

Photobiomodul Photomed Laser Surg. 2022 Feb;40(2):112-122.

doi: 10.1089/photob.2021.0056. Epub 2021 Dec 16.

Remote Photobiomodulation Treatment for the Clinical Signs of Parkinson's Disease: A Case Series Conducted During COVID-19

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PMID: 34919459 DOI: [10.1089/photob.2021.0056](https://doi.org/10.1089/photob.2021.0056)

Abstract

Objective: To assess whether remote application of photobiomodulation (PBM) is effective in reducing clinical signs of Parkinson's disease (PD). **Background:** PD is a progressive neurodegenerative disease for which there is no cure and few treatment options. There is a strong link between the microbiome-gut-brain axis and PD. PBM in animal models can reduce the signs of PD and protect the neurons from damage when applied directly to the head or to remote parts of the body. In a clinical study, PBM has been shown to improve clinical signs of PD for up to 1 year. **Methods:** Seven participants were treated with PBM to the abdomen and neck three times per week for 12 weeks. Participants were assessed for mobility, balance, cognition, fine motor skill, and sense of smell on enrolment, after 12 weeks of treatment in a clinic and after 33 weeks of home treatment. **Results:** A number of clinical signs of PD were shown to be improved by remote PBM treatment, including mobility, cognition, dynamic balance, spiral test, and sense of smell. Improvements were individual to the participant. Some improvements were lost for certain participants during at-home treatment, which coincided with a number of enforced coronavirus disease 2019 (COVID-19) pandemic lockdown periods. **Conclusions:** Remote application of PBM was shown to be an effective treatment for a number of clinical signs of PD, with some being

maintained for 45 weeks, despite lockdown restrictions. Improvements in clinical signs were similar to those seen with the application of remote plus transcranial PBM treatment in a previous study. Clinical Trial Registration number: U1111-1205-2035.

Keywords: Parkinson's disease; cognition; mobility; photobiomodulation; remote treatment.

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