**Supplementary file S4.** Intervention group and participant characteristics of included articles.

**Supplementary table S4.** Intervention group and participant characteristics of included articles.

| Author | Robotic intervention participants | | | | Conventional intervention participants | | | |
|---|---|---|---|---|---|---|---|---|
| | Sample size | Mean time since stroke (SD) | Mean age (SD) | Intervention description | Sample size | Mean time since stroke (SD) | Mean age (SD) | Intervention description |
| **Aprile et al. (2020)[26]** | n = 111 | 6.9w (5.9) | 69.5y (10.9) | Motore, Amadeo Tyromotion, Diego Tyromotion | n = 113 | 6.5w (5.8) | 68.5y (11.5) | Soft tissue and joint mobilisation, repetitive practice, movement facilitation, mental imagery, splinting, strengthening, functional tasks. |
| **Bhattacharjee et al. (2024)[34]** | n = 22 | 18w (5.3) | 53.52y (9.9) | ArmeoSpring | n = 22 | 17.8w (6.8) | 53.23 (10.5) | ROM exercises, strengthening exercises, reach and grasp, moving objects, ADLs training |
| **Budhota et al. (2021)[35]** | n = 22 | 65.4w (64.5) | 56.3y (10.4) | H-man | n = 22 | 55.7w (46.8) | 54.6y (10.9) | Passive mobilisation, active-assisted approaches, neurodevelopmental techniques, repetitive tasks, functional reach training, upper limb inclined board, motorised arm bike |
| **Calabrò et al. (2019)[36]** | n = 25 | 1.4w (0.3) | 65y (3.0) | Amadeo Tyromotion | n = 25 | 1.4w (0.3) | 64y (3.0) | Hand therapy, finger movements, upper limb positioning and constraint, movement execution, video-acoustic cueing |

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| **Carpinella et al. (2020)[37]** | n = 19 | 28w (12.0) | 67y (3.0) | Braccio di Ferro | n = 19 | 21.2w (87.7) | 59y (5.8) | Passive and active mobilisation, task-oriented exercises, reach and grasp, moving objects |
| **Chang et al. (2024)[38]** | n = 15 | 809.5w (410.6) | 65.2y (5.4) | Rebless | n = 15 | 834.7w (212.9) | 67.2 (5.4) | ROM exercise with ergometer |
| **Chen et al. (2023)[39]** | n = 10 | 10.7w (7.8) | 47.1y (11.1) | EAMT Exoskeleton | n = 10 | 7.2w (5.5) | 54.9y (14.5) | Passive stretching, active-assisted movement training, functional task training, reaching, grasping, transporting objects |
| **Choi et al. (2024)[40]** | n = 23 | 36.2w (9.4) | 55.7y (9.7) | VR-based NEOFECT Glove | n = 23 | 39.7w (10.7) | 59.3y (10.3) | Therapist-adjusted task-oriented therapy |
| **Crema et al. (2022i)[27]** | n = 15 | NR | 49y (16.7) | Gloreha Sinfonia | n = 15 | NR | 61y (10.0) | Passive motion, arm ergometer, exercises using VR, active movement, reaching, grasping, elevation, spatial orientation, repetitive task training |
| **Crema et al. (2022ii)[27]** | n = 15 | NR | 61y (9) | Gloreha Sinfonia and Helping Hand NMES | n = 15 | NR | 49y (11.3) | Helping Hand NMES |
| **Hsu et al. (2019)[41]** | n = 22 | 54.8w (34.4) | 53.1y (13.9) | Bi-Manu-Track | n = 21 | 58.8w (52.8) | 52.6y (12.5) | Sensorimotor stimulation programme, task-specific training, targeted motor performance components of hand grips/grasps, elbow flexion/extension and forearm pronation/supination during functional tasks |

