# Supplementary Material

Supplementary Table 1 Comparison of macro gait characteristics between mild cognitive impairment and dementia groups in each disease subtype

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **AD-MCI** | **AD** | **t** | **P value** |
| **n** | **15** | **21** |  |  |
| Walking time per day (mins) | 174±45 | 163±62 | .6 | .494 |
| Steps per day | 11974±3547 | 11033±4612 | .7 | .494 |
| Bouts per day | 629±178 | 606±236 | .3 | .742 |
| % time walking per day | 12±3 | 11±4 | .6 | .494 |
| Mean bout length (secs) | 17±3 | 17±4 | .2 | .826 |
| Variability | .840±.076 | .831±.087 | .3 | .733 |
| Alpha | 1.616±.033 | 1.627±.051 | .8 | .436 |
|  | **DLB-MCI** | **DLB** | **t** | **P value** |
| **n** | **11** | **19** |  |  |
| Walking time per day (mins) | 165±87 | 136±62 | .9 | .403 |
| Steps per day | 11535±6394 | 9423±4428 | .8 | .453 |
| Bouts per day | 598±229 | 546±208 | .5 | .607 |
| % time walking per day | 12±6 | 10±4 | .9 | .403 |
| Mean bout length (secs) | 16±3 | 15±3 | 1.0 | .343 |
| Variability | .842±.065 | .807±.069 | 1.1 | .306 |
| Alpha | 1.634±.062 | 1.645±.050 | .3 | .748 |
|  | **PD-MCI** | **PDD** | **t** | **P value** |
| **n** | **8** | **8** |  |  |
| Walking time per day (mins) | 113±48 | 99±44 | .6 | .554 |
| Steps per day | 7758±3141 | 6851±3031 | .6 | .565 |
| Bouts per day | 476±152 | 442±175 | .4 | .685 |
| % time walking per day | 8±3 | 7±3 | .6 | .554 |
| Mean bout length (secs) | 14±3 | 13±3 | .6 | .554 |
| Variability | .780±.057 | .779±.123 | .03 | .975 |
| Alpha | 1.655±.057 | 1.701±.143 | .8 | .416 |

Supplementary Table 2 Univariate regressions investigating explanatory variables for habitual walking behaviour in controls

