Virtual Reality – lower extremity

Author, Year PEDro Score, Country	Sample size	Intervention	Outcome and significance: (+) significant (-) not significant
Cikajlo et al., 2012 PEDro score: N/A (quasi-experimental study) Country: Slovenia	28 patients with subacute/chronic stroke	VR balance training + conventional rehabilitation (n=6) vs. Non-VR balance training + conventional rehabilitation (n=22) **Treatment details:** 20-minute sessions, 5 times/week for 3-4 weeks. VR balance training: performed using the Balance-Trainer® that consisted of a standing frame and a computer screen where the subject had to move through the virtual environment on the virtual path displayed on the screen. Training provided in the clinic for the first 2 weeks and in the home environment with telerehabilitation for the 3rd week. Non-VR balance training: same activities as VR-balance training but without the use of VR. The control group received training in the clinic setting for approximately 4 weeks. Conventional rehabilitation consisted of cognitive, speech, general motor and hydro therapies and was provided during clinic admission only.	**At 3 weeks (post-treatment):** (-) Berg Balance Scale (-) Timed stance on affected leg (-) Timed stance on unaffected leg (-) Timed Up and Go Test (-) 10-Meter Walk Test
Cho & Lee 2013 PEDro score: 7 Country: Republic of Korea	16 patients with chronic stroke	VR treadmill gait training (n=8) vs. Conventional treadmill gait training (n=8) **Treatment details:** 30-minutes/session, 3 times/week for 6 weeks.	**At 6 weeks (post-treatment):** (+) Berg Balance Scale (+) Timed up and Go Test (+) GAITRite: Velocity (+) GAITRite: Cadence (-) GAITRite: Step length (paretic limb) (-) GAITRite: Stride length (-) GAITRite: Single limb support (paretic limb)

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Author, Year PEDro Score, Country	Sample size	Intervention	Outcome and significance: (+) significant (-) not significant
		VR treadmill gait training: virtual scene projected on a screen in front of the treadmill, projecting real-world video recordings of different walking scenes: sunny 400m walking track, rainy 400m walking track, 400m walking track with obstacles, daytime walk in a community, nighttime walk in a community, walking on trails. Conventional treadmill gait training: using the same treadmill without screen projection, looking out a window while walking. Both groups also received conventional rehabilitation that comprised physical therapy using neuromuscular facilitation and neurodevelopmental therapy, functional electrical stimulation to the lower extremity, and occupational therapy for the upper extremity.	Note: differences refer to change in scores from baseline to post-treatment.
Cho & Lee 2014 PEDro score: 7 Country: Republic of Korea	32 patients with chronic stroke	VR treadmill gait training (n=16) vs. Conventional treadmill gait training (n=16) **Treatment details:** 30-minutes/sessions, 3 times/week for 6 weeks. VR treadmill gait training: virtual scene projected on a screen in front of the treadmill, projecting real-world video recordings of different walking scenes: sunny 400m walking track, rainy 400m walking track, 400m walking track with obstacles, daytime walk in a community, nighttime walk in a community, walking on trails. Conventional treadmill gait training: using the same treadmill without screen projection, looking out a window while walking.	**At 6 weeks (post-treatment):** (+) Berg Balance Scale (+) Timed up and Go Test (-) Good Balance SystemTM: Postural sway – anteroposterior (-) Good Balance SystemTM: Postural sway – mediolateral (-) Good Balance SystemTM: Postural sway – velocity moment (+) GAITRite: Velocity (+) GAITRite: Cadence (+) GAITRite: Step length (paretic limb) (+) GAITRite: Stride length (+) GAITRite: Single limb support period (paretic

