

# JMIR Serious Games | Virtual Reality Balance Training for Parkinson Disease

On August 1, 2022 | Tagged balance, meta-analysis, meta-regression, Parkinson disease, rehabilitation, serious games, systematic review, virtual reality, VR, VR training | Edit This



JMIR Publications recently published "Benefits of Virtual Reality Balance Training for Patients With Parkinson Disease: Systematic Review, Meta-analysis, and Meta-Regression of a Randomized Controlled Trial" in JMIR Serious Games, which reported that virtual reality (VR) balance training is increasingly being pursued in biomedical research, specifically with respect to investigating balance ability with VR.

However, existing systematic reviews have found inconsistent conclusions about the efficacy of VR in improving balance in patients with Parkinson disease (PD).

The goal of the research was to evaluate the impact of VR balance training on the balance ability of patients with PD.

A total of 16 randomized controlled trials were analyzed, with the methodological quality evaluation score ranging from 5 to 8 points.

Meta-analysis showed that the balance ability of PD was significantly improved after VR training compared with the control group (standardized mean difference 2.127, 95% CI 1.202-3.052, P<.001).

Dr. Zhanbing Ren from Shenzhen University said, "Parkinson disease (PD) is the most common neurodegenerative movement disorder and is the result of impaired dopamine-producing nerve cells in the ventral midbrain accompanied by progressive neuronal loss."

VR technology involves human-computer interaction technology based on perception and can provide patients with multisensory stimulation and rich virtual scenes, increase the sense of immersion, and realize real-time feedback on physical actions.

**QS2 Point**  
@QS2Point · Follow

Virtual Reality Training Improves Balance for Patients With Parkinson Disease  
[buff.ly/3tMBZk7](https://buff.ly/3tMBZk7)

**#VirtualReality #HealthTech #Innovation #ParkinsonDisease #Training #Applications #TechTrends #future #business #Health #Applications #Education**

8:20 AM · Mar 4, 2022

♡ 1
💬 Reply
🔗 Share

[Explore what's happening on Twitter](#)

The main potential mechanisms of VR therapy include the repeatability of virtual tasks, positive feedback from virtual devices, and concrete simulation of a virtual environment.

Therefore, VR technology may be an effective means of treating neurodegenerative diseases such as PD.

The virtual environment created by VR technology can promote the illusion of bodily movement, increase immersion to enhance the activation of motor brain regions, mobilize the changes of brain neural plasticity, reconstruct the synapses of nervous system cells, and directly train the central nervous system, resulting in significant benefits to the reorganization and recovery of nerve structure in PD and other neurodegenerative diseases.

In addition, sample sizes of randomized controlled trials are currently insufficient to explore the dose effect of VR technology training on improving PD balance.

Dr. Ren and their team concluded in their JMIR Publications Research Output, "The systematic review and meta-analysis confirmed that VR balance training is a highly effective means to improve balance performance with large effects in PD. In addition, we preliminarily extracted dose-effect relationships for training volume, informing clinicians and practitioners to design effective VR balance training for balance ability. Future studies should particularly focus on the detailed description of training variables, so as to further analyze the dose-effect relationship of VR balance training in PD."

###

DOI - <https://doi.org/10.2196/30882>

Full-text - <https://games.jmir.org/2022/1/e30882/>

Free Altmetric Report - <https://jmir.altmetric.com/details/123875940>

Keywords - virtual reality, Parkinson disease, balance, systematic review, meta-analysis, meta-regression, serious games, VR, rehabilitation, VR training

JMIR Publications is a leading, born-digital, open access publisher of 30+ academic journals and other innovative scientific communication products that focus on the intersection of health and technology. Its flagship journal, the Journal of Medical Internet Research, is the leading digital health journal globally in content breadth and visibility, and it is the largest journal in the medical informatics field.

To learn more about JMIR Publications, please visit <https://www.JMIRPublications.com> or connect with us via:

YouTube - <https://www.youtube.com/c/JMIRPublications>

Facebook - <https://www.facebook.com/JMedInternetRes>

Twitter - <https://twitter.com/jmirpub>

LinkedIn - <https://www.linkedin.com/company/jmir-publications>

Instagram - <https://www.instagram.com/jmirpub/>

Head Office - 130 Queens Quay East, Unit 1100 Toronto, ON, M5A 0P6 Canada

Media Contact - [Communications@JMIR.org](mailto:Communications@JMIR.org)

The content of this communication is licensed under the terms of the Creative Commons Attribution License (<https://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work, published by JMIR Publications, is properly cited.

JMIR Publications is a registered trademark of JMIR Publications.

Previous Post: [JMIR Infodemiology | COVID-19 and Vitamin D Misinformation on YouTube: Content Analysis](#)

Q

### Recent Posts

- [JMIR Serious Games | Virtual Reality Balance Training for Parkinson Disease](#)
- [JMIR Infodemiology | COVID-19 and Vitamin D Misinformation on YouTube: Content Analysis](#)
- [JMIR mHealth and uHealth | Remote Automated Blood Pressure Monitoring With Wearable Tech](#)
- [JMIR Cardio | Impact of a Mobile App on Participation in Cardiac Rehabilitation](#)
- [JMIR Dermatology | Patients' Experiences of Telemedicine for Their Skin Problems](#)

### Archives

- [August 2022](#)
- [July 2022](#)
- [June 2022](#)
- [May 2022](#)
- [April 2022](#)
- [March 2022](#)
- [February 2022](#)
- [January 2022](#)
- [December 2021](#)
- [November 2021](#)
- [October 2021](#)
- [September 2021](#)
- [August 2021](#)
- [July 2021](#)
- [June 2021](#)
- [May 2021](#)
- [April 2021](#)
- [March 2021](#)
- [February 2021](#)
- [December 2020](#)
- [November 2020](#)
- [October 2020](#)
- [September 2020](#)
- [August 2020](#)
- [June 2020](#)
- [May 2020](#)
- [April 2020](#)
- [February 2020](#)
- [May 2019](#)
- [April 2019](#)
- [January 2019](#)
- [December 2018](#)
- [November 2018](#)
- [October 2018](#)
- [July 2018](#)
- [May 2018](#)
- [March 2018](#)

### Categories

- [Industry News](#)
- [Job Postings](#)
- [Press Releases](#)
- [Uncategorized](#)