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Walk Time Per Day (mins) | β | SE | t | P value | F | R | R2 | Adjusted R2 | 95% CI Lower Bound | 95% CI Upper Bound |
| Gender (male) | 32.3 | 24.8 | 1.3 | .206 | 1.7 | .256 | .066 | .027 | -18.9 | 83.5 |
| Age | -.7 | 1.5 | .5 | .634 | .2 | .098 | .010 | -.032 | -3.8 | 2.4 |
| Faller Status (Faller) | 14.6 | 32.4 | .5 | .657 | .2 | .095 | .009 | -.036 | -52.7 | 81.9 |
| UPDRS-III | 3.8 | 5.1 | .7 | .456 | 0.6 | .156 | .024 | -.020 | -6.8 | 14.4 |
| ACE-III (0-100) | -4 | 4.4 | -.9 | .375 | .8 | .181 | .033 | -.007 | -13.1 | 5.1 |
| TMT A (secs) | -1.1 | 1.4 | -.8 | .427 | 0.7 | .163 | .026 | -.014 | -4 | 1.7 |
| FAS | .03 | 1.0 | .04 | .973 | .001 | .007 | .000 | -.042 | -2.1 | 2.1 |
| GDS (0-15) | 8.8 | 10.1 | .9 | .391 | .8 | .176 | .031 | -.010 | -12 | 29.6 |
| ABC (0-100) | -.5 | 1.4 | -.4 | .700 | .2 | .079 | .006 | -.035 | -3.4 | 2.3 |
| RT Simple (secs) | -.3 | .2 | -1.2 | .262 | 1.3 | .228 | .052 | .013 | -.7 | .2 |
| Total Steps Per Day | β | SE | t | P value | F | R | R2 | Adjusted R2 | 95% CI Lower Bound | 95% CI Upper Bound |
| Gender (male) | 2008 | 1908 | 1.1 | .303 | 1.1 | .210 | .044 | .004 | -1931 | 5946 |
| Age | -73 | 113 | -.6 | .526 | .4 | .130 | .017 | -.024 | 306 | 160 |
| Faller Status (Faller) | 2601 | 2413 | 1.1 | .293 | 1.2 | .224 | .050 | .007 | -2402 | 7605 |
| UPDRS-III | 254 | 389 | .7 | .520 | .4 | .138 | .019 | -.026 | -553 | 1061 |
| ACE-III (0-100) | -229 | 337 | -.7 | .504 | .5 | .137 | .019 | -.022 | -925 | 467 |
| TMT A (secs) | -110 | 105 | 1.1 | .305 | 1.1 | .209 | .044 | .004 | -325 | 106 |
| FAS | 33 | 77 | .4 | .675 | .2 | .086 | .007 | -.034 | 127 | 193 |
| GDS (0-15) | 697 | 764 | .9 | .371 | .8 | .183 | .033 | -.007 | -881 | 2274 |
| ABC (0-100) | -53 | 105 | -.5 | .615 | .3 | .103 | .011 | -.031 | -269 | 162 |
| RT Simple (secs) | -23 | 17 | 1.3 | .204 | 1.7 | .257 | .066 | .027 | -58 | 13 |
| Bouts per day | β | SE | t | P value | F | R | R2 | Adjusted R2 | 95% CI Lower Bound | 95% CI Upper Bound |
| Gender (male) | -33 | 67 | .5 | .629 | .2 | .099 | .010 | -.031 | -171 | 106 |
| Age | 4 | 4 | 1 | .344 | 1 | .193 | .037 | -.003 | -4 | 12 |
| Faller Status (Faller) | 24 | 85 | .3 | .780 | .1 | .060 | .004 | -.042 | -153 | 201 |
| UPDRS-III | 8 | 13 | .6 | .564 | .3 | .124 | .015 | -.029 | -20 | 36 |
| ACE-III (0-100) | .4 | 12 | .03 | .976 | .001 | .006 | .000 | -.042 | -24 | 25 |
| TMT A (secs) | 1 | 4 | .3 | .741 | .1 | .068 | .005 | -.037 | -6 | 9 |
| FAS | -1 | 3 | .4 | .698 | .2 | .080 | .006 | -.035 | -7 | 5 |
| GDS (0-15) | 48 | 25 | 1.9 | .065 | 3.7 | .367 | .135 | .099 | -3 | 100 |
| ABC (0-100) | -6 | 3 | 1.8 | .089 | 3.1 | .340 | .116 | .079 | -13 | 1 |
| RT Simple (secs) | .2 | 1 | .3 | .796 | .1 | .053 | .003 | -.039 | -1 | 1 |
