Study	Therapist involvment	List of principles	Intervention (if Dosage)	Comparison hours	Comparison weeks	01 Massed practice (MP)	02 Dosage (D)	03 Structured practice (SP)	04 Task-specific practice (TSP)	05 Variable practice (VP)	06 Multisensory stimulation (MS)	07 Avatar representation (AR)	08 Increasing difficulty (ID)	09 Explicit feedback (EF)	10 Implicit feedback (IF)	11 Promote use of affected limb (PUA)
NSVR																
Aşkin 2018		• Dosage • Task-specific practice • Variable practice • Explict feedback • Promote the usage of the affected limb	4*5*60(60)=40h	40	4		Intervention was more than 60 mins per session		"... delete the dirty spots in different regions of the screen or to clean a water stain, fog, kid's drawing or car dust...", "... active movements of shoulder and elbow...", "... making the food (dragging and dropping ingredients, mixing, cutting and cooking).", "... active shoulder, elbow, and wrist movements are per- formed ..."	"Patients were allowed to play all three game parts (Good view hunting and Hong Kong Chef (two parts)) for 1 hour, respectively.", "... active movements of shoulder and elbow...", "... active shoulder, elbow, and wrist movements are per- formed ..."				"... high score can be obtained by moving fast."		"The patients usually performed the active movements of shoulder and elbow on the affected side... "
Brunner 2017	Developed for rehabilitation purposes, it comprises several games that the therapist can adapt to the patient's actual motor abilities	• Dosage • Task-specific practice • Variable practice • Increasing difficulty • Implicit feedback	4*4.1*51.1(107.2)=43.7h†	43.7	4		Intervention was more than 60 mins per session		"... reaching and grasping exercises, selective finger movements, supination / pronation, whole-arm movements, unimanual or bimanual training, ..."	"... it comprises several games ...", "... reaching and grasping exercises, selective finger movements, supination / pronation, whole-arm movements, unimanual or bimanual training, ..."			"... adapt to the patient's actual motor abilities.", "... speed of objects, intervals between objects, and dispersion to the left and right of object positions."		virtually enhanced movements, i.e., movements that can be visually increased on the screen	
Cameirão 2011		• Task-specific practice • Variable practice • Avatar representation • Increasing difficulty • Implicit feedback • Promote use of affected limb							"In Spheroids the user has to interact with upcoming spheres and perform specific movements from basic arm range movements, to grasping and object displacement, and release."	"The sessions followed a structured training protocol with tasks of increasing complexity (Hitting, Grasping, and Placing) that train speed and range of movement, grasp and release respectively."		"...and a virtual environment where an avatar mimics the movements of the user."	"...defined the baseline difficulty of the Spheroids task. During the training, each new difficulty setting was computed taking into account the previous responses of the user.", "... the Personal- ized Training Module (PTM) that adapts online the difficulty of the task to the performance of the user,"		"The execution and observation of goal-oriented movements provides sensory feedback of one's actions in terms of movement patterns andmovement outcomes."	"Moreover, individualization was realized for each arm separately." (bimanual)
Crosbie 2012	The therapist could navigate through the data input and graphics by means of drop-down menus. As the participant's per-formance progressed the tasks could be made easier or more difficult by means of changing the distance or height of objects or the speed of stimulus.	• Variable practice • Increasing difficulty • Promote use of affected limb								"The virtual tasks were designed to simulate a range of upper limb tasks related to reach to target, reach and grasp and game tasks."			"As the participant's performance progressed the the tasks could be made easier or more difficult by..."			"Three sensors were applied to the shoulder, elbow and hand of the participant, who could then manipulate ...", "... and the inclusion of the more affected upper limb in functional tasks."
