

Table S1. Mann-Whitney U-tests for the comparisons of the *slip angles* for *R. pardalis* under different testing regimes. ‘smooth’, ‘30 μm ’ and ‘1125 μm ’ refers to the substrate roughness; ‘dry’, ‘low flow rate’ and ‘high flow rate’ refer to the amount of water on the surface.

No.	Substrate condition	Test	z	R	p
1	smooth	dry <i>vs.</i> low flow rate	1.39	2602	>0.05
2	smooth	dry <i>vs.</i> high flow rate	9.18	3775	<0.001
3	smooth	low <i>vs.</i> high flow rate	9.07	3775	<0.001
4	30 μm	dry <i>vs.</i> low flow rate	NA	2525	NA
5	30 μm	dry <i>vs.</i> high flow rate	9.23	3775	<0.001
6	30 μm	low <i>vs.</i> high flow rate	9.23	3775	<0.001
7	1125 μm	dry <i>vs.</i> low flow rate	-2.17	2377	=0.09
8	1125 μm	dry <i>vs.</i> high flow rate	8.96	3772	<0.001
9	1125 μm	low <i>vs.</i> high flow rate	9.17	3775	<0.001
10	dry	smooth <i>vs.</i> 30 μm	-0.98	2500	>0.05
11	dry	smooth <i>vs.</i> 1125 μm	2.2	2676	=0.08
12	dry	30 μm <i>vs.</i> 1125 μm	2.72	2700	<0.05
13	low flow rate	smooth <i>vs.</i> 30 μm	-2.02	2425	>0.05
14	low flow rate	smooth <i>vs.</i> 1125 μm	-1.34	2451	>0.05
15	low flow rate	30 μm <i>vs.</i> 1125 μm	0.98	2550	>0.05
16	high flow rate	smooth <i>vs.</i> 30 μm	-6.28	1618	<0.001
17	high flow rate	smooth <i>vs.</i> 1125 μm	-5.88	1674	<0.001
18	high flow rate	30 μm <i>vs.</i> 1125 μm	-1.95	2244	>0.05

Table S2. Mann-Whitney U-tests for the comparisons of the *fall angles* for *R. pardalis* under different testing regimes. ‘smooth’, ‘30 μm ’ and ‘1125 μm ’ refers to the substrate roughness; ‘dry’, ‘low flow rate’ and ‘high flow rate’ refer to the amount of water on the surface.

No.	Substrate condition	Test	z	R	p
1	smooth	dry <i>vs.</i> low flow rate	3.28	2994	<0.01
2	smooth	dry <i>vs.</i> high flow rate	6.33	3439	<0.001
3	smooth	low <i>vs.</i> high flow rate	4.63	3196	<0.001
4	30 μm	dry <i>vs.</i> low flow rate	-4.88	1860	<0.001
5	30 μm	dry <i>vs.</i> high flow rate	8.64	3775	<0.001
6	30 μm	low <i>vs.</i> high flow rate	8.84	3775	<0.001
7	1125 μm	dry <i>vs.</i> low flow rate	-7.35	1464	<0.001
8	1125 μm	dry <i>vs.</i> high flow rate	6.91	3527	<0.001
9	1125 μm	low <i>vs.</i> high flow rate	7.94	3674	<0.001
10	dry	smooth <i>vs.</i> 30 μm	3.08	2964	<0.01
11	dry	smooth <i>vs.</i> 1125 μm	8.36	3732	<0.001
12	dry	30 μm <i>vs.</i> 1125 μm	6.32	3440	<0.001
13	low flow rate	smooth <i>vs.</i> 30 μm	-5.19	1808	<0.001
14	low flow rate	smooth <i>vs.</i> 1125 μm	-2.23	2205	=0.07
15	low flow rate	30 μm <i>vs.</i> 1125 μm	3.24	2955	<0.01
16	high flow rate	smooth <i>vs.</i> 30 μm	3.03	2964	<0.01
17	high flow rate	smooth <i>vs.</i> 1125 μm	2.12	2833	>0.05
18	high flow rate	30 μm <i>vs.</i> 1125 μm	-2.41	2176	<0.05

Table S3. Mann-Whitney U-tests for the comparisons of the *slip angles* for *S. guttatus* under different testing regimes. ‘smooth’, ‘30 μm ’ and ‘1125 μm ’ refers to the substrate roughness; ‘dry’, ‘low flow rate’ and ‘high flow rate’ refer to the amount of water on the surface. When the sample size was too small no z-value could be computed; when both samples contained identical values, no p-value could be obtained (‘NA’: not applicable).

