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CORRECTION

Correction to: Managing freezing of gait in Parkinson's disease: a systematic review and network meta-analysis

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The original version of this article unfortunately contained a mistake. The corrected details are given below for your reading.

Affiliation number for Author "Man Auyeung" were incorrectly given as 2, 4 but should be 3.

Affiliation number for Author "Bastiaan R. Bloem" were incorrectly given as 3, 4 but should be 4 only.

Affiliation number 4 should be indicated only for author "Bastiaan R. Bloem''.

The e-mail address of author "Lily Man Lee Chan'' should read as
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In the "Introduction'' section, third sentence of the fifth paragraph should read as

The summarized evidence revealed a favorable small–moderate effect size (ES = −0.37) of a wide variety of training modalities for reducing subjective FOG-severity ($p < 0.00001$) compared to any type of control condition, though several interventions were not directly aiming at FOG and some included non-freezers.

In the section "Search strategy'', sixth sentence of the second paragraph should reads as

For studies with incomplete data, we also wrote to the authors to request for missing data.

In the section "Screening, data extraction and quality assessment'' fourth sentence should read as

RoB 2 is the recommended tool to assess the risk of bias in randomized trials included in Cochrane Reviews, which assesses different aspects of trial design, conduct and

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reporting, and categorizes the risk of bias into 'low', 'some concerns', or 'high' risk of bias.

In the section "Statistical analysis'', second sentence should read as

To date, FOGQ and nFOGQ are considered as the only validated and reliable available clinical tests to subjectively assess FOG in PD patients [5, 14].

In the section "study selection'' eleventh sentence should read as

Seven studies were excluded due to their comparison groups not matching this network meta-analysis's purpose [27–33].

In the section "Risk of bias within studies'', second sentence should read as

The overall rating indicated 16 studies (35%) with some concerns and 30 studies (65%) with high risk of bias.

In the section "Risk of bias within studies'', tenth sentence should read as

Discrepancies between the planned and published outcome measures were noted in five studies, without any explanation [28, 34, 57–58].

In the section "Meta-regression analysis'', third sentence should read as

Studies with missing values for covariates were excluded from the corresponding meta-regressions, for gender: Zhu et al. [45]; for weeks follow-up: Carpinella et al. [59]; for baseline FOG: Duncan and Earhart [34], Ginis et al. [39], Paul et al. [20], Song et al. [60], Martin et al. [51] and Silva-Batista et al. [61] were excluded.

In the section "Effectiveness of behavioral interventions vs control treatment on FOG'', second sentence of the first paragraph should read as

Previous meta-analysis [62] reported treadmill training, hydrotherapy, action observation, Nordic walking, and conventional physiotherapy demonstrated moderate–large effect in improving objective gait outcomes including gait speed and step length in a laboratory setting.

In the section "Effectiveness of behavioral interventions vs control treatment on FOG'', second sentence of the third paragraph should read as

Fenkel-Toledo [63] and Frazzitta, Maestri [38] suggested that treadmill may act as an external cue itself, which reinforced neuronal circuits and modulates walking patterns.

In the section "Effectiveness of behavioral interventions vs control treatment on FOG'', fourth paragraph should read as

It is noted that the benefits of general exercises are evident when indirectly compared to usual care control, regardless of the insignificant findings of three direct comparisons [53, 57, 64]. The promising relative effect estimates of general exercises are likely to be driven by the two studies examining Nordic walking and adapted resistance training [55, 61]. In Wroblewska, Gajos [55]'s study, Nordic walking (biweekly 60-min sessions for 12 weeks) demonstrated significant long-lasting benefits on FOG outcomes against usual care. While Silva-Batista, de Lima-Pardini [61] examined the effects of a 12-week triweekly adapted resistance training programme compared to conventional physiotherapy, and concluded that exercises with high motor complexity demonstrated moderate clinically important difference on FOG against traditional motor rehabilitation.