Duff 2012		• Variable practice • Multisensory stimulation • Explicit feedback • Implicit feedback • Promote usage of affected limb								"... reaching tasks to 3 different objects: a virtual point (no physical target), a 3-inch physical button, or a physical cone."	"... used to provide audio and visual feedback to the participant during the task, ..."			"The system also provided audio and visual cues indicating the task was successfully completed and provided a visual summary of where the trajectory errors had occurred to aid in forward planning."	"The feedback provided real-time visual cues about trajectory error and hand rotation and real-time audio indications of the speed of the hand's movement, elbow extension, and torso and shoulder compensation."	"Tasks in both groups were performed with the right hand only. ", "... right-sided hemiparesis, and right-hand dominant prestroke."
Jang 2005	VR-trained therapists determined the baseline performance, provided a customized treatment, and monitored the outcomes. Necessary adjustments in VR parameters such as speed, angle, and lifting force were made. For example, exercise progression was also obtained by increasing resistive force using hand and cuff weights.	• Task-specific practice • Variable practice • Increasing difficulty • Avatar representation • Implicit feedback • Promote usage of affected limb							"... The task-oriented training paradigm with faded feedback was used to reinforce the patient to become an independent problem solver ...", "These VR protocols were designed to focus on the development of reaching, lifting, and grasping motor skills, ..."	Fig. 1: birdball, conveyor exercise gmae, soccer exercise, shows 3 interfaced virtual exercise protocols, "These VR protocols were designed to focus on the development of reaching, lifting, and grasping motor skills, with each game pro- grammed to exercise 1 or multiple aspects of upper-extremity and trunk movement."		"These captured images were digitally converted and projected on an enlarged screen."	"For example, exercise progression was also obtained by increasing resistive force using hand and cuff weights."		"The patient was able to view his/her own body movements in real time."	"... It is plausible that VR may have motivated and promoted practice-dependent reorganization resulting from the increased AOU of the affected limb in relevant motor tasks." In picture it seems only one hand can be used for the tasks
Jo 2012	If the subjects could not perform well, the therapist gave verbal cues or physical assistance. The level of difficulty of all programs could be controlled by adjusting the velocity, quantity, distance, and angle of the VR object.	• Dosage • Structured practice • Variable practice • Increasing difficulty • Explicit feedback • Promote usage of affected limb	4*5*60(18)=26h	26	4		Intervention was more than 60 mins per session	"Each program was performed for 5 min, with a 1-min break between programs."		"We selected 6 VR programs for our study: bird and balls, coconuts, drums, juggler, conveyor, and soccer."			"The level of difficulty of all programs could be controlled by adjusting the velocity, quantity, distance, and angle of the VR object."	"If the subjects could not perform well, the therapist gave verbal cues or physical assistance."		"Subjects were asked to move the affected upper extremity."
Kiper 2011	The virtual scenarios could be created by the physiotherapist, recording the movements carried out grasping the same sensorized object (for example an envelope, a glass, etc.) Hence, the physiotherapist created a sequence of virtual tasks that the patient had to perform on his workstation. The physio- therapist determined the complexity of the task, tailored to the patient's motor deficit.	• Dosage • Task-specific practice • Variable practice • Increasing difficulty • Implicit feedback • Promote the usage of affected limb	4*5*60(60)=40h†	40	4		Intervention was more than 60 mins per session		"Virtual tasks consisted mainly of simple movements, pouring water from a glass, using a hammer, turning around the centre of a doughnut, etc."	"The virtual scenarios could be created by the physiotherapist, recording the movements carried out grasping the same sensorized object (for example an envelope, a glass, etc.) used for the patients." , "Hence, the physiotherapist created a sequence of virtual tasks that the patient had to perform on his workstation."			"The therapist could add virtual obstacles (for example a donut, a glass, a ball, etc.) to increase the task complexity", "The location of the starting position, the target and the other objects, virtually represented in the arm workspace, determines the type and the difficulty of movement requested."		"Thereafter, the patient moved the real object (envelope, carafe, hammer) following the trajectory of the corresponding virtual object displayed on the computer screen in accordance with the requested virtual task."	"During the virtual therapy the subject was seated in front of the wall screen grasping a sensorized real object (ball, disc or cube) with the affected hand."