Author, Year PEDro Score, Country	Sample size	Intervention	Outcome and significance: (+) significant (-) not significant
		Both groups also received conventional rehabilitation that comprised physical therapy using proprioceptive neuromuscular facilitation and neurodevelopmental therapy, functional electrical stimulation to the lower extremity, and occupational therapy for the upper extremity.	limb) (+) GAITRite: Double limb support period
Jaffe et al., 2004 PEDro score: 4 Country: USA	20 patients with chronic stroke	VR treadmill gait training (n=10) vs. Non-VR gait training (n=10) **Treatment details:** 6 x 1-hour sessions over the course of 2 weeks. Both interventions consisted of 12 stepping trials over 10 identical stationary obstacles of a selected height and length. VR treadmill gait training: performed while immersed in VR viewed through a head-mounted display, where participants walked on a motorized treadmill at a self-selected walking speed and were held safely in place using an overhead harness. Non-VR gait training: gait-belt worn while stepping over foam obstacles in a hallway.	**At 2 weeks (post-treatment):** (-) Balance test (7 tasks adapted from the Performance-Oriented Assessment of mobility and the Physical Performance Test) (+) Walking velocity – fast pace (-) Walking velocity – comfortable speed (-) Cadence – fast pace (-) Cadence – comfortable speed (+) Stride length – fast pace (-) Stride length – comfortable speed (-) Obstacle clearance performance (-) 6-Minute Walking Test (-) Step length – paretic/non-paretic limb – fast pace (-) Step length – paretic/non-paretic limb – comfortable pace **At 4 weeks (follow-up):** (-) Balance test (7 tasks adapted from the Performance-Oriented Assessment of mobility and the Physical Performance Test) (+) Walking velocity – fast pace (-) Walking velocity – comfortable speed (-) Cadence – fast pace

Author, Year PEDro Score, Country	Sample size	Intervention	Outcome and significance: (+) significant (-) not significant
			(-) Cadence – comfortable speed (+) Stride length – fast pace (-) Stride length – comfortable speed (-) Obstacle clearance performance (-) 6-Minute Walking Test (-) Step length – paretic/non-paretic limb – fast pace (-) Step length – paretic/non-paretic limb – comfortable pace
Jung et al., 2012 PEDro score: 5 Country: Republic of Korea	21 patients with chronic stroke	VR treadmill training (n=11) vs. Conventional treadmill training (n=10) **Treatment details:** 30-minutes/session, 5 days/week for 3 weeks. VR treadmill training consisted of using a head-mounted display as the viewing media, park stroll scene with progressively increase in walking speed.	**At 3 weeks (post-treatment):** (+) Timed Up and Go Test (+) Activities-Specific Balance Confidence Scale
Kang et al., 2011 PEDro score: 7 Country: Republic of Korea	32 patients with chronic stroke	VR treadmill training with optic flow (n=11) vs. Treadmill training (n=11) vs. Physical exercises (n=10) **Treatment details:** 30-minutes/session, 3 times/week for 4 weeks. VR treadmill training with optic flow: walking on a treadmill while being fully immersed in virtual reality viewed through a helmet mounted display. In the	**At 4 weeks (post-treatment):** VR treadmill training with optic flow vs. treadmill training: (+) Timed up and Go Test (-) Functional Reach Test (+) 10-Meter Walk Test (+) 6-Minute Walk Test VR treadmill training with optic flow vs. physical exercises: (+) Timed up and Go Test

