Influence of augmented visual feedback on balance control in unilateral transfemoral amputees

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S 1: EnHL of the amputated leg compared to the intact leg in anterior-posterior (left) and medio-lateral directions (right).

S 2: EnHL of the non-dominant leg compared to the dominant leg in anterior-posterior and medio-lateral directions.
**Supplementary Table 1:** Two-way mixed ANOVA of the sway area of the amputees and controls. Statistically significant values are displayed in bold font and marked with an asterisk (significance level $\alpha = 0.05$, p-value: * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$).

| Main- and Interaction Effects | F-value | p<.05 | p-value  |
|-------------------------------|---------|-------|---------|
| Group                         | 4.59    | *     | 0.046   |
| Condition                     | 9.36    | ***   | <0.001  |
| Group x Condition             | 2.69    |       | 0.109   |

**Supplementary Table 2:** Two-way mixed ANOVA of the sway area ratio data normalized to the eyes open condition of the amputees and controls. Statistically significant values are displayed in bold font and marked with an asterisk (significance level $\alpha = 0.05$, p-value: * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$).

| Main- and Interaction Effects | F-value | p<.05 | p-value  |
|-------------------------------|---------|-------|---------|
| Group                         | 0.54    |       | 0.473   |
| Condition                     | 7.89    | ***   | <0.001  |
| Group x Condition             | 1.59    |       | 0.131   |

**Supplementary Table 3:** Pairwise t-test with Bonferroni-correction to test for significant difference between the sway area ratio data normalized to the eyes open condition in amputees and controls. Statistically significant values are displayed in bold font (significance level $\alpha = 0.05$).
**Supplementary Table 4:** Five-way mixed ANOVA of the EnHL data. Statistically significant values are displayed in bold font and marked with an asterisk (significance level $\alpha = 0.05$, p-value: * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$). Verification of the significant difference between original and surrogate data (signal), to confirm the non-random origin of the EnHL-values of the original signal.

| Main- and Interaction Effects | F-value | p<.05 | p-value |
|------------------------------|---------|-------|---------|
| Signal                       | 146.906 | ***   | <0.001  |
| Group                        | 7.624   | **    | 0.006   |
| Direction                    | 0.229   |       | 0.633   |
| Leg                          | 50.773  | ***   | <0.001  |
| Condition                    | 47.380  | ***   | <0.001  |
| Signal x Group               | 0.228   |       | 0.633   |
| Signal x Direction           | 0.104   |       | 0.747   |
| Group x Direction            | 0.377   |       | 0.540   |
| Signal x Leg                 | 0.769   |       | 0.465   |
| Group x Leg                  | 56.865  | ***   | <0.001  |
| Direction x Leg              | 1.142   |       | 0.321   |
| Signal x Condition           | 1.005   |       | 0.424   |
| Group x Condition            | 5.539   | ***   | <0.001  |
| Direction x Condition        | 1.230   |       | 0.285   |
| Leg x Condition              | 1.707   | *     | 0.039   |
| Signal x Group x Direction   | 0.458   |       | 0.499   |
| Signal x Group x Leg         | 0.672   |       | 0.512   |
| Signal x Direction x Leg     | 0.438   |       | 0.646   |
| Group x Direction x Leg      | 0.057   |       | 0.945   |
| Signal x Group x Condition   | 0.561   |       | 0.780   |
| Signal x Direction x Condition| 0.865  |       | 0.530   |
| Group x Direction x Condition| 2.065   | *     | 0.047   |
| Signal x Leg x Condition     | 0.784   |       | 0.681   |
| Group x Leg x Condition      | 1.533   |       | 0.096   |
| Direction x Leg x Condition  | 0.788   |       | 0.678   |
| Signal x Group x Direction x Leg| 0.084 |       | 0.919   |
| Signal x Group x Direction x Condition| 1.342 |     | 0.218   |
| Signal x Group x Leg x Condition| 0.684 |       | 0.785   |
| Signal x Direction x Leg x Condition| 0.654 |     | 0.813   |
Supplementary Table 5: Three-way mixed ANOVA of the original EnHL-values of the Amputees to test for significant differences between the leg, direction and condition. Statistically significant values are displayed in bold font and marked with an asterisk (significance level $\alpha = 0.05$, p-value: * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$).

