**Supplementary Table 1.** Secondary outcome measures

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Baseline** | | **Post-intervention (12 weeks)** | | **Follow-up (6 months)** | | **Between-group difference**  **12 weeks** | **Between-group difference**  **6 months** |
|  | **FBE (n=60)** | **UBE (n=56)** | **FBE (n=54)** | **UBE (n=49)** | **FBE (n=49)** | **UBE (n=40)** |  |  |
| **ASIA Sensory score**  **(0 - 224 points)** |  |  |  |  |  |  |  |  |
| **Pin prick** | n=50 | n=46 |  | n=39 |  |  |  |  |
| mean (SD) | 54.1 (26, 2) | 53.3 (25.9) | 50.4 (26.2) | 48.3 (26.1) | 54.02 (28.4) | 48.3 (28.6) | diff: 1.74 | diff: 4.24 |
| median (IQR) | 53  (36, 76) | 51  (29, 72) | 45.5  (32, 75) | 49.5  (24, 60) | 49  (31, 80) | 47  (27, 62) | p=0.424, 95% CI [-2.56, 6.05] | p=0.206, 95% CI [-2.38, 10.86] |
|  |  |  |  |  |  |  |  |  |
| **Light touch** |  |  |  | n=45 |  |  |  |  |
| mean (SD) | 62.1 (24.7) | 63.7 (26.1) | 61.3 (25.0) | 61.8 (27.2) | 63.6 (27) | 58.5 (28.0) | diff: 1.17 | diff: 5.18 |
| median (IQR) | 61  (45, 79) | 59.5  (47, 84.5) | 56  (46, 77) | 58  (45, 78) | 62  (43, 85) | 55 (46, 79) | p=0.451, 95% CI [-1.9, 4.25] | p=0.098, 95% CI [-0.98, 11.37] |
| **Leg Volumes (cm3)** |  |  |  |  |  |  |  |  |
| **Left thigh** |  | n=55 | n=53 | n=47 |  | n=38 |  |  |
| mean (SD) | 5107 (1898) | 5119 (1963) | 5319 (2201) | 5194 (2386) | 5211 (2126) | 5285 (2567) | diff: -37.12 | diff: -419.6 |
| median (IQR) | 4701  (3904, 6096) | 4419  (3761, 6467) | 4830  (4082, 6287) | 4645  (3715, 6219) | 4882  (3603, 6060) | 4414  (3521, 6315) | p=0.892  95% CI [-579, 505] | p=0.237  95% CI [-1120, 280.8] |
| **Right thigh** | n=59 |  |  |  |  |  |  |  |
| mean (SD) | 5085 (1998) | 5957 (5687) | 5703 (4190) | 5408 (2564) | 5304 (2387) | 5405 (2774) | diff: 400 | diff: 12.64 |
| median (IQR) | 4804  (3681, 6049) | 4790  (4029, 6819) | 4673  (3619, 6649) | 4816  (3823, 6247) | 4628  (3602, 6537) | 4127  (3694, 6493) | p=0.561  95% CI [-961, 1762] | p=0.981  95% CI [-1066, 1091] |
| **Lower leg left** |  |  |  |  |  |  |  |  |
| mean (SD) | 2896 (736) | 2866 (819) | 2856 (664) | 2824 (651) | 3081 (1122) | 2845 (739) | diff: 33.55 | diff: 217.32 |