| Mean Bout Length | β | SE | t | P value | F | R | R2 | Adjusted R2 | 95% CI Lower Bound | 95% CI Upper Bound |
| Gender (male) | 4.1 | 1.3 | 3.2 | **.004** | 10.0 | .543 | .295 | .265 | 1.5 | 6.8 |
| Age | -.2 | .1 | -1.7 | .096 | 3.0 | .333 | .111 | .074 | -.3 | .03 |
| Faller Status (Faller) | .7 | 2 | .4 | .718 | .1 | .078 | .006 | -.039 | -3.4 | 4.8 |
| UPDRS-III | .1 | .3 | .3 | .769 | .1 | .063 | .004 | -.041 | -.6 | .7 |
| ACE-III (0-100) | -.3 | .3 | -1.3 | .224 | 1.6 | .247 | .061 | .022 | -.9 | .2 |
| TMT A (secs) | -.1 | .1 | -1.6 | .118 | 2.6 | .314 | .099 | .061 | -.3 | .04 |
| FAS | .03 | .1 | .4 | .674 | .2 | .087 | .007 | -.034 | -.1 | .2 |
| GDS (0-15) | -.5 | .6 | -.8 | .436 | .6 | .160 | .025 | -.015 | -1.7 | .8 |
| ABC (0-100) | .1 | .1 | 1.1 | .273 | 1.3 | .223 | .050 | .010 | -.1 | .3 |
| RT Simple (secs) | -.03 | .01 | -2.3 | **.034** | 4.1 | .417 | .174 | .139 | -.1 | -.002 |
| Variability | β | SE | t | P value | F | R | R2 | Adjusted R2 | 95% CI Lower Bound | 95% CI Upper Bound |
| Gender (male) | .08 | .03 | 2.9 | **.008** | 8.3 | .506 | .256 | .225 | .02 | .14 |
| Age | -.003 | .002 | 1.5 | .148 | 2.2 | .292 | .085 | .047 | -.007 | .001 |
| Faller Status (Faller) | .05 | .04 | 1.1 | .285 | 1.2 | .227 | .052 | .009 | -.04 | .1 |
| UPDRS-III | .002 | .01 | .2 | .811 | .1 | .052 | .003 | -.043 | -.01 | .02 |
| ACE-III (0-100) | -.005 | .006 | -.8 | .415 | .7 | .167 | .028 | -.013 | -.02 | .01 |
| TMT A (secs) | -.003 | .002 | 2.1 | **.049** | 4.3 | .389 | .151 | .116 | -.01 | .000 |
| FAS | .001 | .001 | 1.2 | .262 | 1.3 | .228 | .052 | .013 | -.001 | .004 |
| GDS (0-15) | -.02 | .1 | -1.2 | .247 | 1.4 | .235 | .055 | .016 | -.04 | .01 |
| ABC (0-100) | .002 | .002 | 1.3 | .192 | 1.8 | .264 | .070 | .031 | -.001 | .01 |
| RT Simple (secs) | -.001 | .000 | 2.5 | **.020** | 6.2 | .454 | .206 | .173 | -.001 | .000 |
| Alpha | β | SE | t | P value | F | R | R2 | Adjusted R2 | 95% CI Lower Bound | 95% CI Upper Bound |
| Gender (male) | -.04 | .01 | 2.6 | **.015** | 6.9 | .472 | .223 | .191 | -.06 | -.01 |
| Age | .002 | .001 | 2.4 | **.024** | 5.8 | .442 | .196 | .162 | .000 | .004 |
| Faller Status (Faller) | -.001 | .02 | .1 | .962 | .002 | .010 | .000 | -.045 | -.04 | .04 |
| UPDRS-III | .000 | .003 | -.1 | .929 | .01 | .019 | .000 | -.045 | -.001 | .01 |
| ACE-III (0-100) | .003 | .003 | 1.2 | .246 | 1.4 | .236 | .056 | .016 | -.002 | .01 |
| TMT A (secs) | .001 | .001 | 1.2 | .250 | 1.4 | .234 | .055 | .015 | -.001 | .003 |
| FAS | .000 | .001 | .2 | .849 | .04 | .039 | .002 | -.040 | -.001 | .001 |
| GDS (0-15) | .002 | .01 | .3 | .771 | .1 | .060 | .004 | -.038 | -.01 | .01 |
| ABC (0-100) | -.002 | .001 | 2.2 | **.037** | 4.9 | .411 | .169 | .134 | -.003 | .000 |
| RT Simple (secs) | .000 | .000 | 1.3 | .203 | 1.7 | .258 | .067 | .028 | .000 | .000 |

