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Assessing the influence of cognitive response conflict on balance control – An event-related approach using response-aligned force-plate time series data

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Supplementary tables.

Table S1.

Descriptive statistics of the manual reaction latencies by posture, current and previous trial congruency

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Posture | Current trialcongruency | Previous trialcongruency | Average (ms) | Confidenceinterval (ms) |
| Sitting | congruent | Congruent | 440.76 | 4.95 |
| Sitting | Congruent | Incongruent | 476.68 | 4.95 |
| Sitting | incongruent | Congruent | 490.65 | 4.68 |
| Sitting | Incongruent | Incongruent | 457.30 | 4.28 |
| Standing | Congruent | Congruent | 431.35 | 4.89 |
| Standing | Congruent | Incongruent | 468.37 | 5.34 |
| Standing | Incongruent | Congruent | 485.40 | 4.87 |
| Standing | incongruent | Incongruent | 452.26 | 4.20 |

Table S2.

Descriptive statistics of the manual error proportions by posture, current and previous trial congruency

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Posture | Current trialcongruency | Previous trialcongruency | Average (%) | Confidenceinterval (%) |
| Sitting | congruent | Congruent | 2.26 | 0.79 |
| Sitting | Congruent | Incongruent | 6.26 | 0.57 |
| Sitting | incongruent | Congruent | 9.76 | 0.97 |
| Sitting | Incongruent | Incongruent | 3.40 | 0.66 |
| Standing | Congruent | Congruent | 2.62 | 0.61 |
| Standing | Congruent | Incongruent | 6.60 | 0.93 |
| Standing | Incongruent | Congruent | 9.90 | 1.11 |
| Standing | incongruent | Incongruent | 4.37 | 0.58 |

Table S3.

Test statistics for ANOVAs of manual reaction latencies and error proportions with (rows 1 and 2) posture as within-subject factor and without (standing only; rows 3 and 4). Significant effects or interactions are indicated with asterisks.

|  |  |
| --- | --- |
|  | F, p, partial eta^2 |
| Main effect | Main effect | Main effect | Interaction | Interaction | Interaction | Interaction |
| Posture | Current trialcongruency | Previous trialCongruency | Posture bycurrent trialcongruency | Posture byprevious trialcongruency | Current trialcongruency byprevious trialcongruency | Posture bycurrent trialby previoustrial congruency |
| Reaction latencies | 5.22,.03, .10 | 95.25,<.001, .67 \*\*\* | 4.53,.04, .09 | 7.39,.009, .14 \*\* | 0.25,.62 | 330.13,<.001, .88 \*\*\* | 0.06,.80 |
| Error proportion | 3.17,.08, .06 | 34.16,<.001, .42 \*\*\* | 22.73,<.001, .33 \*\*\* | 0.41,.53 | 0.94,.34 | 146.89,<.001, .76 \*\*\* | 1.14,.29 |
| Reaction latencies |  | 91.08,<.001, .66 \*\*\* | 3.59,.06, .07 |  |  | 230.94,<.001, .83 \*\*\* |  |
| Errorproportions |  | 26.45,<.001, .36 \*\*\* | 6.24,.02, .12 |  |  | 111.39,<.001, .70 \*\*\* |  |

Table S4.

Descriptive statistics of the target-aligned time series data (absolute AV Moment) by direction of body sway (AP: anteroposterior; ML: mediolateral) and current trial congruency

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Direction | Time bin | Current trial congruency | Average (Nm) | Confidenceinterval (Nm) |
| AP | 150 | Congruent | 0.055 | 0.008 |
| AP | 150 | Incongruent | 0.062 | 0.011 |
| ML | 150 | Congruent | 0.028 | 0.007 |
| ML | 150 | Incongruent | 0.027 | 0.009 |

Table S5.

Descriptive statistics of the target-aligned time series data (SD Moment) by direction of body sway (AP: anteroposterior; ML: mediolateral) and current trial congruency

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Direction | Time bin | Current trial congruency | Average (Nm) | Confidenceinterval (Nm) |
| AP | 150 | Congruent | 0.171 | 0.004 |
| AP | 150 | Incongruent | 0.173 | 0.004 |
| ML | 150 | Congruent | 0.107 | 0.003 |
| ML | 150 | Incongruent | 0.110 | 0.003 |

Table S6.

