ranged from 4 and 26 weeks. Mixed evidence within and between studies on various measures of cognition. 1/7 studies found a statistically significant effect of an exercise intervention on global cognitive function vs. no exercise; 3/10 studies found an effect on executive function; 1/0 studies found an effect on memory. No studies found favourable effects of exercise vs. control on measures of attention or speed of processing.	HIGH[e]	1 ESR Moderate evidence indicates that moderate-to-vigorous physical activity can have beneficial effects on cognition in individuals with diseases or disorders that impair cognitive function, including attention deficit hyperactivity disorder, schizophrenia, multiple sclerosis, Parkinson's disease, and stroke. **PAGAC Grade: Moderate.**

Abbreviations: 6MWT = 6 min walk test; ESR = existing systematic review; FOG_Q = Freezing of Gait Questionnaire; H&Y = Hoehn and Yahr scale; PAGAC = Physical Activity Guidelines Advisory Committee; PDQ-39 = Quality of Life Parkinson's Disease Questionnare-39 items; QOL = quality of life; RCT = randomized clinical trial; TUG = timed up and go test; UPDRS III = Unified Parkinson's Diseases rating scale

† Serious indirectness indicates measurement of intermediate/indirect outcomes or heterogeneity in exposures and comparisons assessed; certainty of evidence was not always downgraded for indirectness if it was not judged to impact the certainty in the findings for the outcome evaluated in the review

[a] Two additional review *(10, 19)* identified, but were rated as critically low credibility and are not included
[b] Certainty of evidence downgraded due to serious indirectness (outcome measures), serious imprecision (small n's produced wide confidence intervals)
[c] Certainty of evidence downgraded due to serious inconsistency (mixed direction of effects), serious indirectness in outcome measures
[d] One additional review *(19)* identified, but was rated as critically low credibility and was not included
[e] Certainty of evidence not downgraded
[f] One additional review *(10)* identified, but was rated as critically low credibility and was not included