| median (IQR) | 2770  (2418, 3309) | 2650  (2320, 3502) | 2822 (2386, 3182) | 2610 (2391, 3413) | 2981 (2507, 3276) | 2564  (2331, 3575) | p=0.49  95%CI [-62.6, 129.7] | p=0.141  95% CI [-73.52, 508.16] |
| **Lower leg right** |  |  |  |  |  |  |  |  |
| mean (SD) | 2886 (729) | 2867 (737) | 3036 (1364) | 2840 (625) | 3106 (1298) | 2872 (680) | diff: 182.6 | diff:162.77 |
| median (IQR) | 2785  (2461, 3369) | 2757  (2365, 3485) | 2868  (2478, 3245) | 2657  (2427, 3292) | 2955  (2469, 3423) | 2571  (2361, 3641) | p=0.221  95% CI [-111.57, 476.68] | p=0.376  95% CI [-201, 527] |
| **Abdominal circumference** |  | n=54 |  | n=47 |  | n=38 |  |  |
| mean (SD) | 92.2 (14.8) | 92.9 (13.5) | 90.5 (15.5) | 90.6 (16.7) | 92.3 (13.7) | 91.7 (14.3) | diff: -0.59 | diff: -1.28 |
| median (IQR) | 93.75  (82.0, 103.5) | 91.7  (81.5, 104) | 90.8 (79, 100) | 90.6  (80.5, 103) | 94.1  (85.2, 101) | 89.2 (80, 102) | p=0.766, 95% CI [-4.49, 3.31] | p=0.147  95% CI [-3.01, 0.46] |
| **Chest Circumference** |  |  |  |  |  |  |  |  |
| mean (SD) | 98.0 (19.0) | 99.2 (10.7) | 96.9 (11.5) | 96.1 (19.0) | 93.7 (21.0) | 98.7 (11.3) | diff: 1.59 | diff: -4.78 |
| median (IQR) | 98.6  (91.5, 104) | 97.6  (92.3, 106) | 97.5  (89.5, 103) | 96.7  (90, 106.3) | 98 (89, 105) | 96.9  (91.2, 106.8) | p=0.466, 95% CI [-2.72, 5.9] | p=0.134, 95% CI [-11.06, 1.51] |
| **SCIM (total 100)** |  |  | n=53 | n=47 | n=48 | n=39 |  |  |
| mean (SD) | 60.4 (17.3) | 58.5 (17.7) | 60.98 (18.3) | 56.6 (17.3) | 60.4 (18.7) | 56.6 (18.8) | diff: 1.3 | diff: 0.92 |
| median (IQR) | 67 (51.5, 72) | 62.5  (47.5, 71) | 67 (48, 71) | 57 (42, 70) | 66 (48.5, 72) | 61 (39, 71) | p=0.255, 95% CI [-0.96, 3.56] | p=0.475, 95% CI [-1.64, 3.49] |
| **Self-care** |  |  |  |  |  |  |  |  |
| mean (SD) | 15.4 (5.13) | 14.1 (5.33) | 15.4 (5.34) | 13.5 (5.33) | 15 (5.5) | 12.9 (6.03) | diff: 0.45 | diff: 0.73 |
| median (IQR) | 18 (14, 18) | 16 (9, 18) | 18 (14, 20) | 16 (8, 18) | 17.5 (12.5, 18) | 16 (6, 18) | p=0.267, 95% CI [-0.35, 1.25] | p=0.187, 95% CI [-0.36, 1.82] |
| **Sphincter** |  |  |  |  |  |  |  |  |
| mean (SD) | 28 (8.5) | 27.3 (8.4) | 27.6 (8.5) | 26.7 (8) | 28.0 (8.9) | 27.33 (7.9) | diff: -0.062 | diff: -0.098 |
| median (IQR) | 32.5  (19, 34.5) | 30.5  (19.5, 34) | 31 (19, 34) | 28 (20, 34) | 32.5 (19, 35) | 29 (19, 35) | p=0.941, 95% CI [-1.73, 1.61] | p=0.887, 95% CI [-1.47, 1.27] |
