

Figure S1. Average trajectories of muscle activation during the slower speed obstacle treadmill condition, for the 4 hindlimb muscles not included in Fig. 6. Stride sequence as shown in Fig. 3. Traces are grand means of myoelectric intensity as a function of time for each stride, shown for mid-flat stride mean (black with grey 95% confidence interval), low contrast obstacle strides (solid coloured lines), and high contrast obstacle strides (dashed coloured lines). Vertical lines indicate toe down time (solid black for level, solid coloured for low contrast, and dashed coloured for high-contrast obstacles).

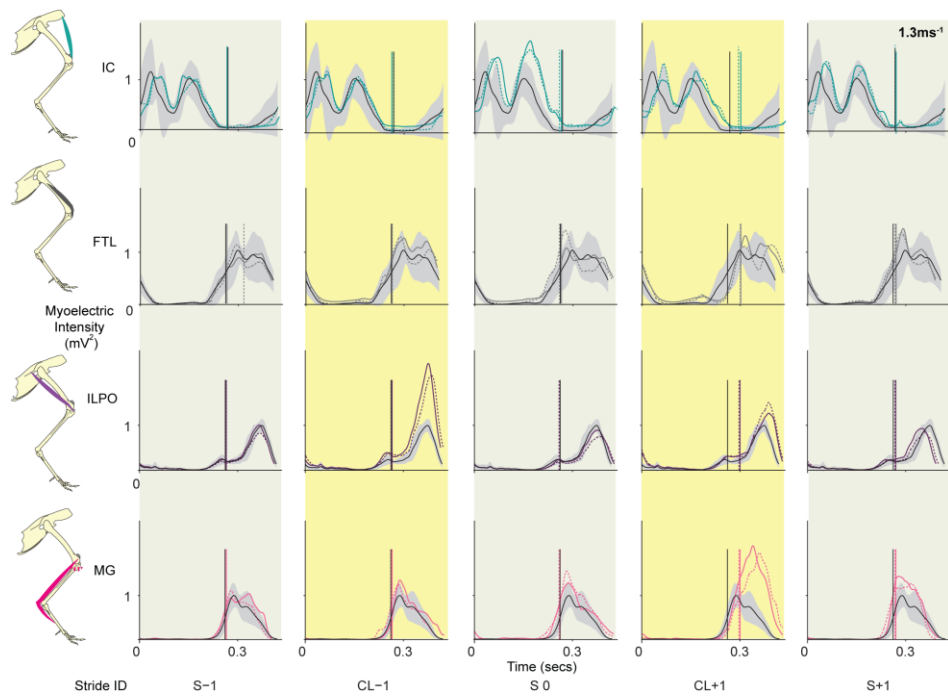


Figure S2. Average trajectories of muscle activation during the higher speed obstacle treadmill condition, for the 4 hindlimb muscles not included in Fig. 7. Colours and lines as in Fig. S1 legend.