| Main- and Interaction Effects | F-value | p<.05 | p-value |
|------------------------------|---------|-------|---------|
| Direction                    | 0.735   | 0.395 |         |
| Leg                          | 42.431  | ***   | <0.001  |
| Condition                    | 13.67   | ***   | <0.001  |
| Direction x Leg              | 0.142   | 0.868 |         |
| Direction x Condition        | 2.686   | *     | 0.015   |
| Leg x Condition              | 1.642   | 0.080 |         |
| Direction x Leg x Condition  | 0.353   | 0.977 |         |

Supplementary Table 6: Three-way mixed ANOVA of the original EnHL-values of the Controls to test for significant differences between the leg direction and condition. Statistically significant values are displayed in bold font and marked with an asterisk (significance level $\alpha = 0.05$, p-value: * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$).

| Main- and Interaction Effects | F-value | p<.05 | p-value |
|------------------------------|---------|-------|---------|
| Direction                    | 0.045   | 0.832 |         |
| Leg                          | 0.280   | 0.757 |         |
| Condition                    | 8.833   | ***   | <0.001  |
| Direction x Leg              | 0.112   | 0.895 |         |
| Direction x Condition        | 0.833   | 0.526 |         |
| Leg x Condition              | 0.589   | 0.820 |         |
| Direction x Leg x Condition  | 1.025   | 0.422 |         |
**Supplementary Table 7:** Pairwise t-test with Bonferroni-correction to test for significant difference between the EnHL-data of the different conditions in AP direction in amputees. Statistically significant values are displayed in bold font (significance level $\alpha=0.05$).

| AP   | D250 | D250x2 | D250x5 | D500 | D500x2 | D500x5 | EC   | EO   |
|------|------|--------|--------|------|--------|--------|------|------|
| D250x2 | 1.000 | -      | -      | -    | -      | -      | -    | -    |
| D250x5 | 1.000 | 1.000  | -      | -    | -      | -      | -    | -    |
| D500  | 1.000 | 0.737  | 1.000  | -    | -      | -      | -    | -    |
| D500x2 | 1.000 | 0.191  | 1.000  | 1.000| -      | -      | -    | -    |
| D500x5 | 0.402 | <0.001 | 0.002  | 0.079| 0.450  | -      | -    | -    |
| EC    | 1.000 | 1.000  | 1.000  | 1.000| 1.000  | 0.009  | -    | -    |
| EO    | 1.000 | 0.682  | 1.000  | 1.000| 1.000  | 1.000  | -    | -    |
| VF    | 0.709 | 1.000  | 1.000  | 0.033| 0.149  | <0.001 | 1.000| 0.211|

**Supplementary Table 8:** Pairwise t-test with Bonferroni-correction to test for significant difference between the EnHL-data of the different conditions in ML direction in amputees. Statistically significant values are displayed in bold font (significance level $\alpha=0.05$).

| ML   | D250 | D250x2 | D250x5 | D500 | D500x2 | D500x5 | EC   | EO   |
|------|------|--------|--------|------|--------|--------|------|------|
| D250x2 | 1.000 | -      | -      | -    | -      | -      | -    | -    |
| D250x5 | 1.000 | 0.117  | -      | -    | -      | -      | -    | -    |
| D500  | 1.000 | 1.000  | 1.000  | -    | -      | -      | -    | -    |
| D500x2 | 0.076 | 0.039  | 1.000  | 1.000| -      | -      | -    | -    |
| D500x5 | 0.001 | <0.001 | 0.026  | <0.001| 1.000  | -      | -    | -    |
| EC    | 0.507 | 0.451  | <0.001 | 0.038| 0.001  | <0.001 | -    | -    |
| EO    | 1.000 | 1.000  | 1.000  | 1.000| 0.234  | 0.001  | 0.982| -    |
| VF    | 1.000 | 1.000  | 1.000  | 1.000| 1.000  | 0.004  | 0.969| 1.000|

