

Table S1. Hind limb muscle and tendon morphology for *Anolis equestris*.

	Variable	Individual						
		1	2	3	4	5	6	7
External morphology	Body mass	63.92	60.33	78.32	74.58	40.35	52.89	39.12
	SVL	15.1	15	16.1	15	12.5	14.1	12.3
	Total length	39	37.7	46.1	29.5	28.5	38.4	34.6
	Humerus length	2.5	2.5	2.5	2.1	2.4	2.7	2.1
	Radius length	2.3	2	2.5	2.1	2	2.1	1.7
	Metacarpal length	0.9	0.9	1	0.8	0.6	0.6	0.6
	3rd finger length	1	1	1	0.9	0.8	1	0.9
	Femur length	3.5	3	3.3	2.8	2.7	2.6	2.6
	Tibia length	3.1	2.9	3.4	2.8	2.9	2.9	2.5
	Metatarsal length	1.9	2	2.1	1.7	1.5	1.8	1.3
4th toe length	1.8	1.9	2.1	1.9	1.5	1.7	1.4	
Puboischiotibialis	Fascicle length	3.3	3.8	3.1	3.7	3.3	3.4	2.8
	Tendon length	0.2	0.2	0.5	0.4	0.2	0.5	0.4
	Tendon mass for length=0.2cm	0.0018	0.0029	0.0028	0.001	0.001	0.0013	0.0018
	Insertion on tibia (cm from knee)	0.3-0.7	0.4-0.8	0.5-0.9	0.3-0.6	0.5-0.8	0.4-0.8	0.3-0.6
	Origin on pelvic girdle (cm from hip)	0.5	0.7	0.4	0.6	0.6	0.6	0.4
Mass	0.3058	0.3096	0.5094	0.404	0.2323	0.3547	0.2253	
Flexor tibialis internus	Fascicle length	3	2.7	2.6	2.5	2.4	2.2	2
	Tendon length	0.2	0.2	0.5	0.4	0.2	0.5	0.4
	Tendon mass for length=0.2cm	0.0018	0.0029	0.0028	0.001	0.001	0.0013	0.0018
	Insertion on tibia (cm from knee)	0.7	0.8	0.9	0.6	0.8	0.8	0.6
	Mass	0.1191	0.1127	0.1737	0.1533	0.0863	0.1234	0.0742
Flexor tibialis externus	Fascicle length	3.1	3	2.9	2.7	2.5	2.6	2.3
	Insertion on tibia (cm from knee)	0.4	0.3	0.3	0.3	0.3	0.3	0.3
	Mass	0.1062	0.1399	0.2736	0.1896	0.1065	0.1474	0.1332
Pubofibularis	Fascicle length	2.5	2.5	2.7	2.5	2.3	2.3	2
	Insertion on fibula (cm from knee)	0.25	0.3	0.2	0.2	0.3	0.3	0.3
	MTU length	3.1	3.1	2.9	2.8	2.6	2.7	2.4
	Tendon mass for length=0.2cm	0.0004	0.0004	0.0005	0.0004	0.0006	0.0002	0.0008
	Mass	0.0668	0.0769	0.0987	0.1021	0.0514	0.068	0.0511
Femorotibialis pars ventralis	Avg fascicle length	1.7	1.7	1.9	2.1	1.4	1.6	1.3
	Insertion on tibia (cm from knee)	0	0	0	0	0	0	0
	Mass	0.0764	0.0741	0.1243	0.0875	0.0844	0.1224	0.0958
Ambiens pars ventralis	Fascicle length	2.6	2.6	2.4	2.4	2.4	2.3	1.9
	Insertion on tibia (cm from knee)	0.25	0.2	0.3	0.2	0.2	0.2	0.2
	Mass	0.1532	0.1916	0.2912	0.2202	0.1437	0.2102	0.1532