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Kiper 2014	The virtual scenarios could be created by the physiotherapist recording the movements carried out by himself while grasping the same sensorized object used for the patients. In the virtual scenario, the therapist determined the location of the starting position, the target to reach for each task, and the path to follow. Hence, the therapist created a sequence of motor tasks that the patient was asked to performon his workstation along the therapy session. The physiotherapist determined the complexity of the task, tailored on patient's motor deficit	• Dosage • Variable practice • Increasing difficulty • Implicit feedback • Promote usage of affected limb	4*5*60(60)=40h†	40	4		Intervention was more than 60 mins per session			"The virtual scenarios could be created by the physiotherapist recording the movements carried out by himself while grasping the same sensorized object used for the patients. In the virtual scenario, the therapist determined the location of the starting position, the target to reach for each task, and the path to follow.", "Hence, the therapist created a sequence of motor tasks that the patient was asked to performon his workstation along the therapy session."			"Additionally, virtual obstacles in the arm workspace could be displayed with the aim of increasing the complexity of the motor task."		"... and the path to follow."	"... grasping a sensorized real object (i.e., ball, disc, or glass) with the paretic hand;"
Kiper 2018	Then, the physiotherapists involved in the current study had the possibility to choose the most appropriate exercises for each patient from the existing library and to create new virtual scenarios by the editor application of the VRRS program.	• Dosage • Task-specific practice • Variable practice • Multisensory stimulation • Explicit feedback • Implicit feedback • Promote the usage of the affected limb	4*5*60(60)=40h*	40	4		Intervention was more than 60 mins per session		"Virtual tasks consisted of both simple movements (eg, moving a ball by executing elbow flexion in vertical plane) and complex movements that involved multiple muscle synergies (eg, pouring water from a glass, using a hammer, using a toothbrush)."	"A library of virtual sce-narios and tasks was created by physiotherapists...", "... choose the most appropriate exercises for each patient from the existing library and to create new virtual scenarios by the editor application of the VRRS program."	"Acoustic signals and a digital voice provided information..."			"... after each trial feedback was provided in the form of a score which was proportional to the amount of spatial error made (knowledge of results)."	"... in addition, reinforced visual feedback was visu- alized in the form of a virtual teacher (ie, nonsensorized virtual object) with the same shape but different color of virtual representation of the end effector, which automatically executed the correct trajectory (supervised learning).", "At the end of the therapy session, the physiotherapist showed patients the result of their own movements (knowledge of performance) by visualizing all recorded trajectories compared with the requested one."	"... grasping a sensorized real object (eg, ball, disk, glass) with the paretic hand,..."
Kottink 2014	The difficulty of the game was adjusted by the therapist, first via an increase in distance to the reach targets and subsequently reducing the predictability of the order of the targets and increasing the speed of the game.	• Task-specific practice • Increasing difficulty • Explicit feedback • promote the usage of the affected limb							"... to make goal- directed reaching movements ...", "In the game, birds had to be chased away repeatedly by reaching for them with the hand ..."				"The difficulty of the game was adjusted by the therapist, first via an increase in distance to the reach targets and subsequently reducing the predictability of the order of the targets and increasing the speed of the game."	"The faster the birds were chased away, the higher the score."		"Subjects are challenged to make goaldirected reaching movements with the affected arm and hand in a gaming environment displayed ..."
Kwon 2012		• Dosage • Task-specific practice • Variable practice • Avatar representation	4*5*30(70)=33h	33	4		Intervention was more than 60 mins per session		"... induce reaching and lifting motor skills of the upper limb at various angles were selected ..."	"In this study, five VR games ... were selected: Bird and Ball, Drum, Coconutz, Soccer and Conveyor games."		"The video camera system captures body images, and the subject then becomes immersed in the VR scene, interacting with virtual environments and objects."				
