**Appendix S3. Baseline demographic and clinical characteristics of study participants.**

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| **Author, Year** | **Country of origin** | **No. of participants;****male/female** | **Age(y),****Range/****Mean(SD)/****median(25th-75th percentiles)** | **Weight(kg)/Height(cm)/BMI(kg/m2) Mean(SD)/****median(25th-75th percentiles)** | **Etiology(****infarction****/hemorrhage)** | **Lesion side(right/left)** | **Onset period(m), Mean(SD)** | **Functional level of participants** | **Outcome measures** | **Adverse events** | **T****ime points** |
| Jeon M J, 201917 | Korea | 14G1:4/3; G2:3/4 | G1:54.14(7.20);G2:53.71(10.98) | Weight:G1:65.29(9.60);G2:63.86(8.43);Height:G1:165.57(10.10);G2:163.71(11.54) | G1:6/1G2:5/2 | G1:4/3G2:4/3 | G1:0.33(0.26);G2:0.27(0.10) | K-MMSE≥24 | 1.Upper limb function:MFT;2.Balance:BBS;3.ADL:K-MBI; | Not mentioned | Baseline; 4 weeks |
| Barcala L, 201316 | Brazil | 20G1:5/5; G2:4/6 | G1:65.20(12.50);G2:63.50(14.50) | Weight:G1:62.70(8.20);G2:76.50(5.30);Height:G1:158.00(310.00);G2:163.00(240.00);BMI:G1:19.40(2.80); G2:22.40(1.50) | G1:9/1G2:9/1 | G1:6/4G2:7/3 | G1:12.30(7.10);G2:15.20(6.60) | Brunnstrom stage:G1:3.70(0.60);G2:3.60(0.80) | 1.Balance:BBS, stabilometric exam;2.Functionality:TUG;3.ADL:FIM;4.Body symmetry:baropodometric exam | Not mentioned | Baseline;5 weeks |
| Cho K H, 201215 | Korea | 22G1:8/3; G2:6/5 | G1:65.26(8.35);G2:63.13(6.87) | Weight:G1:63.95(9.32);G2:62.29(7.59);Height:G1:165.91(5.48);G2:164.45(7.25) | G1:7/4; G2:6/5 | G1:10/1; G2:8/3 | G1:12.54(2.58);G2:12.63(2.54) | ability to walk 10 meters independently with or without assistive-devices | 1.Balance:postural sway velocity,BBS;2.Functionality:TUG | Not mentioned | Baseline;6 weeks |
| Yu J H, 201619 | South Korea | 20G1:7/3; G2:5/5 | G1:64.80(5.67);G2:62.70(5.10) | Weight:G1:64.99(8.75);G2:62.45(6.83);Height:G1:165.70(5.73);G2:163.70(7.18) | G1:6/4; G2:6/4 | G1:9/1; G2:7/3 | G1:12.40(2.67);G2:12.80(2.61) | K-MMSE≥24 | 1.Balance:BBS;2.Functionality:TUG;3.ADL:MBI | Not mentioned | Baseline;6 weeks |
| Lee H Y, 201514 | Korea | 24G1:8/4; G2:8/4 | G1:45.91(12.28);G2:49.16(12.85) | Weight:G1:63.58(12.95);G2:65.16(13.18);Height:G1:169.66(7.19);G2:166.08(10.16) | Not mentioned | Not mentioned | total＞6.00 | ability to walk 10 meters independently with or without assistive-devices | 1.Balance:COP path length,COP velocity;2.Functionality:FRT | Not mentioned | Baseline;6 weeks |
| Lee H C, 201722 | China | 47G1:16/10; G2:18/3 | G1:58.30(11.60);G2:55.00(11.60) | Not mentioned | G1:16/10; G2:14/7 | G1:15/11G2:10/11 | G1:27.99(23.71);G2:21.77(19.66) | ability to stand for 15min;Brunnstrom stage≥III | 1.Balance:BBS,ABC;2.Functionality:FRT,TUG;3.ADL:MBI;4.QOL:SIS;5.Feasibility:M-PAES | G1:soreness of the upper limbs(6);muscle hypertonicity(5);dizziness(6);leg pain(2);G2:soreness of the lower limbs(10);upper limbs(5);muscle hypertonicity(7);dizziness(2);shoulder pain(4);lower back pain(2) | Baseline;6 weeks |
| Lloréns R, 201521 | Spain | 20G1:4/6; G2:5/5 | G1:59.35(8.95);G2:55.76(9.59) | Weight:G1:80.10(11.90);G2:72.80(13.00);Height:G1:166.00(10.00);G2:162.00(10.00);BMI:G1:28.80(3.10); G2:27.80(4.80) | G1:7/3; G2:6/4 | Not mentioned | G1:13.58(7.75);G2:19.59(7.40) | ability to maintain stride-standing position for 30 seconds without holding onto | 1.Balance:BBS,TPOMA-balance,BBA;2.Gait:TPOMA-gait,10MWT; | Not mentioned | Baselines;4 weeks |
| Marques-Sule E, 202122 | Spain | 29G1:9/6; G2:9/5 | G1:61.50(8.40);G2:58.20(7.40) | BMI:G1:29.10(3.60); G2:29.00(2.90) | Not mentioned | Not mentioned | total＞12.00 | not mentioned | 1.Functionality:TUG;2.Balance:TPOMA,BBS;3.ADL:FMA-UL,BI,FAI; | None | Baselines;4 weeks |