Significant values are highlighted in bold. UPDRS-III = Unified Parkinson’s Disease Rating Scale III, ACE-III = Addenbrookes Cognitive Examination III, TMT A = Trail Making Task A, FAS = FAS Test, RT Simple = Simple Reaction Time Task, GDS = Geriatric Depression Scale, ESS = Epworth Sleepiness Scale, ABC = Activities Balance Confidence Scale, BADLS = Bristol’s Activities of Daily Living

Supplementary Table 3 Univariate regressions and backwards stepwise regression models investigating explanatory variables for habitual walking behaviour in cognitively impaired group

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| .Total Walk Time Per Day (mins) | β | SE | t | P value | F | R | R2 | Adjusted R2 | 95% CI Lower Bound | 95% CI Upper Bound |
| Gender (Male) | -16.4 | 14.7 | 1.1 | .268 | 1.2 | .124 | .015 | .003 | -45.7 | 12.9 |
| Age | -1.4 | 1.2 | -0.12 | .232 | 1.5 | 0.134 | .018 | .006 | -3.7 | 0.9 |
| Faller Status (Faller) | -20.3 | 14.1 | -1.4 | .153 | 2.1 | .159 | .025 | .013 | -48.3 | 7.7 |
| UPDRS-III | -1.6 | 0.3 | -4.8 | **≤.001** | 23.2 | 0.481 | 0.231 | .221 | -2.3 | -0.9 |
| ACE-III (0-100) | -0.1 | 0.5 | -0.1 | .912 | 0.01 | 0.013 | 0 | -.013 | -1.1 | 0.9 |
| TMT A (secs) | -0.1 | 0.04 | -1.9 | .064 | 3.5 | 0.221 | 0.049 | 0.035 | -0.2 | 0.01 |
| FAS | 1.6 | 0.5 | 3.4 | **≤.001** | 11.9 | 0.367 | 0.135 | 0.124 | 0.7 | 2.5 |
| GDS (0-15) | -3.2 | 2.3 | -1.4 | .165 | 2 | 0.157 | 0.025 | 0.012 | -7.7 | 1.3 |
| ABC (0-100) | 1.2 | 0.3 | 3.6 | **≤.001** | 12.9 | 0.374 | 0.14 | 0.129 | 0.5 | 1.8 |
| RT Simple (secs) | -0.02 | 0.02 | -1.4 | .174 | 1.9 | 0.159 | 0.025 | 0.012 | -0.06 | .011 |
| BADLS (0-60) | -3.1 | 1 | 3.3 | **≤.001** | 11 | .366 | .134 | .121 | -5 | -1.3 |
| Full Model |  |  |  |  |  |  |  |  |  |  |
| Full Model |  |  |  | **≤.001** | 12.8 | .532 | .283 | .261 |  |  |
| UPDRS-III | -1.1 | .3 | 3.4 | **.001** |  |  |  |  | -1.7 | -0.4 |
| BADLS | -2.0 | .8 | 2.3 | **.022** |  |  |  |  | -3.6 | -.3 |
| **Steps Per Day** | β | SE | t | P value | F | R | R2 | Adjusted R2 | 95% CI Lower Bound | 95% CI Upper Bound |
| Gender (Male) | -829 | 1069 | -.8 | .440 | 0.6 | .086 | .007 | -.005 | -2956 | 1299 |
| Age | -84 | 85 | -1 | .325 |  | .11 | .012 | .000 | -253 | 85 |
| Faller Status (Faller) | -940 | 1026 | 0.9 | .362 | .8 | .102 | .010 | -.002 | -2981 | 1101 |
| UPDRS-III | -104 | 25 | -4.2 | **≤.001** | 17.6 | .431 | .186 | .175 | -154 | -55 |
| ACE-III (0-100) | -8 | 36 | -.2 | .831 | .1 | .024 | .001 | -.012 | -80 | 64 |
| TMT A (secs) | -5 | 3 | -1.7 | .102 | 2.8 | .196 | .038 | .024 | -11 | 1 |
| FAS | 102 | 34 | 3.0 | **.003** | 9.2 | .329 | .108 | .096 | 35 | 168 |
| GDS (0-15) | -232 | 163 | -1.4 | .159 | 2.0 | .159 | .025 | .013 | -556 | 93 |
| ABC (0-100) | 83 | 24 | 3.5 | **≤.001** | 11.9 | .362 | .131 | .120 | 35 | 130 |
| RT Simple (secs) | -1.5 | 1.3 | -1.2 | .243 | 1.4 | .136 | .019 | .005 | -4 | 1 |
| BADLS (0-60) | -211 | 69 | 3 | **.003** | 9.3 | .340 | .115 | .103 | -349 | -73 |
| **Full Model** |  |  |  |  |  |  |  |  |  |  |
| Full Model |  |  |  | **≤.001** | 9.8 | .482 | .232 | .208 |  |  |
| UPDRS-III | -70 | 24 | 2.9 | **.004** |  |  |  |  | -118 | -23 |
| BADL | -132 | 63 | 2.1 | **.041** |  |  |  |  | -258 | -5 |
| **Bouts Per Day** | β | SE | t | P value | F | R | R2 | Adjusted R2 | 95% CI Lower Bound | 95% CI Upper Bound |
| Gender (Male) | -68 | 48 | 1.4 | .162 | 2 | .156 | .024 | .012 | -163 | 28 |
| Age | -6 | 4 | 1.6 | 0.124 | 2.4 | 0.171 | 0.029 | 0.017 | -13.5 | 1.7 |
| Faller Status (Faller) | -99 | 45 | 2.2 | **.032** | 4.8 | .237 | .056 | .044 | -189 | -9 |
| UPDRS-III | -4 | 1 | 3.7 | **≤.001** | 13.9 | .390 | .152 | .141 | -7 | -2 |
| ACE-III (0-100) | -1 | 2 | .8 | .428 | .6 | .090 | .008 | -.005 | -5 | 2 |
| TMT A (secs) | -.2 | .1 | 1.6 | .118 | 2.5 | .187 | .035 | .021 | -.5 | .1 |
| FAS | 4 | 2 | 2.6 | **.011** | 6.8 | .286 | .082 | .070 | .9 | 7 |
| GDS (0-15) | -13 | 7 | 1.8 | .070 | 3.4 | .204 | .042 | .029 | -28 | 1 |
| ABC (0-100) | 3 | 1 | 2.8 | **.007** | 7.6 | .296 | .088 | .076 | 1 | 5 |
| RT Simple (secs) | -.1 | .1 | 1.3 | .206 | 1.6 | .148 | .022 | .008 | -.2 | .04 |