Lee 2016		• Structured practice • Variable practice • Implicit feedback • Promote usage of impaired limb						"... followed by 1 minute of rest designed to minimize fatigue."		"The animation consisted of four training programmes, including symmetric upper extremity training, asymmetric upper extremity training, sym-metric upper extremity training at 0° and 45° in the VR environment, and asymmetric upper extremity training at 0° and 45° in the VR environment."					"... and the other simultaneously offered images of patients' performance, to provide real-time visual feedback."	"Through these kinds of activities, an affected arm in a stroke patient was increasingly used."
Levin 2012	unclear	• Task-specific practice • Variable practice • Avatar representation • Increasing difficulty • Explicit feedback • Promote use of paretic limb							"... goal-directed reaching tasks ...", "... reaching movements combined shoulder flexion to 130°,shoulder abduction to 60°, elbow extension to 180°, and wrist flexion and extension. "	"... virtual games and a virtual supermarket scenario (e.g., Birds & Balls, Soccer, Volleyball, VMall). ", "... shoulder flexion to 130°,shoulder abduction to 60°, elbow extension to 180°, and wrist flexion and extension. "		"The user's image was recorded and displayed within the VE, which responded to user gestures in real-time." real-time.	"For both groups, the initial level of task difficulty was matched to patient impairment level and increased throughout the intervention to ensure that practice remained challenging to the individual."	"... feedback provided by the therapist concerning the quality of the reaching movements ..."		"... goal-directed reaching tasks by the affected arm ..."
Piron 2009		• Variable practice • Explicit feedback • Implicit feedback • Promote usage of impaired limb								"Five virtual tasks, comprising simple arm movements, were devised for training the patient's left or right arm deficits."				"In addition, the therapist provided the patient with information about the tasks' exactness ..."	"... the patient moved the real object following the trajectory of the corresponding virtual object displayed... ", "The subject could see not only his or her movement, but also the correct trajectory pre-recorded in the virtual scene."	"... for training the patient's left or right arm deficits."

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Piron 2010	The physical therapist could create numerous virtual motor tasks for the arm through the use of flexible software developed ... The RFVE therapist selected the characteristics and complexity of the motor tasks to suit each patient's arm deficit. In the virtual scenario, the therapist determined the starting position and the target of each task, such as target orientation or the addition of other virtual objects, to increase the complexity of the task.	• Variable practice • Increasing difficulty • Explicit feedback • Implicit feedback • Promote usage of impaired limb								"The physical therapist could create numerous virtual motor tasks ...", "A simple reaching movement could accomplish some tasks, whereas others required more complicated movements."			"... the therapist determined the starting position and the target of each task, such as target orientation or the addition of other virtual objects, to increase the complexity of the task."	"Moreover, knowledge of results (KR) regarding motor task correctness was supplied to patients in the form of standardized scores and by displaying arm trajectory morphology on the screen."	"Subjects were given information about their arm movements during the performance of motor skills (ie, knowledge of performance [KP]) by the movement of the virtual representation of the end-effector.", "... movement and trajectory was displayed in the background of the virtual scene to facilitate the subject's perception and adjustment to motion error."	"... of progressive therapy for the affected upper extremity.", "... held by the subject or was alternatively attached to a glove worn by the patient in cases of severe grasping deficit."