| **Mobility** |  |  |  |  |  |  |  |  |
| mean (SD) | 17.0 (6.95) | 17.1 (7.12) | 18 (7.5) | 16.4 (7.6) | 17.4 (7.3) | 16.4 (7.8) | diff: 1.1 | diff: 0.46 |
| median (IQR) | 18 (14, 20) | 17 (13, 19) | 18 (15, 20) | 16 (11, 19) | 18 914, 20) | 16 (12, 19) | p=0.058, 95% CI [-0.038, 2.24] | p=0.423, 95% CI [-0.68, 1.59] |
| **Trunk: Max balance range (cm)** | n=57 | n=53 | n=50 | n=46 | n=41 | n=35 |  |  |
| mean (SD) | 86.9 (56.5) | 78.7 (52.5) | 90.2 (48.0) | 93 (59.5) | 88.2 (46.2) | 74.1 (50.8) | diff:-9.22 | diff: 8.95 |
| median (IQR) | 73.6  (50, 123.5) | 62.5  (42.1, 114.4) | 82.5  (54, 121.6) | 84.6  (54, 122.6) | 77.4  (48.7, 122.4) | 65.1  (38.8, 106.3) | p=0.328, 95% CI [-27.83, 9.39] | p=0.323, 95% CI [-8.98, 26.88] |
|  |  |  |  |  |  |  |  |  |
| **Falls Concern Scale** | n=59 | n=55 | n=52 | n=45 | n=46 | n=37 |  |  |
| mean (SD) | 22.7 (8.4) | 24.4 (8.5) | 21.8 (7.8) | 22.8 (6.7) | 20.8 (6.5) | 25.3 (10.2) | diff: -0.28 | diff:-2.77 |
| median (IQR) | 20 (17, 25) | 23 (16, 29) | 19 (16.5, 23) | 21 (18, 26) | 19 (16, 23) | 22 (17, 30) | p=0.825, 95% CI [-2.79, 2.23] | p=0.102, 95% CI [-6.1, 0.56] |
| **6MWT (distance)** | n=14 | n=12 | n=12 | n=9 | n=11 | n=9 |  |  |
| mean (SD) | 142.3 (103.5) | 176.4 (105.1) | 149 (103.7) | 170.8 (92.7) | 187.1 (93.3) | 133.2 (91) | diff: -18.36 | diff: 27.12 |
| median (IQR) | 120.1 (53, 231) | 180 (85.55, 234.25) | 147 (55.5, 217) | 159 (116, 240) | 196.5 (70, 273) | 93 (65, 171) | p=0.451, 95% CI [-68.57, 31.84] | p=0.168, 95% CI [-12.69, 66.94] |
|  |  |  |  |  |  |  |  |  |
| **10 m walk speed (m•sec-1)** | n=14 | n=12 | n=14 | n=10 | n=12 | n=9 |  |  |
| mean (SD) | 0.5 (0.4) | 0.5 (0.4) | 0.5 (0.3) | 0.6 (0.4) | 0.6 (0.3) | 1.4 (2.6) | diff: -0.01 | diff: -0.72 |
| median (IQR) | 0.5 (0.2, 0.7) | 0.5 (0.2, 0.8) | 0.4 (0.2, 0.7) | 0.5 (0.2, 0.8) | 0.5 (0.3, 0.8) | 0.4 (0.2, 0.9) | p=0.818, 95% CI [-0.1, 0.08] | p=0.382, 95% CI [-2.41, 0.98] |
| **Penn Spasm Frequency Scale** | n=59 |  | n=53 | n=45 | n=47 | n=39 |  |  |
| mean (SD) | 1.8 (1.1) | 1.5 (1) | 1.6 (1.1) | 1.8 (1.1) | 1.6 (0.9) | 1.8 (1) | diff: -0.25 | diff: -0.12 |