In the section "Effectiveness of behavioral interventions vs control treatment on FOG'', fifth paragraph should read as

Surprisingly, the positive effects of some commonly prescribed interventions for gait rehabilitation, such as external cueing, dual task gait training and mind–body exercises (including dance [42, 65]) were not evident in this analysis (lied within 95% Crls when compared to usual care). Although these interventions are suggested for conventional gait and balance rehabilitation, the application of these compensation strategies is deemed inadequate to initiate clinically meaningful improvement in FOG. Previous research concluded treadmill training with external cueing strategy was more effective in reducing FOG symptoms than external cueing alone [38, 63]. It is presumably that effective interventions should simultaneously target the motor and attentional/cognitive pathophysiology underlying FOG. The sole practice of exercises without high complexity motor training or cognitive compensation strategy might be inadequate to ameliorate FOG in PD patients. Meanwhile, Cassimatis, Liu [66] suggested the effects of continuous cueing through external pathways are often diminished over time, probably because gait control shifts back from a goal-directed strategy to being automatically processed by the malfunctioning basal ganglia network. This hypothesis highlights the importance of investigating compensation strategies that could promote long-lasting attentional/cognitive requisite in addition to motor skillset training. Future research should further examine the skill acquisition process to identify optimal compensation strategies and modalities and the retention effects of these behavioral interventions, as well as establish

the implementation of sustained practice of these lifestyle interventions.

In the section "Clinical implications and recommendations'', third sentence of the first paragraph should read as

Grounded from the studies with positive findings, the suggested dosage for treadmill gait training ranging 20–45 min per session, 2–7 times per week for 4–6 weeks; for action observation training, the suggested dosage ranging 45–60 min per session, 2–3 times a week for 4–8 weeks; for conventional physiotherapy, the suggested dosage ranging 40–90 min per session, 2–3 times per week for 4 weeks to 6 months[18, 19, 25, 37, 38, 41, 44, 52, 54, 67–69].

In the section "Clinical implications and recommendations'', second paragraph should read as

As for community rehabilitation, general exercises demonstrated an evident medium effect size of 0.51 compared to usual care (beyond the 95% Crl). Referring to the trials with positive findings [27, 41, 48, 52, 69], the suggested training time shall last 60–90 min per session, 2–3 times per week for 12 weeks. Compared to allied health professional-led interventions, general exercises were delivered in a group and required fewer tangible resources (such as equipment, nonmedical professionals, space and flexible venue). It is noting that only studies with relatively high complexity motor tasks (i.e., Nordic walking, adapted resistance training) exerted positive effects on FOG symptoms compared to the control conditions. To facilitate long-term implementation of these community-based FOG rehabilitation, future study could integrate psychosocial synergy and telehealth strategy to enhance the participants' motivation and compliance [70–74].

In the section "Limitations'', seventh sentence should read as

Last but not least, many trials had methodological limitations introducing some/high risk of bias due to protocol deviations, non-compliance of intention-to-treat analysis, and/or small sample size [median = 39; range = 17–231].

In the section "Limitations'', ninth sentence should read as

Corroborating with Cugusi, Manca [75]'s concluding remarks, although promising data have been obtained in well-controlled experimental settings from individual studies, it did not provide a defnite evidence of relative efect estimates.

In the section "Limitations'', last sentence should read as

To uplift the quality of evidence in the field of behavioral science, compliance of reporting of clinical trials in accordance with international guidelines such as CONSORT statement [76] are strongly advised.

"Acknowledgments'' section should read as

The authors would like to extend our sincere gratitude and appreciation to our research assistants, Ms. Charis Ann Lai and Ms. Yuki Shum, for their dedicated assistance and contribution to this research paper. We would also like to thank the reviewers at the Journal of Neurology for their critical comments and valuable feedback that has much improved the paper.

In reference section, duplicated references 66 and 58 should be deleted and amend the sequence of the references (from 58 to 78) and in-text citations accordingly.

The reference 42 should read as:

Romenets RS et al. (2015) Tango for treatment of motor and non-motor manifestations in Parkinson's disease: a randomized control study. Complement Ther Med. 2015 Apr;23(2):175–84.

The wrong Supplementary file was originally published with this article; it has now been replaced with the correct file.

The original article has been corrected.

Supplementary Information The online version contains supplementary material available at https://doi.org/10.1007/s00415-022-11076-0.