| BADLS (0-60) | -10 | 3 | 3.1 | **.003** | 9.8 | .348 | .121 | .108 | -16 | -4 |
| **Full Model** |  |  |  |  |  |  |  |  |  |  |
| Full Model |  |  |  | **≤.001** | 7.9 | .442 | .195 | .171 |  |  |
| UPDRS-III | -2 | 1 | 2.0 | **.049** |  |  |  |  | -5 | -.01 |
| BADL | -8 | 3 | 2.5 | **.014** |  |  |  |  | -13 | -2 |
| **Mean Bout Length (secs)** | β | SE | t | P value | F | R | R2 | Adjusted R2 | 95% CI Lower Bound | 95% CI Upper Bound |
| Gender (Male) | -.2 | .8 | -.3 | .796 | .1 | .029 | .001 | -.012 | -1.8 | 1.4 |
| Age | -.001 | .1 | -.01 | .992 | .000 | .001 | .000 | -.012 | -.1 | .1 |
| Faller Status (Faller) | .9 | .8 | 1.2 | .230 | 1.5 | .134 | .018 | .006 | -.6 | 2.4 |
| UPDRS-III | -.1 | .02 | -2.9 | **.005** | 8.6 | .316 | .100 | .088 | -.1 | -.02 |
| ACE-III (0-100) | .02 | .03 | .9 | .373 | .8 | .101 | .010 | -.003 | -.03 | .1 |
| TMT A (secs) | -.002 | .002 | -1.0 | .343 | .9 | .114 | .013 | -.001 | -.01 | .002 |
| FAS | .1 | .03 | 2.0 | **.045** | 4.2 | .228 | .052 | .039 | .001 | .1 |
| GDS (0-15) | .1 | .1 | .8 | .416 | .7 | .092 | .008 | -.004 | -.1 | .3 |
| ABC (0-100) | .1 | .02 | 2.6 | **.011** | 6.8 | .282 | .080 | .068 | .01 | .1 |
| RT Simple (secs) | .000 | .001 | -.5 | .653 | .2 | .053 | .003 | -.011 | -.002 | .002 |
| BADLS (0-60) | -.05 | .06 | .8 | .406 | .7 | .099 | .010 | -.004 | -.2 | .1 |
| **Full Model** |  |  |  |  |  |  |  |  |  |  |
| Full Model |  |  |  | **.005** | 8.4 | .319 | .102 | .090 |  |  |
| UPDRS-III | -.056 | .019 | 2.9 | **.005** |  |  |  |  | -.095 | -.018 |
| **Variability** | β | SE | t | P value | F | R | R2 | Adjusted R2 | 95% CI Lower Bound | 95% CI Upper Bound |
| Gender (Male) | .02 | .02 | 1.0 | .305 | 1.1 | .115 | .013 | .001 | -.02 | .06 |
| Age | .000 | .001 | .2 | .822 | .1 | .025 | .001 | -.012 | -.003 | .003 |
| Faller Status (Faller) | .04 | .02 | 2.2 | **.030** | 4.9 | .239 | .057 | .045 | .004 | .074 |
| UPDRS-III | -.001 | .000 | -1.2 | .249 | 1.4 | .131 | .017 | .004 | -.002 | .000 |
| ACE-III (0-100) | .001 | .001 | 1.2 | .232 | 1.5 | .135 | .018 | .006 | .000 | .002 |
| TMT A (secs) | -1.1 | .000 | -.2 | .847 | .04 | .023 | .001 | -.014 | .000 | .000 |
| FAS | .001 | .001 | 1.5 | .128 | 2.4 | .174 | .030 | .017 | .000 | .002 |
| GDS (0-15) | .003 | .003 | 1.1 | .273 | 1.2 | .124 | .015 | .003 | -.003 | .01 |
| ABC (0-100) | .001 | .000 | 2.1 | **.039** | 4.4 | .230 | .053 | .041 | .000 | .002 |
| RT Simple (secs) | 1.8 | .000 | .7 | .440 | .6 | .091 | .008 | -.005 | .000 | .000 |
| BADLS (0-60) | .000 | .001 | .1 | .921 | .01 | .012 | .000 | -.014 | -.002 | .003 |
| **Full Model** |  |  |  |  |  |  |  |  |  |  |
| Full Model |  |  |  | **.003** | 6.7 | .383 | .147 | .125 |  |  |
| ABC | .001 | .000 | 2.9 | **.005** |  |  |  |  | .000 | .002 |
| Faller Status | .051 | .018 | 2.9 | **.003** |  |  |  |  | .017 | .086 |
| **Alpha** | β | SE | t | P value | F | R | R2 | Adjusted R2 | 95% CI Lower Bound | 95% CI Upper Bound |
| Gender (Male) | -.01 | .02 | -.6 | .584 | .3 | .061 | .004 | -.009 | -.04 | .02 |
| Age | .001 | .001 | .7 | .502 | .5 | .075 | .006 | -.007 | -.002 | .003 |
| Faller Status (Faller) | -.02 | .02 | 1.1 | .262 | 1.3 | .125 | .016 | .003 | -.05 | .013 |
| UPDRS-III | .001 | .000 | 2.7 | **.008** | 7.4 | .296 | .088 | .076 | .000 | .002 |
| ACE-III (0-100) | -.001 | .001 | 1.2 | .241 | 1.4 | .133 | .018 | .005 | -.002 | .000 |
| TMT A (secs) | 2.2 | .000 | .5 | .623 | .2 | .059 | .004 | -.011 | .000 | .000 |
| FAS | -.001 | .000 | -2.6 | **.012** | 6.6 | .283 | .080 | .068 | -.002 | .000 |
| GDS (0-15) | -.002 | .002 | -.8 | .423 | .7 | .091 | .008 | -.004 | -.007 | .003 |
| ABC (0-100) | -.001 | .000 | 3.4 | **.001** | 11.2 | .353 | .125 | .114 | -.002 | .000 |
| RT Simple (secs) | .001 | .001 | .7 | .507 | .5 | .079 | .006 | -.008 | -.001 | .003 |
| BADLS (0-60) | 7.4 | .000 | .4 | .695 | .2 | .046 | .002 | -.012 | .000 | .000 |
| **Full Model** |  |  |  |  |  |  |  |  |  |  |
| Full Model |  |  |  | **.013** | 4.6 | .336 | .113 | .089 |  |  |
| UPDRS-III | .001 | .000 | 2.0 | **.045** |  |  |  |  | .000 | .001 |
| FAS | -.001 | .000 | 1.7 | .098 |  |  |  |  | -.001 | .000 |