No.	Substrate condition	Test	z	R	p
1	smooth	dry <i>vs.</i> low flow rate	1.74	2600	>0.05
2	smooth	dry <i>vs.</i> high flow rate	-9.11	1081	<0.001
3	smooth	low <i>vs.</i> high flow rate	-8.98	1081	<0.001
4	30 μm	dry <i>vs.</i> low flow rate	NA	2525	NA
5	30 μm	dry <i>vs.</i> high flow rate	8.92	3725	<0.001
6	30 μm	low <i>vs.</i> high flow rate	8.92	3725	<0.001
7	1125 μm	dry <i>vs.</i> low flow rate	-1.41	2475	>0.05
8	1125 μm	dry <i>vs.</i> high flow rate	-7.71	1343	<0.001
9	1125 μm	low <i>vs.</i> high flow rate	-7.93	1328	<0.001
10	dry	smooth <i>vs.</i> 30 μm	NA	2525	NA
11	dry	smooth <i>vs.</i> 1125 μm	1.41	2575	>0.05
12	dry	30 μm <i>vs.</i> 1125 μm	1.41	2575	>0.05
13	low flow rate	smooth <i>vs.</i> 30 μm	-1.74	2450	>0.05
14	low flow rate	smooth <i>vs.</i> 1125 μm	-1.74	2450	>0.05
15	low flow rate	30 μm <i>vs.</i> 1125 μm	NA	2525	NA
16	high flow rate	smooth <i>vs.</i> 30 μm	-5.06	1542	<0.001
17	high flow rate	smooth <i>vs.</i> 1125 μm	-7.53	1183	<0.001
18	high flow rate	30 μm <i>vs.</i> 1125 μm	3.24	2752	<0.01

Table S4. Mann-Whitney U-tests for the comparisons of the *slip angles* between the two frog species under different testing regimes. ‘smooth’, ‘30 μm ’ and ‘1125 μm ’ refers to the substrate roughness; ‘dry’, ‘low flow rate’ and ‘high flow rate’ refer to the amount of water on the surface. When the sample size was too small no z-value could be computed; when both samples contained identical values, no p-value could be obtained (‘NA’: not applicable).

No.	Substrate condition	Test	z	R	p
1	smooth	dry	-0.98	2500	>0.05
2	smooth	low flow rate	-0.31	2505	>0.05
3	smooth	high flow rate	3.99	2773	<0.001
4	30 μm	dry	NA	2525	NA
5	30 μm	low flow rate	NA	2525	NA
6	30 μm	high flow rate	-3.52	2017	<0.01
7	1125 μm	dry	-1.67	2404	>0.05
8	1125 μm	low flow rate	-0.98	2500	>0.05
9	1125 μm	high flow rate	4.95	2988	<0.001

Table S5. Mann-Whitney U-tests for the comparisons of the *fall angles* for *S. guttatus* under different testing regimes. ‘smooth’, ‘30 μm ’ and ‘1125 μm ’ refers to the substrate roughness; ‘dry’, ‘low flow rate’ and ‘high flow rate’ refer to the amount of water on the surface.

