**Supplementary Material 6. Multiple effect sizes.**

It should be noted that 13 [1-13] studies entered in the meta-analyses provided data to calculate multiple effect sizes, which were not pooled together to create a single comparison. This is because, among those studies, one used different motor tasks [13], three created different learning conditions by modifying either the complexity [1, 3] or some parameters of the motor task [10], and one study used different motor practice structures (blocked vs. random) [12], which can alter motor learning processes [14-17]. Furthermore, eight studies had more than two groups/experimental conditions, allocating different participants to each of them [2, 4-9, 11]. Conversely, the retention scores of one study that used different active video games requiring similar motor and cognitive demands [18] were pooled together to create a composite effect size.

**REFERENCES**

[1] Behrman AL, Cauraugh JH, Light KE (2000) Practice as an intervention to improve speeded motor performance and motor learning in Parkinson's disease. *J Neurol Sci* **174**, 127-136.

[2] Dan X, King BR, Doyon J, Chan P (2015) Motor sequence learning and consolidation in unilateral de novo patients with Parkinson’s disease. *PloS One* **10**, e0134291.

[3] Harrington DL, Haaland KY, Yeo RA, Marder E (1990) Procedural memory in Parkinson's disease: impaired motor but not visuoperceptual learning. *J Clin Exp Neuropsychol* **12**, 323-339.

[4] Hayes HA, Hunsaker N (2015) Does dopamine replacement medication affect postural sequence learning in Parkinson’s disease? *Motor Control* **19**, 325-340.

[5] Lahlou S, Gabitov E, Owen L, Shohamy D, Sharp M (2022) Preserved motor memory in Parkinson's disease. *Neuropsychologia* **167**, 108161.

[6] Lee YY, Tai CH, Fisher BE (2019) Context-dependent behavior in Parkinson’s disease with freezing of gait. *Neurorehabil Neural Repair* **33**, 1040-1049.

[7] Lin C, Sullivan KJ, Wu AD, Kantak S, Winstein CJ (2007) Effect of task practice order on motor skill learning in adults with Parkinson disease: a pilot study. *Phys Ther* **87**, 1120-1131.

[8] Marinelli L, Crupi D, Di Rocco A, Bove M, Eidelberg D, Abbruzzese G, Ghilardi MF (2009) Learning and consolidation of visuo-motor adaptation in Parkinson's disease. *Parkinsonism Relat Disord* **15**, 6-11.

[9] Onla-Or S, Winstein CJ (2008) Determining the optimal challenge point for motor skill learning in adults with moderately severe Parkinson’s disease. *Neurorehabil Neural Repair* **22**, 385-395.

[10] Peterson DS, Dijkstra BW, Horak FB (2016) Postural motor learning in people with Parkinson's disease. *J Neurol* **263**, 1518-1529.

[11] Platz T, Brown RG, Marsden CD (1998) Training improves the speed of aimed movements in Parkinson's disease. *Brain* **121**, 505-514.

[12] Sidaway B, Ala B, Baughman K, Glidden J, Cowie S, Peabody A, Roundy D, Spaulding J, Stephens R, Wright DL (2016) Contextual interference can facilitate motor learning in older adults and in individuals with Parkinson's disease. *J Mot Behav* **48**, 509-518.

[13] Smiley-Oyen AL, Lowry KA, Emerson QR (2006) Learning and retention of movement sequences in Parkinson's disease. *Mov Disord* **21**, 1078-1087.

[14] Carey JR, Bhatt E, Nagpal A (2005) Neuroplasticity promoted by task complexity. *Exerc Sport Sci Rev* **33**, 24-31.

[15] Schmidt RA, Lee TD, Winstein C, Wulf G, Zelaznik HN (2018) *Motor control and learning: A behavioral emphasis*, Human Kinetics.

[16] Chen C-L, Lou S-Z, Wu H-W, Wu S-K, Yeung K-T, Su F-C (2014) Effects of the type and direction of support surface perturbation on postural responses. *J Neuroeng Rehabilitation* **11**, 50.

[17] Lu C, Amundsen-Huffmaster SL, Louie KH, Lowe R, Abulu R, McGovern RA, Vitek JL, MacKinnon CD, Cooper SE (2021) Comparison of forward and backward postural perturbations in mild-to-moderate Parkinson's disease. *Gait Posture* **84**, 205-208.

[18] Dantas I, Leal J, Hilgert L, Allegretti A, Mendes F (2018) Training healthy persons and individuals with Parkinson's disease to use Xbox Kinect games: A preliminary study. *Int J Ther Rehabil* **25**, 280-290.