**Table 1. Characteristics of the studies on the use of immersive virtual reality in cognitive rehabilitation**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Study | Number of subjects, N | Disease | Games used | Control group | Duration of rehabilitation course |
| Y.Y. Liao et al., 2019 [60] | 34 (18 EG, 16 CG) | Mild cognitive disorder | Tai-chi, preparation of food, working as a shop assistant, football | Conventional cognitive training | 12 weeks (3 times weekly × 60 minutes, total 36 sessions) |
| H. Huygelier et al., 2022 [61] | 7 EG | Stroke | Free outdoor activities: forest, lake, garden | – | 6 sessions (30–45 minutes) |
| P.J. White and Z. Moussavi, 2016 [69] | 1 EG | Alzheimer disease | Object finding tasks | – | 7 weeks |
| P. Gamito et al., 2011 [46] | 1 EG | Craniocerebral trauma | ADL training | – | 10 online VR sessions |
| M.N. Dahdah et al., 2017 [70] | 15 EG | Craniocerebral trauma | VR version of Stroop test in a classroom | – | 8 sessions (30–60 minutes) |
| S.J. Yun et al., 2020 [71] | 11 EG | Mild cognitive disorder, mild dementia | Virtual harvesting and food preparation | – | 1 session (30 minutes) |
| E. Park et al., 2019 [72] | 21 (11 EG, 10 CG) | Mild cognitive disorder | ADL training | Computerized cognitive training Comcog | 18 sessions (3 times weekly × 30 minutes) |

ADL, activities of daily living; CG, control group; EG, experimental group; VR, virtual reality

**Table 2. The results of the studies from Tаble 1 in terms on the effects of rehabilitation based on immersive virtual reality on cognitive functions and psychoemotional well-being**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Study | Attention | Executive functions | Memory | Visual-spatial orientation | Comments |
| Y.Y. Liao et al., 2019 [60] |  | + |  |  | Both in EG and CG, there was a significant improvement of executive functions, double tasks\* (walking with simultaneous motor tasks). The EG performed better in walking with cognitive tasks and in the test on road mapping |
| H. Huygelier et al., 2022 [61] | + |  |  | + | Potential use for rehabilitation of the unilateral spatial ignoring syndrome (neglect syndrome, ignoring syndrome) |
| P.J. White and Z. Moussavi, 2016 [69] |  |  |  | + | Improvement of orientation skills |
| P. Gamito et al., 2011 [46] | + |  | + |  | Improvement of the results of the working memory and attention tests |
| M.N. Dahdah et al., 2017 [70] |  | + |  |  | Significant reduction in the response time in Stroop test, improvement of the results of neuropsychological testing |
| S.J. Yun et al., 2020 [71] | + |  |  |  | Non-significant reduction of the response time in the test of response and speed |
| E. Park et al., 2019 [72] |  |  | + |  | Significant improvement of visual-spatial memory in EG; however, no difference between EG and CG in other cognitive domains |

ADL, activities of daily living; CG, control group; EG, experimental group

\* Double tasks: 1) walking with a glass of water on a tray (walking with simultaneous motor tasks); 2) walking with a cognitive task (for example, simultaneous counting, consecutive subtraction of 3 from 100)