No.	Substrate condition	Test	z	R	p
1	smooth	dry <i>vs.</i> low flow rate	-1.85	2308	>0.05
2	smooth	dry <i>vs.</i> high flow rate	-5.99	1428	<0.001
3	smooth	low <i>vs.</i> high flow rate	-7.53	1239	<0.001
4	30 μm	dry <i>vs.</i> low flow rate	-6.84	1596	<0.001
5	30 μm	dry <i>vs.</i> high flow rate	3.61	3049	<0.001
6	30 μm	low <i>vs.</i> high flow rate	8.3	3685	<0.001
7	1125 μm	dry <i>vs.</i> low flow rate	-7.7	1435	<0.001
8	1125 μm	dry <i>vs.</i> high flow rate	6.13	3152	<0.001
9	1125 μm	low <i>vs.</i> high flow rate	-4.34	1727	<0.001
10	dry	smooth <i>vs.</i> 30 μm	5.44	3289	<0.001
11	dry	smooth <i>vs.</i> 1125 μm	7.7	3624	<0.001
12	dry	30 μm <i>vs.</i> 1125 μm	3.28	3001	<0.01
13	low flow rate	smooth <i>vs.</i> 30 μm	-0.45	2479	>0.05
14	low flow rate	smooth <i>vs.</i> 1125 μm	1.03	2641	>0.05
15	low flow rate	30 μm <i>vs.</i> 1125 μm	1.45	2684	>0.05
16	high flow rate	smooth <i>vs.</i> 30 μm	1.34	2414	>0.05
17	high flow rate	smooth <i>vs.</i> 1125 μm	-4.17	1619	<0.001
18	high flow rate	30 μm <i>vs.</i> 1125 μm	5.84	3112	<0.001

Table S6. Mann-Whitney U-tests for the comparisons of the *fall angles* between the two frog species under different testing regimes. ‘smooth’, ‘30 μm ’ and ‘1125 μm ’ refers to the substrate roughness; ‘dry’, ‘low flow rate’ and ‘high flow rate’ refer to the amount of water on the surface.

No.	Substrate condition	Test	z	R	p
1	smooth	dry	-1.97	2260	>0.05
2	smooth	low flow rate	-6.07	1694	<0.001
3	smooth	high flow rate	2.33	2549	=0.059
4	30 μm	dry	1.93	2804	>0.05
5	30 μm	low flow rate	-1.3	2385	>0.05
6	30 μm	high flow rate	-6.36	1605	<0.001
7	1125 μm	dry	-1.8	2264	>0.05
8	1125 μm	low flow rate	-3.23	2095	<0.01
9	1125 μm	high flow rate	7.55	3349	<0.001

Table S7. Mann-Whitney U-tests for the comparison of *friction force per contact area* for different body parts under different conditions *between* the two frog species. ‘smooth’, ‘0.3 μm ’ and ‘16 μm ’ refers to the substrate roughness; ‘dry’ and ‘wet’ refer to the absence or presence of water on the surface, respectively. When the sample size was too small no z-value could be computed; when both samples contained identical values, no p-value could be obtained (‘NA’: not applicable).

No.	Body part	Substrate condition	N	z	R	p
1	pad	dry, smooth	34	-2.28	1129	<0.05
2	pad	low flow rate, smooth	11	0.37	168	>0.05
3	belly	dry, smooth	10	3.87	45	<0.001
4	belly	low flow rate, smooth	13	1.81	182	=0.06
5	thigh	dry, smooth	11	1.93	116	=0.053
6	thigh	low flow rate, smooth	12	0.25	155	>0.05
7	pad	dry, 0.3 μm	6	NA	54	>0.05
8	pad	low flow rate, 0.3 μm	4	NA	41	<0.01
9	pad	dry, 16 μm	8	NA	83	>0.05
10	pad	low flow rate, 16 μm	8	NA	95	<0.01

Table S8. Mann-Whitney U-tests for the comparison of *adhesive force per contact area* for different body parts under different conditions *between* the two frog species. ‘smooth’, ‘0.3 μm ’ and ‘16 μm ’ refers to the substrate roughness; ‘dry’ and ‘wet’ refer to the absence or presence of water on the surface, respectively. When the sample size was too small no z-value could be computed; when both samples contained identical values, no p-value could be obtained (‘NA’: not applicable).

No.	Body part	Substrate condition	N	z	R	p
1	pad	dry, smooth	34	-2.2	1129	<0.05
2	pad	low flow rate, smooth	11	0.37	168	>0.05
3	belly	dry, smooth	10	0.79	162	>0.05
4	belly	low flow rate, smooth	13	-1.53	193	>0.05
5	thigh	dry, smooth	11	0.39	186	>0.05
6	thigh	low flow rate, smooth	12	0.019	199	>0.05
7	pad	dry, 0.3 μm	6	NA	54	=0.054
8	pad	low flow rate, 0.3 μm	4	NA	41	<0.05
9	pad	dry, 16 μm	8	NA	83	=0.08
10	pad	low flow rate, 16 μm	8	NA	95	=0.09