Table 2. Systematic Reviews Assessing Virtual Reality (VR) (Monitoring Biofeedback) for Balance Outcomes in Patients With SCI

Authors Year; Country Date included in the review Number of articles Level of Evidence Type of Study AMSTAR Score	**Method Databases Outcomes Measures**	**Conclusions**
Wang et al. (2024) China Reviewed published articles up to October 2023 N=16 were included in the systematic review and 9 were in the meta-analysis **Level of evidence:** Eight-item Quality Assessment Tool **Type of study:** 5 RCT and 4 non-RCTs **AMSTAR:** 8	**Methods:** The study aimed to describe and calculate the effect sizes of virtual reality (VR) intervention on the functional performance of SCI. **Databases:** PubMed, Embase, Web of Science, and Cochrane Library. **Outcome Measures:** Motor function and balance function (extremity motor score, box and block test, 10WMT, timed up and go test [TUG], manual muscle strength assessment, BBS, and limit of stability [LOS] testing) and activities of daily living (Barthel Index).	1. There was no significant difference in TUG scores (seconds) of patients before and after training (MD = 1.98, 95% CI: -0.72 to4.69, *P* = .15). 2. There was a significant difference in the stability LOS test scores before and after training (SMD = 1.75, 95% CI: 0.99 to 2.52, P < .01). 3. There was a significant difference in the BBS scores before and after training (MD = 4.22, 95% CI: 1.78 to 6.66, P < .01). 4. VR positively impacted movement and balance function in participants with SCI.
Abou et al. (2020); USA Reviewed published articles up to September 2019 N=10 in the systematic review	**Method:** The main objective of this systematic review and meta-analysis was to evaluate and synthesize the effects of VR therapy on gait and balance rehabilitation among people with SCI. **Database:** PubMed, Web of Science, Scopus, SportDiscus, and CINHAL. **Outcome Measures:** Sitting balance (T-shirt test and the modified functional reach test	1. A total of 149 participants from the 10 studies were included. 2. Five studies used only VR therapy and the other studies used a combination of VR therapy with balance or coordination training. 3. Methodological quality: a. Two of the three RCTs included in this review presented a low risk of bias and the third was rated as high risk of bias (and was not included in the meta-analysis).

and 6 in the meta-analysis **Level of evidence:** Cochrane Risk of Bias Tool for RCTs and Quality Assessment Tool for pre-post studies with no control group **Type of study:** 3 RCTs 7 pre-post trials **AMSTAR:** 8	[mFRT]); static sitting balance (Trunk Recovery Scale item D and sway distance and velocity); dynamic sitting balance assessment (Trunk Recovery Scale item E); standing balance assessment (BBS, the activities-specific balance confidence scale [ABC scale], the LOS, the Romberg Index, the parameters of the center of pressure [CoP], the forward functional reach test and lateral functional reach test; and gait outcomes (WISCI II, 10MWT, TUG, 2MWT, spatiotemporal gait parameters, 6MWT, and gait speed).	b. Four out of the seven pre-post studies included in this review presented an overall good quality and three studies were rated as fair overall quality (and were not included in the meta-analysis). 4. Effects of VR therapy assessed by meta-analysis (n=6 studies): a. VR therapy with conventional balance rehabilitation was more effective in improving sitting balance compared with conventional sitting balance rehabilitation only. The combination of the two meta-analyses (T-shirt test and mFRT) showed a statistically significant between-group difference (SMD=1.65; 95% CI 1.21-2.09; p<.01).
De Miguel-Rubio et al. (2020); Spain Reviewed published articles up to December 2019 N=12 studies were included in the systematic review and 2 in the meta-analysis **Level of evidence:** Cochrane Collaboration tool, SCIRE system and the PEDro scale **Type of study:** 3 RCTs 9 cross-sectional studies and case-series studies **AMSTAR:** 8	**Method:** To analyze the effectiveness of VR systems to recover balance in patients with SCI. **Database:** Embase, Web of Science, CINAHL, Scopus, Medline, PEDro, PubMed, and the Cochrane Central Register of Controlled Trials. **Outcome Measures:** Sitting balance and standing balance**.**	1. A total of 188 participants [comparison group, n=57; intervention group, n=131] took part in the different studies. 2. The methodological quality of the RCTs included in this review was generally good (average total PEDro score = 6.3, range 4-8). 3. Regarding the intervention protocols, all the studies analyzed the effects of VR interventions through different technological devices compared to conventional physical therapy. 4. The results of the systematic reviews showed that all the studies got positive results on balance recovery for VR interventions. 5. The overall results of the meta-analysis (n=2) of VR intervention in SCI patients using the mFRT and t-shirt test were favorable.