Significant values in bold. Data displayed as (rho (p value)). UPDRS-III = Unified Parkinson’s Disease Rating Scale III, ACE-III = Addenbrookes Cognitive Examination III, TMT A = Trail Making Task A, FAS = FAS Test, RT Simple = Simple Reaction Time Task, GDS = Geriatric Depression Scale, ESS = Epworth Sleepiness Scale, ABC = Activities Balance Confidence Scale, BADLS = Bristol’s Activities of Daily Living

Supplementary Table 4 Spearman’s correlations between habitual walking behaviour and associated factors in Alzheimer's disease

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Walk Time Per Day | Steps Per Day | Bouts Per Day | Mean Bout Length | Variability | Alpha |
| Age | -.084 (.625) | -.068 (.692) | -.159 (.353) | .041 (.814) | .125 (.466) | -.117 (.497) |
| UPDRS-III | -.417 (.013) | -.425 (.011) | -.346 (.042) | -.016 (.928) | .007 (.968) | .030 (.863) |
| ACE-III | -.052 (.764) | <.001 (1.000) | -.146 (.394) | .288 (.088) | .338 (.044*)* | -.321 (.056) |
| TMT A | .054 (.757) | .005 (.978) | .112 (.522) | -.236 (.173) | -.130 (.456) | .302 (.078) |
| FAS | .191 (.271) | .241 (.164) | .195 (.261) | .106 (.545) | .084 (.633) | -.074 (.672) |
| RT Simple | -.183 (.293) | -.189 (.278) | -.152 (.383) | -.127 (.467) | -.096 (.584) | .162 (.353) |
| ABC | .363 (.029) | .372 (.025) | .232 (.173) | .209 (.222) | .055 (.749) | -.155 (.366) |
| BADLS | -.255 (.151) | -.272 (.126) | -.171 (.340) | -.155 (.390) | -.070 (.697) | .103 (.569) |