Shin 2014	Instead, the RehabMaster allows occupational therapists, who are in direct contact with the patients, to make the desired adjustments. The practice data provided by the RehabMaster helped the therapists to devise new sets of individualised tasks for the patients to practice. Hence, as the rehabilitation continued over a period of weeks, the therapists could increase the level of difficulty of the intervention to ensure that the patients with stroke continued to be optimally challenged.	• Task-specific practice • Variable practice • Avatar representation • Increasing difficulty • Explicit feedback • Implicit feedback • Promote usage of affected limb							"Rehabilitation training simulates arm and trunk movements designed to restore specific functional deficits.", "The motions were intended to promote incremental improvement in range of motion and endurance, strength, and deviation from synergistic motion patterns."	"The rehabilitation games were designed to combine a variety of rehabilitation exercises ...", "Four different types of games that address general UE functional deficit were suggested: Underwater fire, Goalkeeper, Bug hunter,and Rollercoaster."		"... imitate some of the 40 different motions performed by an avatar,..."	"... the number of fish on the display and their trajectories are controlled by the occupational therapists.", "The ability to adjust the level of difficulty gradually in accordance with the patient's pro- gress was a highly appreciated feature of the RehabMaster."	"The number of fish ter-minated constituted the measure of game performance ..."	"The patient controlled a goalkeeper's (or hunter's) hands on the display to catch a football (or bug).", "The patient's actual movements during the entire gaming session are recorded and played back at the end of the session in order to provide feedback."	"... in order to force the patients to use only the affected UE intensively."
Standen 2016		• Massed practice • Task-specific practice • Variable practice • Increasing difficulty • Explicit feedback • Promote the use of affected limb				"... aimed to increase the number of repetitions of functional movements ..."			"... reach to grasp, grasp and release, pronation and supination that are necessary fort many activities of daily living." ... of the hand to guide a space craft through obstacles	"Spacerace required pronation and supination of the hand to guide a space craft through obstacles. Spongeball required the user to open their fist and extend their fingers in order to release a ball to hit a target. Balloonpop required a balloon to be grasped and popped by moving it to a pin protruding from the virtual floor."			"They were designed to be constantly challenging, with increasing levels of difficulty dependent on ability.', "Difficulty was increased by greater movement being required to complete a task, an increase in the speed at which events occur and with which responses are required, or an increase in the precision required to complete a task."	"Immediate feedback was given by scores displayed on the screen at the end of a game and a permanent visual display of scores and levels played."		"We developed a low cost home-based system for rehabilitation of the arm and hand designed to be flexible and motivating in order to improve adherence.", "The intervention (the virtual glove, see Supplementary Figure) consisted of a hand- mounted power unit, with four infra-red light emit- ting diodes mounted on the user's finger tips."
Turolla 2013a	In both intervention groups the physical therapists were constantly present during the session and modified the rehabilitation program in accordance with the patient's current motor capacity and needs. The physical therapist held in his hand a real glass with a receiver positioned on the object and performed the act of placing the glass on the virtual shelf. The therapist selected the characteristics and complexity of the motor tasks by changing the position or orientation of the virtual objects. The therapist was present at every session for the entire duration, as in a standard one-to-one setting. The therapist role was to manage the virtual environment to adapt it to the current patient's physical condition and to guide the patient with verbal instructions in case of difficulties during the execution of the interactive exercise. At the end, the therapist discussed with the patients the results obtained during the therapy session.	• Dosage • Task-specific practice • Variable practice • Increasing difficulty • Explicit feedback • Implicit feedback	4*5*60(60)=40h†	40	4		Intervention was more than 60 mins per session		"For instance, a simple reaching-aiming movement, such as putting a glass on a shelf, is represented in the virtual scenario and was represented by a virtual glass and shelf.", "The therapist selected the characteristics and complexity of the motor tasks by changing the position or orientation of the virtual objects."	"Motor exercises in the virtual environment. The two scenarios (VRRS"...", "The therapist selected the characteristics and complexity of the motor tasks by changing the position or orientation of the virtual objects. "			"Complexity of the motor tasks could be enhanced by complicating the required movements adding objects/barriers into the virtual scenario. "... patients were forced to activate different sets of upper arm muscles to perform the increasingly difficult task requirements. "	"At the end, the therapist discussed with the patients the results obtained during the therapy session-"	The patient was then required to emulate the correct movement performed beforehand by the therapist. "The correct trajectory was displayed in the background of the virtual scene to facilitate the patient's perception and adjustment of his motion errors to target ..."	