Descriptive statistics of the response-aligned time series data (absolute AV Moment) by direction of body sway (AP: anteroposterior; ML: mediolateral), time bin, and current trial congruency

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Direction | Time bin | Current trial congruency | Average (Nm) | Confidenceinterval (Nm) |
| AP | -150 | Congruent | 0.168 | 0.039 |
| AP | -150 | Incongruent | 0.173 | 0.036 |
| AP | 150 | Congruent | 0.198 | 0.035 |
| AP | 150 | Incongruent | 0.172 | 0.037 |
| ML | -150 | Congruent | 0.071 | 0.020 |
| ML | -150 | Incongruent | 0.092 | 0.020 |
| ML | 150 | Congruent | 0.084 | 0.020 |
| ML | 150 | Incongruent | 0.099 | 0.021 |

Table S7.

Descriptive statistics of the response-aligned time series data (SD Moment) by direction of body sway (AP: anteroposterior; ML: mediolateral), time bin, and current trial congruency

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Direction | Time bin | Current trialcongruency | Average (Nm) | Confidenceinterval (Nm) |
| AP | -150 | Congruent | 0.162 | 0.004 |
| AP | -150 | Incongruent | 0.159 | 0.004 |
| AP | 150 | Congruent | 0.164 | 0.004 |
| AP | 150 | Incongruent | 0.165 | 0.004 |
| ML | -150 | Congruent | 0.100 | 0.002 |
| ML | -150 | Incongruent | 0.095 | 0.002 |
| ML | 150 | Congruent | 0.098 | 0.002 |
| ML | 150 | Incongruent | 0.098 | 0.002 |

Table S8.

Test statistics for ANOVAs of the time course across an entire trial by combining target-aligned and response-aligned, log-transformed average (unsigned) and standard deviation of force moments by direction of body sway (AP: anteroposterior; ML: mediolateral), time bin, and the current trial congruency. Significant effects or interactions are indicated with asterisks.

|  |  |  |
| --- | --- | --- |
| Moment |  | F, p, partial eta^2 |
| Parameter | Direction | Main effect | Main effect | Interaction |
|  |  | Time bin | Current trial congruency | Time bin bycurrent trialcongruency |
| AV | AP | 44.01,.001, .48 \*\*\* | 0.54, 46, .01 | 1.23,.30, .03 |
| AV | ML | 54.16,< .001, .54 \*\*\* | 0.06,.80, < .01 | 1.95,.16, .04  |
| SD | AP | 8.86,< .001, .16 \*\*\* | 0.21, .65, < .01 | 0.83, .42, .02 |
| SD | ML | 41.26,< .001, .47 \*\*\* | 0.05, .83, < .01 | 6.55, .002, .12 \*\* |

Table S9.

Test statistics of repeated-measures t-tests for the target-aligned, log-transformed average (unsigned; AV) and standard deviation (SD) of force moment by direction (AP: anteroposterior; ML: mediolateral) and the current trial congruency

|  |  |  |
| --- | --- | --- |
| Moment |  | t, p, dz |
| Parameter | Direction | Main effect |
|  |  | Current trialcongruency |
| AV | AP | 0.079,.94,.01 |
| AV | ML | 1.09,.28,.16 |
| SD | AP | 0.27,.79,.04 |
| SD | ML | -1.24, .22,.18 |

Table S10.

Test statistics for ANOVAs of the response-aligned, log-transformed average (unsigned; AV) and standard deviation (SD) of force moment by direction of body sway (AP: anteroposterior; ML: mediolateral), time bin, and the current trial congruency. Significant effects or interactions are indicated with asterisks.

|  |  |  |
| --- | --- | --- |
| Moment |  | F, p, partial eta^2 |
| Parameter | Direction | Main effect | Main effect | Interaction |
|  |  | Time bin | Current trial congruency | Time bin bycurrent trialcongruency |
| AV | AP | .97,.33, .02 | 1.91,.17, .04 | 1.49,.23, .03 |
| AV | ML | 1.04,.31, .02 | .65,.43, .01 | .53,.47, .01 |
| SD | AP | 0.17,.68, .01 | 2.20,.14, .04 | 3.02,.09, .06 |
| SD | ML | 1.76,.19, .04 | 0.16,.69, .01 | 8.87,.005, .16 \*\* |