Author, Year PEDro Score, Country	Sample size	Intervention	Outcome and significance: (+) significant (-) not significant
		projected virtual reality scene, the speed of optic flow (i.e. perceived motion at the eye) was increased by 0.1 km/h each time once the participant could walk stably for more than 20 seconds. Treadmill training group: walking on a treadmill with gradual increases in speed of treadmill; did not involve the use of virtual reality and optic flow. Physical exercises: general stretching, range of motion exercise in the less and more affected sides of the trunk, arms, and legs. All groups received conventional physical therapy 5 times/week for 4 weeks based on motor development theory and neurodevelopmental treatment based on motor learning theory.	(+) Functional Reach Test (+) 10-Meter Walk Test (+) 6-Minute Walk Test Treadmill training vs. physical exercises: (-) Timed up and Go Test (+) Functional Reach Test (-) 10-Meter Walk Test (-) 6-Minute Walk Test Note: results represent changes in scores from baseline to post-treatment.
Kim et al., 2009 PEDro score: 8 Country: Republic of Korea	24 patients with chronic stroke	Non-immersive VR gait training + conventional physical therapy balance training (n=12) vs. Conventional physical therapy balance training (n=12) **Treatment details:** 30 minutes/session, 4 sessions/ week for 4 weeks. VR gait training: IREX® VR system (including a TV monitor, video camera, cyber gloves and virtual objects and scenes). VR tasks were designed to stimulate the development of diverse balance, weight shifting, and stepping skills to improve the reacquisition of locomotor skills, with each game programmed to exercise one or	**At 4 weeks (post-treatment):** (+) 10-Meter Walk Test (+) Berg Balance Scale (+) Modified Motor Assessment Scale (-) Balance Performance Monitor (BPM) – static balance (balance, sway area, sway path, maximal sway velocity) (+) BPM – dynamic balance (anterior-posterior, medio-lateral) (+) GAITRite – Cadence (+) GAITRite - Step time (+) GAITRite - Step length (-) GAITRite - Swing time

Author, Year PEDro Score, Country	Sample size	Intervention	Outcome and significance: (+) significant (-) not significant
		multiple aspects of trunk, pelvis, hip, knee, and ankle movement. Conventional physical therapy balance training: targeted static and dynamic balance; 40 minutes/session, 4 sessions/ week for 4 weeks.	(-) GAITRite - Stance time (-) GAITRite - Single support time (-) GAITRite - Double support time (-) GAITRite - Stride length
Kim et al., 2015 PEDro scale: 4 Country: Republic of Korea	20 patients with chronic stroke	Community-based VR treadmill training (n=10) vs. Time-matched physical therapy (n=10) **Treatment details:** 30-minutes/session, 3 times/week for 4 weeks. Community based VR treadmill training: VR image of community ambulation displayed on a screen, adjustable inclination treadmill equipment where scene's speed and optic flow were adjusted as per the treadmill speed. Time-matched physical therapy: muscle strengthening, balance training, indoor and outdoor gait training. Both groups received conventional physical therapy for 60 minutes/day, 5 days/week for 4 weeks.	**At 4 weeks (post-treatment):** (+) Balancia Software system: Postural sway path length – anterior/posterior, mediolateral, total (+) Balancia Software system: Postural sway speed
Kim et al., 2016 PEDro score: 6 Country: Republic of Korea	30 patients with chronic stroke	VR treadmill training community ambulation program (n=10) vs. Community ambulation training program (n=10) vs. No additional ambulation training (n=10) **Treatment details:** 30-minutes/session, 3 times/week for 4 weeks.	**At 4 weeks (post-treatment):** Virtual reality treadmill training vs. no additional training:>(+) Timed Up and Go test (+) Activities-Specific Balance Confidence Scale (-) 6-Minute Walking Test (-) GAITRite: Velocity (-) GAITRite: Cadence (-) GAITRite: Paretic step length (-) GAITRite: Paretic stride length