Turolla 2013b		dito														
Turolla 2013c		dito														
Yin 2014		• Dosage • Structured practice • Task-specific practice • Multisensory stimulation • Avatar representation • Explicit feedback • Implicit feedback • Promote usage of affected limb	2*4.5*30(90)=18h	18	2		Intervention was more than 60 mins per session	"Rests were given after each set of two minutes practice or as necessary."	"Participants were instructed to pick a virtual fruit from a shelf and release it into a virtual basket ...", "This reaching practice was carried out in standing, simulating real-life."		"Cheering and clapping sounds were also included ..."	"Controller displacement was linked to the movement of a hand avatar on the screen."		"... extrinsic feedback was incorporated, such that the number of fruits and average time (in second) per fruit successfully transferred were given to the participants."	"Controller displacement was linked to the movement of a hand avatar on the screen."	"The controller was held in the affected hand,..."

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Zondervan 2016		• Massed practice • Task-specific practice • Multisensory feedback • Explicit feedback • Promote usage of affected limb				"... a target dose of 2,700 total grips, based on a recommended dose of 300 repetitions/h suggested elsewhere [49], multiplied by 9 total hours of prescribed therapy.", "... we instead observed that the participants significantly increased their use of the device after the first week of therapy, completing on average over 200 additional grips per day during the next 2 wk."			"... practice functional gripping movements by touching the sensor on the tip of the thumb to one of the other five sensors in time with music through a video game that displays scrolling notes on a screen."		"... cued by scrolling notes on screen (top) to make specific grips in time with popular song."			"If the user is successful, the colored note disappears, providing visual feedback. If the user is unsuccessful, a beep is played, providing auditory feedback."		"We developed the MusicGlove, an instrumented glove (only for 1 hand) with sensors on each of the fingertips and the lateral aspect of the index finger."	
Zucconi 2011		• Variable practice • Increasing difficulty • Implicit feedback • promote the use of paretic limb								"During the therapy the patients were asked to manipulate sensorized objects (ball, plastic cup or cylinder), in order to accomplished the virtual object displayed on the scene."			"... immediately modifying the motor task hardness."		"... virtual teacher performing the correct movement to emulate, ... ", "This feedback, allowing a real time visual comparison between the patient's own execution and the teacher one, gave an on-line information on the motor performance quality"	"In the case of grasping deficits the hand's surface was used as end effector, by means of a sensorized glove worn by the patients."	
			mean	35.633333	3.777778	2	9	3	14	19	4	6	14	13	14	19	Total
			SD	7.9657601	0.628539	9%	41%	14%	64%	86%	18%	27%	64%	59%	64%	86%	%
comparison SVR to NSVR																	
			SD	9.0862534	0.894427	0%	63%	13%	50%	100%	38%	25%	25%	25%	25%	75%	%
			mean	25.8	3	0	5	1	4	8	3	2	2	2	2	5	Total
NSVR																	
da Silva Ribeiro 2015		• Structured practice • Variable practice • Increasing difficulty						"During rehabilitation, patients had a 1-minute rest interval between each games."		"The tennis and hula- hoop games were applied during the first session; the soccer and boxing games were applied during the second weekly session."			"The difficulty level of the games was increased as the patients progressed."				
Kong 2016	Each game or part of a game was preselected taking into consideration the subject's preferences and residual upper limb functional capacity as determined by the occupational therapists.	• Dosage • Variable practice • Explicit feedback • Promote usage of affected limb	3*4*60(75)=27h†	27	3		Intervention was more than 60 mins per session			"Games from the Wii Sports and Wii Sports Resort software were chosen and these included boxing, bowling, tennis, golf, baseball, table tennis, basketball, cycling, Frisbee disk, sword play, and airplane flight control."				"Scores are given and users with better precision in executing each task attain higher scores."		"The subject was asked to hold the Wiimote in the stroke-affected hand."	