*Data displayed as (rho (p value)).* Data highlighted in dark blue refers to significant correlations, light blue refers to rho values > .200. *UPDRS-III = Unified Parkinson’s Disease Rating Scale III, ACE-III = Addenbrookes Cognitive Examination III, TMT A = Trail Making Task A, FAS = FAS Test, RT Simple = Simple Reaction Time Task, ABC = Activities Balance Confidence Scale, BADLS = Bristol’s Activities of Daily Living.*

Supplementary Table 5 Spearman correlations between habitual walking behaviour and associated factors in dementia with Lewy bodies

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Walk Time Per Day | Steps Per Day | Bouts Per Day | Mean Bout Length | Variability | Alpha |
| Age | -.176 (.353) | -.204 (.279) | -.036 (.850) | -.213 (.259) | -.287 (.125) | .201 (.287) |
| UPDRS-III | -.382 (.041) | -.324 (.086) | -.385 (.039) | -.221 (.250) | -.023 (.906) | .178 (.356) |
| ACE-III | -.030 (.877) | -.080 (.679) | -.147 (.448) | .205 (.286) | .242 (.205) | -.275 (.149) |
| TMT A | -.145 (.529) | -.127 (.582) | -.114 (.624) | -.190 (.410) | -.284 (.211) | .247 (.281) |
| FAS | .273 (.160) | .233 (.232) | .163 (.407) | .365 (.056) | .308 (.111) | -.361 (.059) |
| RT Simple | -.246 (.236) | -.202 (.334) | -.304 (.139) | -.105 (.619) | -.017 (.936) | .078 (.712) |
| ABC | .412 (.024) | .373 (.042) | .509 (.004) | .154 (.417) | .052 (.785) | -.097 (.609) |
| BADLS | .206 (.323) | .164 (.434) | .152 (.468) | .173 (.407) | -.005 (.982) | -.243 (.241) |

Data displayed as (rho (p value)). Data highlighted in dark blue refers to significant correlations, light blue refers to rho values > .200. UPDRS-III = Unified Parkinson’s Disease Rating Scale III, ACE-III = Addenbrookes Cognitive Examination III, TMT A = Trail Making Task A, FAS = FAS Test, RT Simple = Simple Reaction Time Task, ABC = Activities Balance Confidence Scale, BADLS = Bristol’s Activities of Daily Living.Factors associated with habitual walking behaviour in people with Parkinson’s disease dementia

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Walk Time Per Day | Steps Per Day | Bouts Per Day | Mean Bout Length | Variability | Alpha |
| Age | -.349 (.185) | -.265 (.321) | -.303 (.254) | -.052 (.850) | .057 (.833) | .031 (.910) |
| UPDRS-III | -.618 (.014) | -.525 (.044) | -.386 (.156) | -.429 (.111) | -.182 (.516) | .575 (.025) |
| ACE-III | .363 (.184) | .224 (.421) | .255 (.359) | .323 (.240) | -.059 (.834) | -.368 (.177) |
| TMT A | -.025 (.930) | -.089 (.752) | <.001 (<.001) | .168 (.550) | .250 (.369) | -.064 (.820) |
| FAS | .507 (.054) | .415 (.124) | .489 (.064) | .349 (.202) | .036 (.899) | -.306 (.267) |
| RT Simple | .061 (.830) | .114 (.685) | .068 (.810) | .121 (.666) | .254 (.362) | .004 (.990) |
| ABC | -.143 (.611) | -.127 (.652) | -.243 (.383) | .209 (.454) | .166 (.554) | -.304 (.271) |
| BADLS | -.411 (.128) | -.379 (.164) | -.386 (.155) | -.030 (.914) | .297 (.283) | .197 (.482) |

Supplementary Table 6 Spearman’s correlations between habitual walking behaviour and associated factors in Parkinson’s disease dementia

Data displayed as (rho (p value)). Data highlighted in dark blue refers to significant correlations, light blue refers to rho values > .200. UPDRS-III = Unified Parkinson’s Disease Rating Scale III, ACE-III = Addenbrookes Cognitive Examination III, TMT A = Trail Making Task A, FAS = FAS Test, RT Simple = Simple Reaction Time Task, ABC = Activities Balance Confidence Scale, BADLS = Bristol’s Activities of Daily Living.