Virtual Reality – lower extremity

Author, Year PEDro Score, Country	Sample size	Intervention	Outcome and significance: (+) significant (-) not significant
		VR treadmill training community ambulation program: VR scenes of community ambulation projected on a screen and adjustable speed treadmill. Community ambulation training program: overground walking, stairs walking, slope walking, and unstable surface walking; time-matched. All groups received physical therapy: overground and stairs walking training; 30-minutes/session, 2 times/day, 5 days/week for 4 weeks.	Community ambulation training vs. no additional training: (-) Timed Up and Go Test (+) Activities-Specific Balance Confidence Scale (+) 6-Minute Walking Test (-) GAITRite: Velocity (-) GAITRite: Cadence (-) GAITRite: Paretic step length (-) GAITRite: Paretic stride length Virtual reality treadmill training vs. community ambulation training: (-) Timed Up and Go Test (-) Activities-Specific Balance Confidence Scale (-) 6-Minute Walking Test (-) GAITRite: Velocity (-) GAITRite: Cadence (-) GAITRite: Paretic step length (-) GAITRite: Paretic stride length
Lee et al., 2014 PEDro score: 7 Country: Republic of Korea	21 patients with chronic stroke	Augmented reality-based postural control training (n=10) vs. No additional training (n=11) *Treatment details*: 30-minutes/sessions, 3 times/week for 4 weeks. *Augmented reality based postural control training*: performing perceived videos of ideal postal control motions in lying, sitting and standing viewed through a helmet mounded display.	**At 4 weeks (post-treatment):** (-) Timed Up and Go Test (-) Berg Balance Scale (+) GAITRite – Velocity (-) GAITRite – Cadence (+) GAITRite - Step length (paretic, non-paretic limbs) (+) GAITRite - Stride length (paretic, non-paretic limbs)

Author, Year PEDro Score, Country	Sample size	Intervention	Outcome and significance: (+) significant (-) not significant
		Both groups received *physical therapy*: 30 minutes/session, 3 times/week for 4 weeks.	
Llorens et al., 2012 PEDro score: N/A (quasi-experimental design study) Country: Spain	15 patients with chronic stroke	VR stepping exercise (n=15) *Treatment details*: 45-minutes/sessions, 3-5 times/week for 4-5 weeks. *VR steeping exercises*: use of skeleton tracking through a low-cost Kinect depth sensor, BioTrack setting with LCD screen and standard computer. This exercise immerses the participants in a virtual scenario and represents their feet by means of two virtual shoes. The exercise was performed for 6 x 6 minute repetitions with 1 minute break between repetitions.	**At 20 sessions (post-treatment):** (+) Berg Balance Scale (-) Tinetti Performance Oriented Mobility Assessment – balance subscale (+) Brunnel Balance Assessment (number of participants that increased their score) **At 8 weeks (follow-up):** (-) Berg Balance Scale (-) Tinetti Performance Oriented Mobility Assessment – balance subscale (-) Brunnel Balance Assessment (number of participants that increased their score) Note: results refer to significant improvements from baseline to post-treatment and follow-up measurement points.
Llorens et al., 2015 PEDro score: 8 Country: Spain	22 patients with chronic stroke	VR stepping exercise + conventional physical therapy (n=11) vs. Conventional physical therapy alone (n=11) *Treatment details*: 30-minutes/session, 5 times/week for 4 weeks *VR stepping exercises*: use of a standard computer, an audio-visual output system, and a motion tracking system. The virtual rehabilitation system enabled positional audio, providing 3D audio stimuli with a proper configuration of speakers. Motion capture performed with 2 OptiTrack	**At 4 weeks (post-treatment):** (+) Berg Balance Scale (-) Tinetti Performance-Oriented Mobility Assessment (+) Brunel Balance Assessment (+) 10-Meter Walking Test

Author, Year PEDro Score, Country	Sample size	Intervention	Outcome and significance: (+) significant (-) not significant
		FLEX:C120 cameras at 100 Hz. The exercise immersed the participants in a 3D virtual environment, where the feet were represented by two shoes that mimicked real movement in the real world. The objective of the task was to reach the items with one foot while maintaining the other foot within a predefined circular area. *Conventional physical therapy*: 1h/session, 5 times/week for 4 weeks.	
Mao et al., 2015 PEDro score: 5 Country: China	29 patients with acute/subacute stroke	VR-based body-weight-support treadmill training (n=15) vs. Overground walking training (n=14) *Treatment details*: 30-minutes/session, 2-3 times/day, 5 days/week for 3 weeks. *VR based BWSTT*: using a 40-inch TV screen, computer and treadmill, where a series of videos of climbing mountain, crossing street, park or stadium are shown, and where the video speed was synchronized to that of the treadmill and subsequently increased as patient was progressing through the session. *Overground walking training*: provided according to neurodevelopmental therapy for 30-minutes/session, 1 session/day, 5 days/week for 3 weeks. Both groups also received conventional rehabilitation that included physical agents, self-exercises, occupational therapy and physical therapy.	**At 3 weeks (post-treatment):** (-) Vicon Motion Capture System: Pelvis control – tilt (-) Vicon Motion Capture System: Pelvis control – obliquity (-) Vicon Motion Capture System: Pelvis control – rotation