Rand 2017		• Variable practice • Promote use of paretic limb	5*6*37.6=18.8h†							"Popular Xbox Kinect games included Bowling (Sports CD), Table Tennis (Sports CD), 20,000 Leaks (Adventures CD) and popular EyeToy games included Wishi washi, Ghosts, Kong fu (CD 1)."						"In all cases, daily self-training consisted of playing the video-games with their weaker arm, where proximal rather than distal movements are needed to successfully play the games."	
Saposnik 2010		• Dosage • Variable practice • Multisensory feedback • Avatar representation • Implicit feedback	2*4*60(60)=16h†	16	2		Intervention was more than 60 mins per session			"... sports (ie, Wii Sports) and Cooking Mamma packages, ..."	"... and provision of direct multimodal sensory feedback (vision, touch, and auditory) ..."	"... avatar (computer user's representation of himself or herself or alter ego) technology."			"The feedback provided by the TV screen as well as the opportunity to observe their own movements in real time, generates positive reinforcement, thus facilitating training and task improvement."		
Saposnik 2016		• Dosage • Task-specific practice • Variable practice • Promote use of paretic limb	2*5*60(37.3)=16h†	16	2		Intervention was more than 60 mins per session		"... with the goals of enhancing flexibility, range of motion, strength, and coordination of the affected arm."	"We used commercially available software, including Wii Sports, and Game Party 3."						"... of the affected arm."	
Sin 2013		• Task-specific practice • Variable practice • Multisensory stimulation • Explicit feedback • Implicit feedback • Promote use of paretic limb							"... active movements of shoulder flexion, extension, abduction, adduction, external rotation, and internal rotation, along with elbow flexion and extension, forearm supination and pronation, and wrist flexion and extension ..."	"Boxing and Bowling in the Kinect sports pack and Rally Ball, 20,000 Leaks, and Space Pop in the Kinect adventure pack, all of which required the use of the upper extremities, were selected."	"... visual and auditory sensory feedback are provided."			"When the task is not properly performed in the VR environment, visual and auditory sensory feedback are provided."	"... the user's movement in the VR environment can be seen through the monitor in real time."	"... on the affected side."	
Türkbey 2017		• Dosage • Task-specific practice • Variable practice • Multisensory stimulation • Avatar representation • Promote the usage of the affected limb	4*5*60(60)=40h	40	4		Intervention was more than 60 mins per session		"... swinging their arms in order to hit the bowling pins.", "Active flexion, extension, internal and external rotation of shoulder. Active elbow flexion and extension.", "... required to hit the mice randomly coming out of 4 pipes (2 on left and 2 on right side) in the frontal plane as fast as possible while avoiding the spiny ones.", "Active shoulder abduction and adduction. Active elbow flexion and extension."	"As the training software, commercially available Bowling from the Kinect Sports package and Mouse Mayhem from the Dr Kawashima's Body and Brain Exercises package, both of which require use of the upper extremities... "	"... the system assists the user with audio and visual feedback."	"The user can follow his/through a virtual avatar her real world movements and interact with the games console through a virtual avatar on the screen created by the system."				"Patients are required to take the ball with their affected side ..."	

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Yavuzer 2008		• Dosage • Task-specific practice • Variable practice • Increasing difficulty • Promote the usage of the affected limb	4*5*30(60)=30h	30	4		Intervention was more than 60 mins per session		"... flexing and extension of paretic shoulder, elbow and wrist as well as abduction of the paretic shouler... ", "... kung-foo was used for training reaching ... ", " Smashing ice cubes and demolishing the wall to train elbow extention ...", " dig, the patients were asked to hit the brunches but save the other items, which may help problem solving."	Kung-Foo, Smashing the ice cubes, Demolishing the wall, Goalkeeper MrChef, Dig and Home-run			"It gets harder when the patient completed the stage, or performance bar reduces to zero according to his level."			"... encouraged the patients in the EyeToy group to use their paretic arm while playing."