| median (IQR) | 1 (1, 2) | 1 (1, 2) | 1 (1, 2) | 1 (1, 2) | 1 (1, 2) | 1 (1, 3) | p=0.163, 95% CI [-0.61, 0.1] | p= 0.446, 95% CI [-0.44, 0.19] |
| **Perceived Stress Scale** | n=58 |  |  | n=47 | n=47 | n=38 |  |  |
| mean (SD) | 11.7 (6.5) | 13.4 (6.1) | 11.7 (6.6) | 12 (5.8) | 11 (7.1) | 12.4 (6.7) | diff: 0.61 | diff: -0.1 |
| median (IQR) | 12 (6, 17) | 14 (10, 18) | 11 (6, 16) | 12 (8, 17) | 10 (5, 18) | 13 (8, 17) | p=0.512, 95% CI [-1.23, 2.45] | p=0.925, 95% CI [-2.27, 2.065] |
| **HADs score** |  |  |  |  |  |  |  |  |
| **Anxiety** | n=59 | n=55 | n=54 | n=47 | n=48 | n=39 |  |  |
| mean (SD) | 10.3 (1.8) | 10.5 (1.8) | 10.4 (1.6) | 10.1 (1.6) | 10 (2.2) | 10.2 (1.4) | diff: 0.29 | diff: -0.14 |
| median (IQR) | 10 (9, 11) | 10 (9,12) | 10 (9, 11) | 10 (9, 11) | 10 (9, 11) | 10 (9, 11) | p=0.291, 95% CI [-0.25, 0.83] | p=0.701, 95% CI [-0.89, 0.6] |
| **Depression** |  |  |  |  | n=47 |  |  |  |
| mean (SD) | 10.5 (2) | 10.4 (2.1) | 10 (1.6) | 10.2 (1.3) | 10.1 (1.5) | 10.2 (1.4) | diff: -0.28 | diff:-0.23 |
| median (IQR) | 10 (9, 11) | 10 (9, 12) | 10 (9, 11) | 10 (9, 11) | 10 (9, 11) | 10 (9, 11) | p=0.309, 95% CI [-0.83, 0.27] | p=0.428, 95% CI [-0.81, 0.35] |
| **Multidimensional Health Locus of Control** |  |  |  |  |  |  |  |  |
| **Internal** | n=58 | n=54 | n=54 | n=47 |  | n=39 |  |  |
| mean (SD) | 24.5 (6.3) | 23.9 (6) | 23.4 (6.3) | 23.3 (5.9) | 22.9 (6.7) | 23.4 (6.7) | diff: -0.3 | diff: -1.12 |
| median (IQR) | 25.5 (20, 29) | 23.5 (20, 27) | 24 (20, 28) | 24 (19, 27) | 22 (17, 28) | 24 (20. 3) | p=0.776, 95% CI [-2.39, 1.79] | p=0.342, 95% CI [-3.46, 1.22] |
| **Chance** | n=56 | n=53 |  | n=44 |  |  |  |  |
| mean (SD) | 20.5 (6.9) | 17.6 (5.7) | 19 (6.4) | 15.8 (5.5) | 18.9 (7.4) | 17.3 (7.1) | diff:1.37 | diff:-0.6 |
| median (IQR) | 20.5  (15, 24.5) | 18  (13,22) | 18  (14, 24) | 15.5  (11, 21) | 19  (14, 23) | 17  (11, 22) | p=0.192, 95% CI [-0.69, 3.43] | p=0.597, 95 % CI [-2.87, 1.66] |
| **Doctors** | n=57 | n=55 |  | n=47 |  |  |  |  |
| mean (SD) | 12.4 (3.4) | 12.3 (3.2) | 12.5 (3.6) | 11.7 (3.6) | 12.4 (3.8) | 11.7 (3.8) | diff: 0.77 | diff: 0.5 |
| median (IQR) | 13  (10, 15) | 12  (10, 15) | 13  (10, 15) | 12  (10, 14) | 12  (10, 16) | 12  (10, 14) | p=0.225, 95% CI [-0.48, 2.03] | p=0.511, 95% CI [-1.00, 1.99] |
