SUPPLEMENTARY MATERIALS

Expanded Results

For *A. cristatellus*, both incline and substrate had highly significant effects on stride length (Table 1), such that stride length was shorter on vertical tracks, and on wood compared to bark tracks (Table 1; Fig. 4A). The interaction of substrate and habitat source shows that lizards from urban areas decrease less in stride length between block and wood substrates than do lizards from the natural site. Stride length also increased with increasing hindlimb length (Table S3). Similarly, step length significantly decreased on vertical tracks, and as tracks became smoother, but the decrease between inclined and vertical was less on the block substrate than on the other two (Table 1, Fig. 4B). Furthermore, while urban and natural lizards sometimes varied in step lengths on the inclined track, they did not on the vertical track (Fig. 4B). The duty factor increased significantly on vertical compared to inclined tracks, and with increasing smoothness, but with some variation based on population source for the differences between block and the other substrates (Table 1, Fig. 4C). Stride duration decreased on vertical compared to inclined tracks (Table 1, Fig. 4D).

For *A. sagrei*, both incline and substrate had highly significant effects on stride length (Table 2). Stride length was shorter on vertical tracks, with a more exaggerated difference for urban lizards, and as tracks became smoother, with significantly shorter stride lengths on block compared to bark, and wood compared to block (Fig. 5A). Similarly, step length significantly decreased on vertical tracks and this decrease was greater for urban lizards than natural lizards (Table 2, Fig. 5B). Step length also decreased as tracks became smoother (Table 2, Fig. 5B). Duty factor increased significantly on vertical tracks and as tracks became smoother, but for urban lizards, duty factor did not increase from block to wood tracks (Table 2, Fig. 5C). Stride duration increased on vertical compared to inclined tracks (Table 2, Fig. 5D). For both species, including velocity in models did not change the results or their significance.

Limb angles

For *A. cristatellus*, incline had a highly significant effect on knee angle at the beginning and end of stance, but the effects of substrate were not always significant (Table 1). At stance beginning, the knee angle was greater on vertical compared to incline tracks, and this increase in knee angle was greater between inclined and vertical wood tracks than bark (Table 1, Fig. 6A). At stance end, the knee angle was significantly smaller on vertical tracks compared to inclined and on wood and block tracks compared to bark (Table 1, Fig. 6B). The hip angle was significantly influenced by both inclination and substrate (Table 1). At stance beginning, hip angles were greater on vertical tracks and smaller on wood compared to bark substrates (Fig. 6C). At stance end, the hip angle was smaller on the vertical track and on wood compared to the other substrates, but there was no difference among substrate types on the inclined track (Fig. 6D). At stance beginning, stride width increased on vertical tracks for both populations, but more so for urban lizards (Table 1, Fig. 6E). Also at stance beginning, SVL had a significant positive effect on stride width ($F_{1,8}$ = 10.9 $P < 0.05$). At stance end, stride width increased on vertical tracks (Table 1, Fig. 6F).

For *A. sagrei*, incline had a highly significant effect on knee angle in both stance positions, but the effects of substrate were not always significant (Table 2). At stance beginning, the knee angle was greater on vertical compared to incline tracks (Table 2, Fig. 7A). At stance end, the knee angle was significantly smaller on vertical tracks compared to inclined and on wood and block tracks compared to bark (Table 2, Fig. 7B). The decrease in knee angle was also greater on block and wood tracks than on the bark (Table 2, Fig. 7B). The hip angle at stance beginning was not affected by any of the factors and the model was quite poor ($R^2 = 0.07$; Table 2). At stance end, the hip angle was smaller on the vertical tracks and on wood compared to bark tracks, with the decrease in hip angle greater on the wood and block tracks than the bark (Table 2, Fig. 7D). Furthermore, for urban lizards, the hip angle at stance end did not differ between the inclined and vertical bark track. At stance beginning, stride width increased on vertical tracks for both populations, but was greater for urban lizards (Table 2, Fig. 7E). SVL had a significant positive effect on stride width at stance beginning ($F_{1,9} = 38.7$, $P < 0.001$). At stance end, stride width increased on vertical tracks (Table 2, Fig. 7F).

Table S1. Correlations between performance, kinematic, and morphological variables for *A. cristatellus* (all treatments together). Bolded values are significant.

A. cristatellus	Velocity	SVL	Rel. hindlimb	Stride Length	Stride Duration	Step Length	Duty Factor	Knee angle, begin	Knee angle, end	Hip angle, begin	Hip angle, end	Stride Width, begin
SVL	**-0.27**											
Rel. hindlimb length	**0.31**	**-0.31**										
Stride Length	**0.74**	0.06	**0.19**									
Stride Duration	**-0.34**	**0.38**	**-0.16**	**0.15**								
Step Length	**0.68**	0.02	**0.15**	**0.91**	**0.25**							
Duty Factor	**-0.47**	0.06	-0.12	**-0.66**	**-0.19**	**-0.84**						
Knee angle, begin	**-0.23**	0.01	**-0.14**	**-0.33**	**-0.28**	**-0.43**	**0.42**					
Knee angle, end	**0.40**	-0.03	0.09	**0.57**	0.05	**0.60**	**-0.56**	**-0.33**				
Hip angle, begin	**-0.18**	0.03	-0.01	**-0.26**	0.02	**-0.14**	0.10	**0.23**	**0.76**			
Hip angle, end	**0.37**	0.08	0.08	**0.52**	0.06	**0.47**	**-0.41**	**-0.29**	**-0.31**	**-0.29**		
Stride Width, begin	**-0.30**	**0.23**	-0.02	**-0.30**	-0.09	**-0.35**	**0.31**	**0.58**	**-0.23**	0.12	-0.10	
Stride width, end	**-0.37**	-0.06	-0.12	**-0.44**	-0.06	**-0.43**	**0.41**	**0.26**	**-0.25**	**0.21**	**-0.46**	**0.14**

“begin” and “end” refer to the stance position stance beginning and stance end, respectively.