Virtual Reality – lower extremity

Author, Year PEDro Score, Country	Sample size	Intervention	Outcome and significance: (+) significant (-) not significant
Mirelman et al., 2008 PEDro score: 7 Country: USA	18 patients with chronic stroke	VR + robotic lower extremity training (n=9) vs. Robotic lower extremity training (n=9) *Treatment details*: 1 hour/session, 3 times/week for 4 weeks. *VR training*: participants exercised the lower extremity by navigating through a virtual environment that is displayed on a desktop computer, while using the Rutgers ankle rehabilitation system, a 6-degree of freedom Stewart platform force-feedback system to exercise the lower extremity. *Robotic lower extremity training*: performed using the Rutgers ankle rehabilitation system, similar foot activities and instructions were provided by a therapist on direction of foot movements, with metronome cueing for feedback.	**At 4 weeks (post-treatment):** (-) 6-Minute Walk Test* (-) Self-selected walking speed over 7 meters* (+) *Patient Activity Monitor* – number of steps/day (+) *Patient Activity Monitor* – average daily distance (+) *Patient Activity Monitor* – gait speed (-) *Patient Activity Monitor* – cadence (-) *Patient Activity Monitor* – stride (-) *Patient Activity Monitor* – longest consecutive locomotion period (mins) (-) *Patient Activity Monitor* – longest consecutive distance traveled **At 3 months (follow-up):** (-) 6-Minute Walk Test* (-) Self-selected walking speed over 7 meters* * Subgroup analysis of patients with moderate initial walking speed at baseline revealed a significant between-group difference in favour of the treatment group.
Mirelman et al., 2010 (as per Mirelman et al., 2008) PEDro score: 7 Country: USA	18 patients with chronic stroke	VR + robotic lower extremity training (n=9) vs. Robotic lower extremity training (n=9) *Treatment details*: 1-hour sessions, 4 times/week for 4 weeks. *VR training*: participants exercised the lower extremity by navigating through a virtual environment that is displayed on a desktop computer, while using the Rutgers ankle	**At 4 weeks (post-treatment):** (+) Change in ankle moment at push-off – barefoot (-) Change in ankle moment at push-off – shoes (+) Ankle power at push-off – barefoot (-) Ankle power at push-off – shoes (-) Ankle range of motion (ROM) – barefoot (-) Ankle ROM – shoes

Author, Year PEDro Score, Country	Sample size	Intervention	Outcome and significance: (+) significant (-) not significant
		rehabilitation system, a 6-degree of freedom Stewart platform force-feedback system to exercise the lower extremity. *Robotic lower extremity training*: performed using the Rutgers ankle rehabilitation system, similar foot activities and instructions were provided by a therapist on direction of foot movements, with metronome cueing for feedback.	(+) Knee flexion ROM of the affected side during stance – barefoot (-) Knee flexion ROM of the affected side during stance – shoes (+) Knee flexion ROM of the affected side during swing – barefoot (-) Knee flexion ROM of the affected side during swing – shoes (-) Hip flexion ROM during swing – barefoot (-) Hip flexion ROM during swing – shoes (+) Onset of push-off (+) Self-selected walking speed **At 3 months (follow-up):** (-) Change in ankle moment at push-off – barefoot (-) Change in ankle moment at push-off – shoes (+) Ankle power at push-off – barefoot (-) Ankle power at push-off – shoes (+) Ankle range of motion (ROM) – barefoot (-) Ankle ROM – shoes (+) Knee flexion ROM of the affected side during stance – barefoot (-) Knee flexion ROM of the affected side during stance – shoes (+) Knee flexion ROM of the affected side during swing – barefoot (-) Knee flexion ROM of the affected side during swing – shoes (-) Hip flexion ROM during swing – barefoot (-) Hip flexion ROM during swing – shoes