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| **Hsu et al. (2022)[42]** | n = 17 | 102.5w (25.6) | 55.5 (13.4) | TIGER | n = 15 | 157.7w (41.3) | 56.3y (16.5) | Proprioceptive neuromuscular facilitation, passive ROM exercises, repetitive skill building for ADLs |
| **Kim et al. (2021)[43]** | n = 23 | 48.9w (90.7) | 57.2y (15.1) | Camillo | n = 24 | 116.2w (175.1) | 62.1y (12.4) | Stretching, joint ROM exercises, strengthening exercises, goal-directed functional exercise |
| **Kim et al. (2023)[44]** | n = 15 | 930.8w (302.1) | 65.5y (8.4) | HEXO-UR30A | n = 15 | 915.1w (351.0) | 64.5y (7.7) | ROM exercise with ergometer |
| **Lee et al. (2018)[45]** | n = 15 | 73.1w (23.9) | 52.1y (14.1) | REJOYCE | n = 15 | 75.5w (22.0) | 50.3y (11.2) | Stretching exercises, neurodevelopmental therapy, resistance exercises, fine motor trainings |
| **Li et al. (2024)[46]** | n = 20 | 9.6w (6.8) | 63.6y (11.4) | SEM Glove | n = 20 | 10.1w (7.1) | 63.7y (9.4) | Therapist-assisted task-oriented training, reach to grasp, active-assisted finger flexion and extension |
| **Lin et al. (2022)[47]** | n = 82 | 20.3w (23.3) | 59.4y (11.0) | FLEXO-Arm1 | n = 86 | 22.6w (25.5) | 58.7y (12.9) | Gentle stretching, ROM exercises, strengthening exercises, facilitation, active-assisted movements, activities of daily living, functional tasks |
| **Ranzani, et al. (2022)[48]** | n = 17 | 3.1w (1.5) | 70y (12.8) | ReHapticKnob | n = 16 | 3.1w (1.3) | 67.5y (11.4) | Neurocognitive therapy approach, haptic and postural perception, object discrimination, grasping, reaching, pinch, texture identification, thumb/finger flexion/extension, forearm pronation/supination, passive and active training |
| **Rodgers et al. (2019i)[28]** | n = 257 | 32.5w (13.6) | 59.9y (13.5) | InMotion ARM (InMotion 2.0, or MIT-MANUS), | n = 259 | 33.5w (12.9) | 59.4y (14.3) | Repetitive functional task practice, patient directed goals, gentle stretching, whole-task and part-task practice |

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| | | | | InMotion HAND, InMotion WRIST (InMotion 3.0) | | | | |
| **Rodgers et al. (2019ii)[28]** | As above | As above | As above | As above | n = 254 | 34.6w (31.6) | 62.5y (12.5) | Usual NHS care |
| **Şenocak et al. (2023)[49]** | n = 19 | 17.4w (6.9) | 60.2y (10.5) | ExoRehab X | n = 22 | 23.7w (4.6) | 63.7y (9.1) | Functional activity practice: dressing, object manipulation, reaching, cup holding, ROM, strengthening, weight-bearing |
| **Takahashi et al. (2016)[50]** | n = 30 | 6.8w (1.0) | 65.2y (10.9) | ReoGo | n = 26 | 6.7w (1.2) | 64.6y (11.5) | Upper limb exercises for stretching, ROM, reaching, grasping/releasing, pinching, ADL training |
| **Takebayashi et al. (2022i)[32]** | n = 44 | 37.6w (55.8) | 59y (12.0) | ReoGo-J | n = 42 | 34.3w (37.8) | 58y (10.0) | Self-training of: sanding, placing, stretching, repetitive reaching/grasping/releasing practice, stretching, joint ROM exercises, correct-movement exercises, ADLs |
| **Takebayashi et al. (2022ii)[32]** | n = 43 | 37.8w (57.6) | 60y (11.0) | ReoGo-J and constraint-induced movement therapy | As above | As above | As above | As above |
| **Térémetz et al. (2023)[51]** | n = 21 | 99.9w (113) | 58y (12.0) | Dextrain Manipulandum | n = 21 | 108.6w (117.3) | 70y (16) | Hand and dexterity training, soft tissue mobilization, strengthening exercises, movement facilitation, sensory exercises, fine motor skills training, grasp and release, reach and grasp, push and pull, bilateral exercises, functional tasks |

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| **Villafañe et al. (2018)[52]** | n = 16 | NR | 67y (11.0) | Gloreha Professional | n = 16 | NR | 70y (12.0) | Assisted stretching, shoulder and arm exercises, functional reaching tasks |
| **Wolf et al. (2015)[53]** | n = 51 | 16.5w (7.6) | 59.1y (14.1) | Hand Mentor Pro | n = 48 | 18.2w (6.6) | 54.7y (12.2) | Self-ROM, weight-bearing activities, active assisted exercises with a cane, shoulder exercises, elbow/forearm exercises, wrist/hand exercises, task-based activities |
| **Yuan et al. (2023i)[33]** | n = 23 | 4.7w (4.3) | 56.7y (8.9) | Nanjing ETSUN (Unilateral) | n = 23 | 5.0w (3.6) | 58.9y (10.3) | Functional electrical stimulation, Bobath training, joint ROM exercises, functional task practice, self-care activities |
| **Yuan et al. (2023ii)[33]** | n = 24 | 5.5w (5.5) | 59.0y (8.3) | Nanjing ETSUN (Bilateral) | As above | As above | As above | As above |

*Abbreviations:* ADLs, activities of daily living; NHS, National Health Service; NMES, neuromuscular electrical stimulation; NR, not reported; ROM, range of motion; VR, virtual reality; w, weeks; y, years.