| Yatar G I, 201523 | Turkey | 30G1:6/9; G2:7/8 | G1:62.80(10.87);G2:56.60(16.42) | BMI:G1:29.14(4.52); G2:28.30(4.56) | Not mentioned | G1:8/7G2:7/8 | G1:44.40(53.04);G2:50.76(58.32) | MRS>3  | 1.Balance:weight distribution,COP,BBS,ABC;2.Functionality:TUG,FRT;3.Gait:DGI;4.ADL:FAI | Not mentioned | Baselines;4 weeks;8 weeks |
| Song G B, 201524 | Korea | 40G1:10/10; G2:12/8 | G1:51.37(40.60);G2:50.10(7.83) | Weight:G1:64.12(13.12);G2:72.80(13.00);Height:G1:167.00(9.53);G2:169.20(13.12) | Not mentioned | G1:11/9; G2:8/12 | G1:14.75(6.06);G2:14.30(3.40) | K-MMSE≥24 | 1.Balance:weight distribution,anterior range LOS,posterior range LOS;2.Functionality:TUG;3.Gait:10MWT;4.Psychology:BDI,RCS | Not mentioned | Baselines;8 weeks |
| Choi D, 201825 | Korea | 28G1:9/5; G2:8/6 | G1:49.50(23.00);G2:51.00(13.75) | Weight:G1:65.00(10.00);G2:64.00(10.50);Height:G1:169.00(14.00);G2:160.00(11.00) | G1:10/4; G2:8/6 | G1:6/8; G2:5/9 | total＞12.00 | ability to stand for 30 mins independently | 1.Visual perception：MVPT-3;2.Balance:BBS;3.Functionality:TUG;4.Gait:10MWT | Not mentioned | 1 week before training;6 weeks |
| Morone G, 201418 | Italy | 50Not mentioned | G1:58.36(9.62);G2:61.96(10.31) | Not mentioned | Not mentioned | G1:11/14; G2:18/7 | G1:2.03(1.22);G2:1.39(1.23) | FAC ≥ 2 | 1.ADL:BI;2.Gait:FAC;3.Balance:BBS | Not mentioned | Baselines;4 weeks;8 weeks |
| Kim J H, 200926 | Korea | 24G1:6/6; G2:7/5 | G1:52.42(10.09);G2:51.75(7.09) | Not mentioned | G1:6/6; G2:5/7 | G1:6/6; G2:7/5 | G1:25.91(9.96);G2:24.25(8.87) | ability to stand for 30 mins and walk indoors independently | 1.Balance:BBS,BPM;2.Gait:10MWT;3.Motor:MMAS | Not mentioned | Baselines;4 weeks |
| de Rooij IJM, 2021 | Netherlands | 52G1:18/10; G2:18/6 | G1:65.00(57.00-70.00)G2:61.00(53.00-71.00) | Weight:G1:77.00(69.00-88.00);G2:75.00(68.00-88.00);Height:G1:175.00(167.00-180.00);G2:176.00(167.00-185.00) | G1:24/4; G2:20/4 | G1:6/6; G2:7/5 | G1:2.80(2.30-3.67);G2:2.20(1.70-3.43) | FAC ≥ 3 | 1.ADL:USER-P;2.Physical functioning: SIS-16;3.Fatigue:FSS;4.Anxiety and depression:HADS;5.Falls efficacy:FESI;6.QOL:SSQLS;7.Functional mobility:TUG;8.Gait:6MWT;9.Dynamic balance:Mini-BESTest; | G1:near falls(3), dizziness(1);fatigue(3);muscle stiffness or pain in the legs(4);G2:near falls(3);breathing difficulty(1);dizziness(4);fatigue(4);pain in the legs or back(3); | Baselines;6 weeks;12 weeks |

G1:virtual reality-based balance group; G2:control group; BMI:body mass index; K-MMSE: Korean Mini-Mental Status Examination; MFT:manual function test; BBS:berg balance scale; ADL:activities of daily living; K-BMI:Korean version of the Modified Barthel Index; TUG:timed up and go test; FIM:functional independence measure; COP:center of pressure; FRT:functional reach test; ABC:activities-specific balance confidence scale; QOL:quality of life; SIS:stroke impact scale; M-PAES:modified physical activity enjoyment scale; TPOMA:Tinetti performance-oriented mobility assessment;10MWT:10-m walking test; BBA:brunel balance assessment; FMA-UL: Fugl-Meyer assessment for upper limb; BI:Barthel Index; FAI:Frenchay activity index; MRS:Modified Rankin Scale; DGI:dynamic gait index; 2MWT:2-m walking test; CMSA-Leg:Chedoke McMaster stroke assessment leg domain; LOS:limit of stability; BDI:Beck Depression Inventory; RCS: relationship change scale; SFES: short falls efficacy scale; UL-MAS:upper limb-motor assessment scale; MVPT-3: motor-free visual perception test-3; mFRT:modified functional reach test; EO:eyes opened; EC:eyes closed; PL:path length; SV:sway velocity; FAC:functional ambulation category; BPM:balance performance monitor; MMAS:modified motor assessment scale; USER-P:Utrecht scale for evaluation of rehabilitation-participation; SIS-16: Stroke Impact Scale-16; FSS:fatigue severity scale; HADS:Hospital anxiety and depression scale; FESI:Falls efficacy scale international; SSQLS:Stroke specific quality of life scale; 6MWT:6-minute walking test; Mini-BESTest: Mini Balance Evaluation Systems test;