Ambiens pars dorsalis	Fascicle length	2.2	2	2.5	2.3	1.4	1.8	1.4
	Insertion on tibia (cm from knee)	0.25	0.2	0.3	0.2	0.2	0.2	0.2
	Tendon length	0.9	1	0.8	0.7	0.6	0.7	0.7
	Tendon mass for length=0.3cm	0.009	0.0063	0.004	0.0041	0.0029	0.003	0.0017
	Mass	0.1555	0.1522	0.223	0.1768	0.0939	0.1643	0.1169
Iliofibularis	Fascicle length	2.9	3	3.3	2.7	2.7	2.7	2.3
	Insertion on fibula (cm from knee)	0.6-0.8	0.7-0.9	0.9-1.1	0.6-0.8	0.5-0.7	0.5-0.7	0.4-0.6
	Mass	0.1791	0.1764	0.2788	0.223	0.1333	0.2187	0.1536
Ilioischiotibialis	Fascicle length	2.4	2.3	2.2	2.2	2	2	1.7
	Insertion on tibia (cm from knee)	0.7	0.7	0.6	0.6	0.6	0.6	0.5
	MTU length	2.8	2.7	2.5	2.7	2.5	2.5	2.1
	Tendon mass for length=0.2cm	0.0007	0.0007	0.0003	0.0004	0.0003	0.0004	0.0002
	Mass	0.1247	0.1044	0.174	0.1645	0.0789	0.1318	0.1056
Femorotibialis pars dorsalis	Fascicle length	1	1	1.1	1.1	1.1	1.1	1.1
	Insertion on tibia (cm from knee)	0	0	0	0	0	0	0
	Pennation angle	28	24	25	20	22	25	25
	Mass	0.1718	0.1392	0.241	0.1301	0.1151	0.1919	0.1427
Adductor femoris	Fascicle length	1.8	1.7	1.8	1.7	1.4	1.4	1.4
	Pennation angle	12	12	11	13	14	13	14
	Mass	0.1949	0.2236	0.2985	0.2688	0.1575	0.2854	0.2046
Ilioischiofibularis	Fascicle length	1.4	1.4	1.4	1.4	1.4	1.4	1.4
	Insertion on fibula (cm from knee)	0.4	0.4	0.4	0.4	0.4	0.4	0.4
	MTU length	2.2	2.2	2.2	2.4	2.2	2.1	2.2
	Tendon mass for length=0.3cm	0.0002	0.0002	0.0004	0.0006	0.0002	0.0005	0.0001
	Pennation angle	10	10	10	10	10	10	10
	Mass	0.0696	0.0472	0.0715	0.1022	0.0457	0.0637	0.0927
Tibialis anterior	Fascicle length	1.3	1.2	1.2	1.2	1.1	1.1	1
	Insertion on metatarsals (cm from ankle)	0.1-0.3	0.1-0.3	0.1-0.3	0.1-0.3	0.1-0.3	0.1-0.3	0.1-0.3
	Pennation angle	5	7	9	9	8	9	9
	Mass	0.0795	0.0876	0.098	0.0903	0.0512	0.1091	0.0693
Flexor digitorum communis	Fascicle length	1.3	1.4	1.3	1.2	1.1	1.1	1.1
	Insertion on metatarsals (cm from ankle)	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	MTU length	1.5	1.6	1.5	1.5	1.5	1.7	1.5
	Tendon mass for length=0.3cm	0.0001	0.0013	0.0019	0.002	0.0014	0.0038	0.0008
	Mass	0.0226	0.0458	0.0544	0.0501	0.0347	0.1415	0.0323
Peroneus longus	Fascicle length	2.1	1.9	2.1	1.8	1.7	1.6	1.6
	MTU length	2.9	2.9	2.9	2.7	2.6	2.7	2.4
	Insertion on metatarsals (cm)	0.3	0.3	0.4	0.4	0.4	0.3	0.2