Author, Year PEDro Score, Country	Sample size	Intervention	Outcome and significance: (+) significant (-) not significant
			(+) Onset of push-off (+) Self-selected walking speed
Park et al., 2013 PEDro score: 5 Country: Republic of Korea	16 patients with chronic stroke	VR-based postural control training (n=8) vs. No VR training (n=8) *Treatment details*: 30-minutes/sessions, 3 times/week for 4 weeks. *VR-based postural control training*: virtual scene viewed through a head-mounted display and exercises of trunk stability and pelvic tilt, and lower extremity muscle stretching were projected and performed by the individual. Both groups received *conventional physical therapy*: muscle strengthening, static and dynamic balance training, gait training; provided for 60-minutes/session, 5 times/week for 4 weeks.	**At 4 weeks (post-treatment):** (-) 10 Meter Walk Test (-) GAITRite: Velocity (-) GAITRite: Cadence (-) GAITRite: Step length - paretic and nonparetic limbs (-) GAITRite: Stride length - paretic and nonparetic limbs (-) Functional Ambulation Profile **At 1 month (follow-up):** (-) 10 Meter Walk Test (-) GAITRite: Velocity (-) GAITRite: Cadence (-) GAITRite: Step length - paretic and nonparetic limb (+) GAITRite: Stride length - paretic and nonparetic limb (-) Functional Ambulation Profile
Yang et al. 2011 PEDro score: 4 Country: Taiwan	14 patients with chronic stroke	VR treadmill training (n=7) vs. Conventional treadmill training (n=7) *Treatment details:* 20-minutes/session, 3 times/week for 3 weeks. *VR treadmill training*: level walking on a treadmill with interactive VR scenes,	**At 3 weeks (post-treatment):** (+) Quiet stance – center of pressure displacement in medial-lateral direction (COPML) (-) Quiet stance – center of pressure displacement in posterior/anterior direction (COPAP) (-) Quiet stance – center of pressure total path

Author, Year PEDro Score, Country	Sample size	Intervention	Outcome and significance: (+) significant (-) not significant
		which required the patients to step on a stepping switch with either the paretic or nonparetic limb to make the VR scenes turn left or right as if they were turning a corner during a walk down a street. When the subjects stepped on the switch to make the VR scenes turn, the speed detector was activated, and the treadmill slowed down until the turn was finished. Virtual scene was projected on an LCD monitor. *Conventional treadmill training*: level walking on a treadmill, with eyes looking straight ahead at a botanical garden outside the window.	excursion (COPE) (-) Quiet stance – center of pressure sway area (COPA) (-) Quiet stance – symmetry index (SI) (-) Sit-to-stand transfer– COPML (-) Sit-to-stand transfer – COPAP>(-) Sit-to-stand transfer – COPE (-) Sit-to-stand transfer – COPA (-) Sit-to-stand transfer – SI (-) Sit-to-stand transfer – COPE/paretic limb (-) Level walking – stance time/paretic limb (-) Level walking – step number/paretic limb (-) Level walking – contact area/paretic limb
Yang et al., 2008 PEDro score: 6 Country: Taiwan	24 patients with chronic stroke	VR treadmill training (n=12) vs. Conventional treadmill training (n=12) *Treatment details:* 20-minutes/session, 3 times/ week for 3 weeks. *VR treadmill training*: virtual environment designed to simulate a typical community in Taipei. The scenarios consisted of lane walking, street crossing, obstacles striding across, and park stroll, where patients progressed through different levels of complexity requiring faster walking speeds, successful adaptation to changes in obstacle heights and surface slopes (uphill and downhill), and increasing decision-making opportunities to avoid collisions. Virtual scene was projected on a wide concave screen surrounding the viewers visual field.	**At 3 weeks (post-treatment):** (+) 10-Meter Walk Test (maximal gait speed) (+) Community Walk Test (400 m walk in the community) (-) Walking Ability Questionnaire (-) Activities–specific Balance Confidence scale **At 1-month (follow up):** (-) 10-meter walking test (maximal gait speed) (-) Community Walk Test (400 m walk in the community) (+) Walking Ability Questionnaire (-) Activities–specific Balance Confidence scale