Table S2. Correlations between performance, kinematic, and morphological variables for *A. sagrei* (all treatments together). Bolded values are significant.

A. sagrei	Velocity	SVL	Rel. hindlimb	Stride Length	Stride Duration	Step Length	Duty Factor	Knee angle, begin	Knee angle, end	Hip angle, begin	Hip angle, end	Stride Width, begin
SVL	0.04											
Rel. hindlimb length	**0.13**	**-0.27**										
Stride Length	**0.85**	0.03	**0.15**									
Stride Duration	**-0.51**	**0.16**	-0.02	**-0.21**								
Step Length	**0.72**	-0.06	**0.13**	**0.85**	**-0.13**							
Duty Factor	**-0.57**	**0.14**	-0.03	**-0.63**	**0.26**	**-0.80**						
Knee angle, begin	-0.06	**0.17**	-0.05	-0.07	-0.06	-0.09	0.12					
Knee angle, end	**0.47**	-0.01	-0.09	**0.54**	-0.09	**0.58**	**-0.62**	-0.02				
Hip angle, begin	**-0.15**	0.04	-0.04	-0.08	**0.17**	0.00	-0.10	**0.24**	-0.01			
Hip angle, end	**0.42**	-0.05	-0.08	**0.48**	**-0.13**	**0.37**	**-0.52**	**-0.16**	**0.69**	**-0.18**		
Stride Width, begin	**-0.25**	**0.39**	-0.03	**-0.29**	0.03	**-0.22**	**0.21**	**0.56**	**-0.18**	0.08	**-0.24**	
Stride width, end	**-0.39**	**0.16**	0.02	**-0.36**	**0.16**	**-0.30**	**0.37**	**0.20**	**-0.28**	**0.21**	**-0.54**	**-0.30**

"begin" and "end" refer to the stance position stance beginning and stance end, respectively.

Table S3. Full ANOVA table (extension of Table 1)

A. cristatellus	Incline	Substrate	Hab.	Incline X Substrate	Substrate X Hab.	Incline X Hab.	3-way interaction	Relative hindlimb	SVL	Lizard ID (Random)	Model R^2
Velocity	194.6**	11.4**	0.0	1.4	1.1	4.0*	0.5	1.7	3.2	0.21	0.47
Stride Length	353.4**	30.7**	0.3	1.5	4.3*	0.9	2.7	6.9*	0.5	0.03	0.66
Step Length	298.3**	36.4**	0.2	4.2*	4.2*	1.5	4.4*	2.2	0.0	0.05	0.63
Stride Duration	8.3*	0.1	0.4	1.6	0.4	1.4	2.0	0.6	7.7*	0.00	0.18
Duty Factor	160.4**	37.5**	0.2	5.0*	5.2*	0.0	3.5*	0.5	0.7	7.51	0.51
Knee angle, begin	77.3**	1.6	1.1	7.2**	0.1	0.0	1.6	0.1	0.0	0.10	0.29
Hip angle, begin	40.0**	6.1*	0.1	1.0	1.3	2.8	0.0	0.1	0.4	0.07	0.20
Knee angle, end	96.3**	8.7**	0.0	2.6	0.2	0.0	0.3	0.5	0.5	0.00	0.35
Hip angle, end	80.2**	5.4*	2.1	5.4*	0.9	0.6	0.5	0.1	1.7	0.01	0.33
Stride Width, begin	66.5**	0.2	0.2	1.3	1.5	6.2*	2.2	1.7	10.9*	0.04	0.30
Stride Width, end	59.9**	1.6	0.0	2.7	1.8	1.4	1.4	1.1	1.7	0.00	0.26

*P<0.05, **P<0.001, "begin" and "end" refer to the stance position stance beginning and stance end, respectively.

Table S4. Full ANOVA table (extension of Table 2)

sagrei	Incline	Substrate	Hab.	Incline X Substrate	Substrate X Hab.	Incline X Hab.	3-way interaction	Relative hindlimb	SVL	Lizard ID	Model R^2
Velocity	368.9**	6.06*	1.4	1.9	1.3	0.0	3.4*	2.8	0.2	0.15	0.56
Stride Length	478.7**	26.9**	0.2	1.9	0.9	6.6*	0.3	4.6	0.5	0.08	0.67
Step Length	273.0**	36.6**	0.0	1.1	0.3	5.3*	0.2	2.4	0.0	0.07	0.59
Stride Duration	11.7**	2.8	0.6	2.1	1.0	1.2	2.3	0.0	1.1	0.00	0.15
Duty Factor	102.0**	34.8**	1.5	0.6	3.3*	2.8	0.5	0.3	5.0	5.78	0.45
Knee angle, begin	6.9*	2.4	0.6	2.6	1.3	0.2	2.7	0.1	3.0	0.11	0.12
Hip angle, begin	3.7	2.5	0.5	0.2	0.3	0.0	3.8	0.6	0.0	0.04	0.07
Knee angle, end	118.3**	61.4**	0.0	5.8*	0.3	0.5	1,2	2.7	0.9	0.01	0.55
Hip angle, end	70.2**	9.1**	0.0	6.2*	0.7	1.1	3.2*	1.2	1.2	0.06	0.32
Stride Width, begin	59.7**	0.5	6.1*	1.3	0.1	7.0*	0.5	4.6	38.7**	0.03	0.36
Stride Width, end	59.2**	0.0	0.2	0.5	0.4	0.8	1.6	0.4	4.4	0.02	0.24

*P<0.05, **P<0.001, "begin" and "end" refer to the stance position stance beginning and stance end, respectively.