	from ankle)							
	Tendon mass for length=0.45cm	0.0011	0.0015	0.0015	0.0013	0.0009	0.0005	0.0014
	Mass (g)	0.0462	0.0532	0.0708	0.0435	0.0312	0.0587	0.0494
Peroneus brevis	Fascicle length	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	MTU length	2.8	2.4	2.4	2.2	1.9	2	1.9
	Insertion on metatarsals (cm from ankle)	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	Tendon mass for length=0.3cm	0.001	0.0016	0.002	0.0013	0.0009	0.0005	0.0008
	Pennation angle	15	17	15	18	13	18	16
	Mass	0.0491	0.0481	0.0746	0.0585	0.0359	0.059	0.0465
Extensor digitorum longus	Fascicle length	2.6	2.3	2.2	2	1.9	2	1.9
	Femoral tendon length	1.2	1.4	1.2	1	1	1	0.9
	Mass femoral tendon for length=0.25cm	0.0004	0.0003	0.0008	0.0004	0.0004	0.0007	0.0006
	Origin on femur (cm from knee)	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	MTP tendon length	0.9	1.2	1	0.9	0.9	0.8	0.8
	Mass MTP tendon for length=0.3	0.0004	0.0005	0.0008	0.0004	0.0003	0.0004	0.0007
	Insertion on metatarsals (cm from ankle)	0.3	0.5	0.6	0.4	0.3	0.4	0.4
	Mass	0.0497	0.0648	0.0781	0.0695	0.0366	0.0704	0.0753
Gastrocnemius pars fibularis pars minor	Fascicle length	1.4	1.2	1.2	1.2	1	1	1
	Insertion on metatarsals (cm from ankle)	0.4	0.4	0.4	0.4	0.4	0.4	0.4
	Origin on femur (cm from knee)	0.2	0.4	0.3	0.4	0.3	0.3	0.3
	Pennation angle	14	12	14	14	13	15	13
	MTU length	3.3	3.5	3.3	2.9	2.5	2.8	2.6
	Tendon mass for length=0.3cm	0.003	0.0027	0.0024	0.0034	0.0022	0.001	0.0019
	Mass	0.1282	0.1331	0.1723	0.1729	0.0874	0.1228	0.1067
Gastrocnemius pars fibularis pars major	Fascicle length	2.2	2.3	2.1	2.2	2	2.2	2.1
	Insertion on metatarsals (cm from ankle)	0.4	0.4	0.4	0.4	0.4	0.4	0.4
	Origin on femur (cm from knee)	0.2	0.4	0.3	0.4	0.3	0.4	0.3
	MTU length	3	3.2	3	2.9	2.5	2.7	2.5
	Tendon mass for length=0.3cm	0.0044	0.0043	0.0084	0.0057	0.0032	0.006	0.0026
	Mass	0.1303	0.1496	0.2877	0.2237	0.0955	0.1784	0.1418
Caudofemoralis longus	Muscle length	6.2	6.5	6.8	7.1	5.7	5.8	5.5
	Avg fascicle length	1.9	2.1	2	1.9	1.8	1.8	1.8
	MTU length	6.8	7.1	7.3	7.6	6.2	6.3	6

Pennation angle	20	17	20	16	15	15	15
Femoral tendon mass for length=0.5cm	0.0041	0.0055	0.0044	0.0052	0.0031	0.0045	0.0062
Mass	0.7325	0.8505	1.233	1.0221	0.5983	0.7314	0.9384

SVL, snout-vent length; MTU, muscle-tendon unit; MTP, metatarsalphalangeal; Avg, average.
All lengths given in cm; all masses given in g.

Table S2. Mean muscle-tendon unit (MTU) length and tendon length change in mm and as a percentage of MTU length for all the hind limb muscles of the femur and crus that have tendons.

Muscle	Tendon length change (mm)	MTU length (mm)	Tendon length change (% of MTU length)
Puboischiotibialis	0.014	36.8	0.038
Flexor tibialis internus	0.008	2.8	0.294
Pubofibularis	0.026	28	0.094
Ambiens pars ventralis	0.017	31.4	0.053
Ambiens pars dorsalis	0.016	27.1	0.060
Ilioischiotibialis	0.048	25.4	0.189
Ilioischiofibularis	0.191	22.1	0.863
Flexor digitorum communis	0.018	15.4	0.115
Peroneus longus	0.051	27.3	0.187
Peroneus brevis	0.029	22.3	0.132
Extensor digitorum longus	0.076	41.6	0.182
Gastrocnemius pars fibularis pars minor	0.038	29.9	0.125
Gastrocnemius pars fibularis pars major	0.011	28.3	0.037
Caudofemoralis longus	0.069	67.6	0.103

Table S3. Loadings from a discriminant function (DF) analysis (Wilks' Lambda $F=1.87$, $p=0.0466$) of hind limb joint angles in *Anolis equestris*. As only DF1 was significant ($p=0.0466$), DF2 ($p=0.97$) is not shown.