Author, Year PEDro Score, Country	Sample size	Intervention	Outcome and significance: (+) significant (-) not significant
		Conventional treadmill training: walking on the treadmill and executing different tasks including lifting legs to simulate stepping over the obstacle, uphill and downhill walking, and fast walking.	
Yom et al., 2015 PEDro score: 5 Country: Republic of Korea	22 patients with chronic stroke	VR ankle exercise training (n=11) vs. No training (n=11) *Treatment details*: 30-minutes/session, 5 times/week for 6 weeks. *VR ankle exercise training* consisted of 4 exercise programs: on the floor, on balance board, cushion ball and on one foot. The VR was projected into a screen and showed the exercises that were becoming progressively challenging. The control group watched an environmental documentary irrelevant to ankle exercise for the same period of time. Both groups also received *conventional physical therapy* for 30-minutes/session, 10 times/week for 6 weeks (usually before their respective treatment).	**At 6 weeks (post-treatment):** (+) Timed Up and Go Test (+) Modified Ashworth Scale (+) Tardieu Scale (+) GAITRite: velocity (+) GAITRite: cadence (+) GAITRite: step length (+) GAITRite: stride length (+) GAITRite: stance time percentage (+) GAITRite: swing time percentage (+) GAITRite: double limb support percentage
You et al., 2005 PEDro score: 7 Country: Republic of Korea	10 patients with chronic stroke	VR gait training (n=5) vs. No treatment (n=5) *Treatment details*: 1-hour/session, 5 times/week for 4 weeks.	**At 4 weeks (post-treatment)**: (+) Functional Ambulation Category (+) Modified Motor Assessment Scale

Author, Year PEDro Score, Country	Sample size	Intervention	Outcome and significance: (+) significant (-) not significant
		VR gait training: using the IREX VR system that includes a TV monitor, video camera, cyber gloves and virtual objects, scenes, and a large screen. The video camera was used to capture and track movement and immerse the patient inside VR scene. Stepping up/down, Sharkbait, Snowboard games were interfaced with virtual environments to facilitate range of motion, balance, mobility, stepping, and ambulation. The VR tasks were designed to focus on the development of the different skills with each game programmed to exercise one or multiple aspects of trunk, pelvis, hip, knee, and ankle movement.	
Lee et al., 2014 PEDro score: 7 Country: Republic of Korea	21 patients with chronic stroke	Augmented reality-based postural control training (n=10) vs. No additional training (n=11) <u>*Treatment details*</u>: 30-minutes/sessions, 3 times/week for 4 weeks. *Augmented reality based postural control training*: performing perceived videos of ideal postal control motions in lying, sitting and standing viewed through a helmet mounded display. Both groups received *physical therapy*: 30 minutes/session, 3 times/week for 4 weeks.	**At 4 weeks (post-treatment):** (-) Timed Up and Go Test (-) Berg Balance Scale (+) GAITRite – Velocity (-) GAITRite – Cadence (+) GAITRite - Step length (paretic, non-paretic limbs) (+) GAITRite - Stride length (paretic, non-paretic limbs)