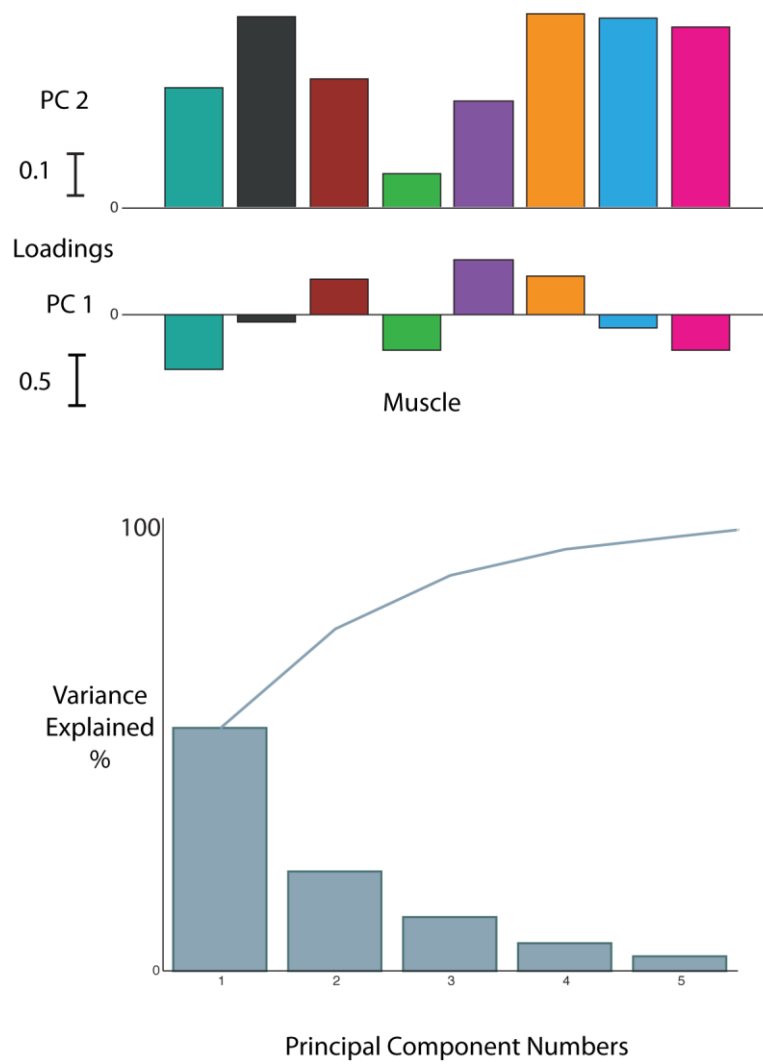


Figure S3. PCA component additional summary. Muscle weightings summarized for first two principal components (top). Percentage variance explained by first five principal components (bottom).

Table S1. Posthoc pairwise mean differences between obstacle negotiation strides and mid flat strides, at the slower treadmill speed. Statistically significant ($p \leq 0.05$) Tukey's posthoc pairwise comparisons between non-level and level strides are indicated in bold. L – low contrast obstacles. H – high contrast obstacles.

Slower speed: 0.7ms ⁻¹					
Stride ID	S-1	CL-1	S 0	CL 1	S 2
IC					
L	-0.022	0.685	0.257	0.109	0.242
H	-0.055	0.945	0.153	0.086	0.472
FTL					
L	0.127	0.863	0.333	0.484	0.183
H	0.151	0.906	0.202	0.603	0.165
FCLP					
L	-0.001	0.156	0.032	1.444	0.367
H	0.150	-0.134	-0.370	2.135	0.385
IF					
L	-0.084	0.426	0.119	-0.026	-0.435
H	0.118	0.675	0.195	-0.186	-0.453
ILPO					
L	0.005	-0.107	0.073	0.715	0.113
H	0.130	0.085	0.156	1.086	0.559
FPPD3					
L	0.354	0.604	0.429	2.190	1.170
H	0.267	0.557	0.439	1.872	1.535
LG					
L	0.196	1.092	0.318	0.847	0.833
H	0.212	1.653	0.544	1.627	0.060

MG					
L	0.174	0.688	0.603	0.694	0.606
H	0.121	1.270	0.536	0.410	0.260

Table S2. Posthoc pairwise mean differences between obstacle negotiation strides and mid flat strides, at the faster treadmill speed. Statistically significant ($p \leq 0.05$) Tukey's posthoc pairwise comparisons between non-level and level strides are indicated in bold. L – low contrast obstacles. H – high contrast obstacles.

Faster speed: 1.3ms ⁻¹					
Stride ID	S-1	CL-1	S 0	CL 1	S 2
IC					
L	0.019	0.468	0.177	-0.017	0.011
H	-0.001	0.508	0.110	-0.001	0.032
FTL					
L	-0.068	0.117	0.131	0.292	0.384
H	-0.072	0.106	0.073	0.124	0.201
FCLP					
L	-0.094	0.481	-0.085	0.956	0.154
H	-0.054	0.960	-0.074	0.504	0.598
IF					
L	0.117	0.659	0.392	0.178	1.037
H	0.144	0.866	0.132	0.257	0.793
ILPO					
L	0.186	0.121	0.040	0.497	0.342
H	0.175	0.161	0.108	0.428	0.620
FPPD3					
L	0.049	0.001	0.202	0.993	0.874
H	0.064	0.033	0.272	0.942	0.908
LG					
L	0.045	0.749	0.315	0.331	0.475
H	0.119	0.753	0.306	0.237	0.624

MG					
L	0.279	0.507	0.510	0.308	1.172
H	0.075	0.498	0.374	0.132	0.898