Variable	DF1 (94.6%)
Femur depression angle (ES)	0.9431
Max. swing femur depression angle	0.9417
Mid swing femur depression angle	0.9311
Femur rotation angle (ES)	-0.9104
Knee angle (FF)	-0.9083
Max. femur depression angle	0.8611
t. max. femur rotation angle (% swing)	0.8152
Femur depression angle (MS)	0.7668
t. min. knee angle (% stance)	-0.7656
Pelvic girdle rotation angle (MS)	0.4865
Pelvic girdle rotation angle (ES)	0.3729
Max. swing ankle angle	0.0684

Loadings with a magnitude ≥ 0.3 are in bold.

Percentage of variation explained by DF1 axis is indicated in parentheses.

FF, footfall; MS, mid stance; ES, end of stance; T, time; Max., maximum; Min., minimum.

Table S4. Loadings from a discriminant function (DF) analysis (Wilks' Lambda $F=2.04$, $p=0.028$) of hind limb angular velocities in *Anolis equestris*. As only DF1 ($p=0.028$) was significant, DF2 ($p=0.24$) is not shown.

Variable	DF1 (64.3%)
Max. swing knee angle velocity (residuals)	0.8093
Mid swing knee angle velocity	0.8087
Avg. swing femur rotation velocity (residuals)	-0.8081
Avg. swing knee angle velocity	0.7475
Max. swing ankle angle velocity (residuals)	0.7429
Avg. stance knee angle velocity	-0.665
Avg. stance ankle angle velocity (residuals)	-0.6262
Max. stance femur depression velocity	0.1951
Femur depression velocity (MS)	0.1631
Min. swing femur depression velocity	-0.1519
Avg. stance femur depression velocity	-0.1331
Min. swing ankle angle velocity (residuals)	0.1128

Loadings with a magnitude ≥ 0.3 are in bold.
 Percentage of variation explained by DF1 axis is indicated in parentheses.
 Variables that were loaded as residuals because they regressed significantly with body speed are indicated in parentheses.
 MS, mid stance; Max., maximum; Min., minimum; Avg., average.

Table S5. Hind limb joint angle and angular velocity variables that loaded heavily (≥ 0.3) on the first axis of discriminant function analyses (Fig. 3, Tables 3,4).

	Perch Diameter	
	Narrow	Broad
Joint Angle		
Femur depression angle (ES)	38.43 \pm 2.30	9.49 \pm 1.68
Max. swing femur depression angle	40.23 \pm 2.45	9.42 \pm 1.83
Mid swing femur depression angle	33.53 \pm 2.75	-3.92 \pm 2.33
Femur rotation angle (ES)	50.50 \pm 2.38	76.24 \pm 1.39
Knee angle (FF)	48.36 \pm 3.23	88.77 \pm 2.09
Max. femur depression angle	42.85 \pm 2.28	19.73 \pm 2.50
t. max. femur rotation angle (% swing)	45.03 \pm 5.19	9.88 \pm 2.17
Femur depression angle (MS)	35.68 \pm 2.83	11.50 \pm 2.85
t. min. knee angle (% stance)	9.77 \pm 2.85	42.28 \pm 4.75
Pelvic girdle rotation angle (MS)	-2.67 \pm 1.83	-12.72 \pm 2.94
Pelvic girdle rotation angle (ES)	-0.67 \pm 2.62	-8.57 \pm 2.78
Joint angular velocity		
Max. swing knee angle velocity	308.01 \pm 75.08	955.63 \pm 140.35
Mid swing knee angle velocity	-480.66 \pm 76.01	247.44 \pm 115.90
Avg. swing femur rotation velocity	-45.80 \pm 19.34	-180.21 \pm 20.58
Avg. swing knee angle velocity	-422.71 \pm 66.36	17.11 \pm 47.26
Max. swing ankle angle velocity	276.54 \pm 84.58	892.83 \pm 127.37
Avg. stance knee angle velocity	217.19 \pm 37.67	11.00 \pm 26.16
Avg. stance ankle angle velocity	247.13 \pm 46.68	96.46 \pm 28.11

FF, footfall; MS, mid stance; ES, end of stance; t., time; Max., maximum; Min., minimum; Avg., average.

Velocities are in degrees s^{-1} ; values are means \pm s.e.m.