Supplementary data:

**Supplementary Table 1: Estimated marginal means of Latency (ms) and Amplitude (µV) at P1. P2 and P3 separated by IQ groups.**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Estimates** | | | | | | | | | |
| Measure | | | Mean | | Std. Error | | 95% Confidence Interval | | | |
| Lower Bound | | Upper Bound | |
| LatP1 | Average IQ | 88.333 | | 7.283 | | 70.513 | | 106.153 | |
| High IQ | 87.722 | | 7.283 | | 69.902 | | 105.542 | |
| LatP2 | Average IQ | 219.000 | | 11.105 | | 191.828 | | 246.172 | |
| High IQ | 213.111 | | 11.105 | | 185.939 | | 240.283 | |
| LatP3 | Average IQ | 413.444 | | 15.799 | | 374.785 | | 452.104 | |
| High IQ | 369.778 | | 15.799 | | 331.118 | | 408.437 | |
| AmpP1 | Average IQ | 1.185 | | .878 | | -.963 | | 3.334 | |
| High IQ | .903 | | .878 | | -1.246 | | 3.052 | |
| AmpP2 | Average IQ | 12.760 | | 1.542 | | 8.988 | | 16.532 | |
| High IQ | 8.771 | | 1.542 | | 4.999 | | 12.543 | |
| AmpP3 | Average IQ | 9.365 | | 2.586 | | 3.038 | | 15.692 | |
| High IQ | 2.837 | | 2.586 | | -3.491 | | 9.164 | |

**Supplementary Table 2: Total correct hits in the N-Back task (2-back), reaction time and experiment total duration time**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Subject | IQ Group | Percentage of accuracy | Mean Reaction Time (ms) | Total time (minutes) |
| 1 | High | 91% | 769 | 29 |
| 2 | High | 91% | 811 | 32 |
| 3 | High | 68% | 699 | 33 |
| 4 | High | 73% | 514 | 31 |
| 5 | Average | 70% | 414 | 46 |
| 6 | Average | 93% | 824 | 41 |
| 7 | Average | 80% | 894 | 33 |
| 8 | Average | 92% | 955 | 31 |

**Supplementary Table 3: Mean latencies (ms) of ERP components.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Average IQ | | High IQ | |  |
|  | *M* | *SD* | *M* | *SD* | Cohen´s d |
| Lat\_P3.F3 | 433 | 63 | 365 | 16 | 10.048 |
| Lat\_P3.Fz | 433 | 56 | 372 | 14 | 11.518 |
| Lat\_P3.F4 | 405 | 56 | 363 | 22 | 9.841 |
| Lat\_P3.C3 | 392 | 40 | 379 | 24 | 12.156 |
| Lat\_P3.Cz | 389 | 38 | 384 | 24 | 12.398 |
| Lat\_P3.C4 | 388 | 39 | 390 | 8 | 16.503 |
| Lat\_P3.P3 | 429 | 67 | 359 | 12 | 10.071 |
| Lat\_P3.Pz | 424 | 64 | 359 | 8 | 10.839 |
| Lat\_P3.P4 | 430 | 67 | 359 | 6 | 10.768 |
| Lat\_P2.F3 | 220 | 26 | 208 | 14 | 10.575 |
| Lat\_P2.Fz | 218 | 31 | 223 | 32 | 6.999 |
| Lat\_P2.F4 | 218 | 30 | 219 | 15 | 9.610 |
| Lat\_P2.C3 | 217 | 28 | 217 | 12 | 10.835 |
| Lat\_P2.Cz | 219 | 30 | 210 | 19 | 8.785 |
| Lat\_P2.C4 | 214 | 31 | 218 | 12 | 10.096 |
| Lat\_P2.P3 | 202 | 48 | 202 | 56 | 3.873 |
| Lat\_P2.Pz | 239 | 48 | 222 | 68 | 3.967 |
| Lat\_P1.F3 | 76 | 32 | 92 | 28 | 2.778 |
| Lat\_P1.Fz | 84 | 26 | 73 | 24 | 3.181 |
| Lat\_P1.F4 | 79 | 29 | 77 | 23 | 3.001 |
| Lat\_P1.C3 | 91 | 25 | 99 | 10 | 5.343 |
| Lat\_P1.Cz | 88 | 27 | 85 | 19 | 3.724 |
| Lat\_P1.C4 | 88 | 27 | 81 | 17 | 3.848 |
| Lat\_P1.P3 | 107 | 26 | 116 | 4 | 7.521 |
| Lat\_P1.Pz | 101 | 26 | 84 | 31 | 3.234 |
| Lat\_P1.P4 | 83 | 29 | 84 | 16 | 3.702 |

**Supplementary Table 4: Mean amplitudes (µV) of ERP components.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Average IQ | | High IQ | |  |
|  | *M* | *SD* | *M* | *SD* | Cohen´s d |
| P3.F3 | 7.195 | 7.413 | 2.819 | 3.085 | 0.954 |
| P3.Fz | 10.532 | 7.666 | .973 | 3.461 | 1.034 |
| P3.F4 | 7.311 | 7.629 | 1.498 | 4.262 | 0.741 |
| P3.C3 | 4.396 | 4.214 | -.255 | 5.984 | 0.406 |
| P3.Cz | 4.391 | 5.236 | -2.414 | 6.108 | 0.174 |
| P3.C4 | 3.470 | 4.837 | -.358 | 6.850 | 0.266 |
| P3.P3 | 11.916 | 8.517 | 8.955 | 2.783 | 1.847 |
| P3.Pz | 17.986 | 8.005 | 8.121 | 3.766 | 2.218 |
| P3.P4 | 17.086 | 10.592 | 6.191 | 4.006 | 1.595 |
| P2.F3 | 13.633 | 2.132 | 8.465 | 3.968 | 3.622 |
| P2.Fz | 14.059 | 1.626 | 7.210 | 4.692 | 3.366 |
| P2.F4 | 12.522 | 5.502 | 10.650 | 5.312 | 2.143 |
| P2.C3 | 15.332 | 4.597 | 10.231 | 5.348 | 2.571 |
| P2.Cz | 14.172 | 2.966 | 10.427 | 6.304 | 2.654 |
| P2.C4 | 15.572 | 4.353 | 11.066 | 6.833 | 2.381 |
| P2.P3 | 7.405 | 5.854 | 7.243 | 3.575 | 1.553 |
| P2.Pz | 11.333 | 3.893 | 6.872 | 3.384 | 2.502 |
| P2.P4 | 10.807 | 1.559 | 6.772 | 2.880 | 3.960 |
| P1.F3 | -1.158 | 2.387 | .162 | 1.707 | -0.243 |
| P1.Fz | .701 | 1.914 | .596 | 2.175 | 0.317 |
| P1.F4 | 2.353 | 2.813 | .613 | 1.247 | 0.730 |
| P1.C3 | 2.701 | 3.750 | -.173 | .819 | 0.553 |
| P1.Cz | 2.690 | 3.160 | .993 | 1.625 | 0.770 |
| P1.C4 | 3.682 | 4.593 | .077 | 1.621 | 0.605 |
| P1.P3 | -.496 | 2.942 | 2.170 | 2.130 | 0.330 |