|  |  |  |  |  |  |  |  |  |
| **People** | n=58 | n=55 |  | n=47 |  |  |  |  |
| mean (SD) | 9.3 (4.1) | 9 (3.6) | 9.4 (3.9) | 8.5 (3.9) | 9.4 (4.2) | 8.9 (4.4) | diff: 0.62 | diff: 0.35 |
| median (IQR) | 9 (6, 12) | 9 (6, 11) | 10 (6, 12) | 8 (5, 12) | 9 (6, 13) | 8 (5, 12) | p=0.306, 95% CI [-0.57, 1.81] | p=0.648, 95% Ci [-1.18, 1.88] |
| **Moorong Self-Efficacy Scale** |  |  |  |  |  |  |  |  |
| **Daily** | n=59 | n=55 | n=54 | n=47 | n=48 | n=39 |  |  |
| mean (SD) | 40.5 (7.9) | 38.5 (8.5) | 40 (8.1) | 39.3 (6.6) | 39.2 (8) | 39 (7.1) | diff:  0.1 | diff: 0.04 |
| median (IQR) | 42 (37, 47) | 40 (34, 45) | 41 (38, 45) | 41 (34, 43) | 41 (34, 45) | 41 (34, 44) | p=0.933, 95% CI [-2.35, 2.56] | p=0.973, 95% CI [-2.42, 2.50] |
| **Social** |  |  |  |  | n=49 |  |  |  |
| mean (SD) | 47.7 (8.1) | 44.8 (10.3) | 47.8 (8.5) | 46.3 (7.8) | 47 (8.7) | 47 (8.5) | diff:  0.3 | diff: -0.51 |
| median (IQR) | 49 (40, 55) | 47 (38, 54) | 49 (43, 54) | 45 (41, 53) | 48 (43, 55) | 51 (42, 53) | p=0.818, 95% CI [-2.29, 2.9] | p=0.739, 95% CI [-3.51, 2.5] |
|  |  |  |  |  |  |  |  |  |
| **Total** |  |  |  |  | n=48 | n=38 |  |  |
| mean (SD) | 91.1 (16.2) | 86.5 (18.6) | 90.3 (16.1) | 88.9 (14.5) | 89.1 (16.2) | 87.9 (16.3) | diff: -0.13 | diff: 0.29 |
| median (IQR) | 95 (79, 104) | 92 (72, 103) | 95 (85, 101) | 90 (81, 100) | 93  (79.5, 102.5) | 92 (77, 100) | p=0.958, 95% CI [-5.21, 4.94] | p=0.912, 95% CI [-5.06, 5.66] |
| **Rosenberg Self Esteem Scale** | n=59 | n=54 | n=54 | n=46 |  | n=39 |  |  |
| mean (SD) | 16.9 (3.7) | 17.6 (3.8) | 17.7 (3.2) | 18.1 (2.2) | 17.6 (3.5) | 17.9 (2.9) | diff: 0.52 | diff:0.39 |
| median (IQR) | 17 (15, 20) | 18 (16, 20) | 18.5 (16, 20) | 18 (17, 20) | 19 (16, 20) | 19 (17, 20) | p=0.166, 95% CI [-0.22, 1.26] | p=0.450, 95% CI [-0.64, 1.42] |
| **AQoL score** |  |  | n=54 | n=47 |  | n=39 |  |  |
| mean (SD) | 0.5 (0.2) | 0.4 (0.3) | 0.5 (0.3) | 0.4 (0.2) | 0.4 (0.2) | 0.4 (0.2) | diff: 0.03 | diff: 0.004 |
| median (IQR) | 0.5 (0.3, 0.6) | 0.4 (0.2, 0.6) | 0.5 (0.3, 0.7) | 0.4 (0.3, 0.6) | 0.4 (0.3, 0.6) | 0.4 (0.3, 0.6) | p=0.374, 95% CI [-0.04, 0.09] | p=0.896, 95% CI [-0.06, 0.07] |
| **HUI score** | n=58 | n=55 | n=54 | n=46 |  | n=39 |  |  |
| mean (SD) | 0.3 (0.2) | 0.3 (0.16) | 0.3 (0.2) | 0.3 (0.2) | 0.3 (0.2) | 0.3 (0.2) | diff: 0.01 | diff: 0.03 |
| median (IQR) | 0.4 (0.2, 0.4) | 0.3 (0.2, 0.4) | 0.3 (0.2, 0.4) | 0.31 (0.2, 0.4) | 0.3 (0.2, 0.4) | 0.3 (0.1, 0.4) | p=0.707, 95% CI [-0.04, 0.06] | p=0.174, 95% CI [-0.01, 0.08] |
| **WHOQoL-brief** | n=59 |  | n=49 | n=47 | n=48 | n=39 |  |  |
| **Physical health** |  |  |  |  |  |  |  |  |
| mean (SD) | 65.4 (18.6) | 62 (14.6) | 62.6 (20.1) | 63.3 (14.5) | 63.3 (16.9) | 66.2 (12.4) | diff: -1.04 | diff: -3.28 |
| median (IQR) | 69 (56, 81) | 63 (56, 69) | 63 (50, 75) | 63 (56, 69) | 63 (56, 75) | 63 (56, 75) | p=0.647, 95% CI [-5.53, 3.45] | p=0.165, 95% CI [-7.93, 1.38] |
|  |  |  |  |  |  |  |  |  |
| **Psychological** | n=58 |  | n=51 | n=47 |  | n=39 |  |  |
| mean (SD) | 68.3 (17.6) | 65.8 (17.82) | 68.1 (19) | 68.2 (15.5) | 66.3 (19) | 67.3 (17.3) | diff: 1.002 | diff: 0.07 |
| median (IQR) | 69 (56, 81) | 69 (56, 81) | 69 (56, 81) | 69 (56, 81) | 69 (56, 75) | 69 (50, 81) | p=0.618, 95% CI [-2.98, 4.98] | p=0.978, 95% CI [-5.05, 5.19] |
|  |  |  |  |  |  |  |  |  |
| **Social relationships** | n=58 |  | n=51 | n=46 |  | n=39 |  |  |
| mean (SD) | 65.4 (18.91) | 61.7 (20.28) | 59.8 (22.16) | 63.3 (18.83) | 60 (19.82) | 64.6 (20.74) | diff: -1.45 | diff: -0.81 |
| median (IQR) | 69 (50, 75) | 69 (50, 75) | 56 (50, 75) | 56 (56, 75) | 56 (50, 69) | 56 (50, 81) | p=0.634, 95% CI [-7.47, 4.57] | p=0.797, 95% CI [-7.08, 5.45] |
|  |  |  |  |  |  |  |  |  |
| **Environment** | n=59 |  | n=51 | n=46 |  | n=39 |  |  |
| mean (SD) | 72.7 (14.62) | 70 (17.23) | 73 (15.85) | 72.3 (14.22) | 73.2 (12.61) | 73.9 (14.44) | diff: 0.85 | diff: -0.41 |
| median (IQR) | 75 (69, 81) | 75 (56, 81) | 75 (63, 81) | 72 (63, 81) | 75 (63, 81) | 75 (63, 88) | p=0.634, 95% CI [-2.69, 4.41] | p=0.843, 95% CI [-4.47, 3.66] |
|  |  |  |  |  |  |  |  |  |
| **Total** | n=57 |  | n=49 | n=45 | n=48 | n=39 |  |  |
| mean (SD) | 272.9 (56.59) | 259. 4 (57.9) | 264 (66.7) | 268.7 (50.5) | 263.8 (57.8) | 272 (53.4) | diff: 0.57 | diff: -4.94 |
| median (IQR) | 276 (250, 312) | 265.5 (218.5, 301) | 269 (232, 306) | 263 (237, 294) | 260 (237, 297) | 269 (225, 307) | p=0.932, 95% CI [-12.75, 13.89] | p=0.511, 95% CI [-19.83, 9.96] |