

Appendix 1 Data from *Macaca fascicularis* specimens for clarifying intraspecific variation. These specimens were provided by the Tsukuba Primate Centre, National Institute of Biomedical Innovation.

Animal	sex	side	age at years	weight (kg)	humeral length (mm)
#0017	F	L	17.7	3.1	11.56
#0019	F	L	15.1	3.9	11.07
#0022	F	L	14.1	2.9	11.32
#0023	F	L	15.7	2.7	11.07
#0024	F	L	15.7	3.6	11.14
#0029	F	L	18.7	5.4	11.24
#0031	F	L	17.0	3.3	12.75
#0033	F	L	12.9	4.2	11.75
#0034	F	L	18.1	2.8	11.94
#0035	F	L	12.4	4.6	11.75

Appendix 2 Intraspecific coefficient variation (CV) of ten *Macaca fascicularis* specimens and interspecific differences are indicated as percentages (%) for the normalized Cbt and normalized PCSA of the deltoid and subscapularis. Percentages were calculated by differences of two values divided by original value as denominator in alternate shifts for each species. Bold and underlined characters in interspecific differences did not exceed the value of intraspecific CV.

Intraspecific CV for normalized Cbt in the deltoid: **6.56**

Interspecific differences (%) for normalized Cbt in the deltoid

	<i>P. troglodytes</i>	<i>Hylobates sp.</i>	<i>P. hamadryas</i>	<i>M. mulatta</i>	<i>M. fascicularis</i>	<i>T. francoisi</i>	<i>C. albifrons</i>	<i>S. sciureus</i>
<i>P. troglodytes</i>		24.65	15.20	44.18	53.13	84.23	<u>2.40</u>	75.77
<i>Hylobates sp.</i>	19.78		7.58	15.66	22.85	47.79	21.71	41.01
<i>P. hamadryas</i>	13.20	8.20		25.15	32.92	59.91	15.28	52.57
<i>M. mulatta</i>	30.64	13.54	20.09		<u>6.21</u>	27.78	32.31	21.91
<i>M. fascicularis</i>	34.70	18.60	24.77	<u>5.85</u>		20.31	36.27	14.78
<i>T. francoisi</i>	45.72	32.34	37.47	21.74	16.88		47.02	<u>4.59</u>
<i>C. albifrons</i>	<u>2.46</u>	27.73	18.04	47.73	56.91	88.77		80.10
<i>S. sciureus</i>	43.11	29.08	34.46	17.98	12.88	<u>4.81</u>	44.48	

Intraspecific CV for normalized PCSA in the deltoid: **19.81**

Interspecific differences (%) for normalized PCSA in the deltoid

	<i>P. troglodytes</i>	<i>Hylobates sp.</i>	<i>P. hamadryas</i>	<i>M. mulatta</i>	<i>M. fascicularis</i>	<i>T. francoisi</i>	<i>C. albifrons</i>	<i>S. sciureus</i>
<i>P. troglodytes</i>		380.88	145.94	168.42	434.06	380.22	865.77	825.13
<i>Hylobates sp.</i>	79.20		48.86	44.18	<u>11.06</u>	<u>0.14</u>	100.83	92.38
<i>P. hamadryas</i>	59.34	95.53		<u>9.14</u>	117.15	95.26	292.69	276.16
<i>M. mulatta</i>	62.74	79.15	<u>8.37</u>		98.96	78.91	259.80	244.66
<i>M. fascicularis</i>	81.28	<u>9.96</u>	53.95	49.74		<u>10.08</u>	80.84	73.23
<i>T. francoisi</i>	79.18	<u>0.14</u>	48.79	44.11	<u>11.21</u>		101.11	92.65
<i>C. albifrons</i>	89.65	50.21	74.53	72.21	44.70	50.28		<u>4.21</u>
<i>S. sciureus</i>	89.19	48.02	73.42	70.99	42.27	48.09	<u>4.39</u>	

Intraspecific CV for normalized Cbt in the subscapularis: **13.03**

Interspecific differences (%) for normalized Cbt in the subscapularis

	<i>P. troglodytes</i>	<i>Hylobates sp.</i>	<i>P. hamadryas</i>	<i>M. mulatta</i>	<i>M. fascicularis</i>	<i>T. francoisi</i>	<i>C. albifrons</i>	<i>S. sciureus</i>
<i>P. troglodytes</i>		15.27	<u>8.45</u>	26.00	93.17	158.35	49.81	72.80
<i>Hylobates sp.</i>	18.02		<u>8.05</u>	48.71	127.99	204.91	76.81	103.94
<i>P. hamadryas</i>	<u>9.23</u>	<u>7.45</u>		37.63	111.01	182.20	63.64	88.75
<i>M. mulatta</i>	20.64	32.76	27.34		53.31	105.04	18.89	37.14
<i>M. fascicularis</i>	48.23	56.14	52.61	34.77		33.74	22.45	<u>10.55</u>
<i>T. francoisi</i>	61.29	67.20	64.56	51.23	25.23		42.01	33.11
<i>C. albifrons</i>	33.25	43.44	38.89	15.89	28.95	72.45		15.35
<i>S. sciureus</i>	42.13	50.97	47.02	27.08	<u>11.79</u>	49.51	13.30	

Intraspecific CV for normalized PCSA in the subscapularis: **14.63**

Interspecific differences (%) for normalized PCSA in the subscapularis

	<i>P. troglodytes</i>	<i>Hylobates sp.</i>	<i>P. hamadryas</i>	<i>M. mulatta</i>	<i>M. fascicularis</i>	<i>T. francoisi</i>	<i>C. albifrons</i>	<i>S. sciureus</i>
<i>P. troglodytes</i>		632.29	33.05	109.22	319.06	128.07	393.19	274.15
<i>Hylobates sp.</i>	86.34		81.83	71.43	42.77	68.86	32.65	48.91
<i>P. hamadryas</i>	24.84	450.40		57.25	214.97	71.42	270.69	181.21
<i>M. mulatta</i>	52.20	250.01	36.41		100.30	<u>9.01</u>	135.73	78.83
<i>M. fascicularis</i>	76.14	74.75	68.25	50.07		45.58	17.69	<u>10.72</u>
<i>T. francoisi</i>	56.15	221.09	41.66	<u>8.26</u>	83.75		116.25	64.05
<i>C. albifrons</i>	79.72	48.48	73.02	57.58	15.03	53.76		24.14
<i>S. sciureus</i>	73.27	95.72	64.44	44.08	<u>12.00</u>	39.04	31.82	

Appendix 3 Intraspecific coefficient variation (CV) of ten *Macaca fascicularis* specimens and interspecific differences are indicated as percentages (%) for the normalized Cbt and normalized PCSA in the supraspinatus and infraspinatus. Percentages were calculated by differences of two values divided by original value as denominator in alternate shifts in each species. Bold and underlined characters in interspecific differences did not exceed the value of intraspecific CV.

Intraspecific CV for normalized Cbt in the supraspinatus: 13.64

Interspecific differences (%) for normalized Cbt in the supraspinatus

	<i>P. troglodytes</i>	<i>Hylobates sp.</i>	<i>P. hamadryas</i>	<i>M. mulatta</i>	<i>M. fascicularis</i>	<i>T. francoisi</i>	<i>C. albifrons</i>	<i>S. sciureus</i>
<i>P. troglodytes</i>		16.06	46.71	23.24	243.61	371.17	89.93	117.08
<i>Hylobates sp.</i>	13.84		26.41	<u>6.18</u>	196.06	305.97	63.65	87.04
<i>P. hamadryas</i>	31.84	20.89		16.00	134.21	221.16	29.46	47.96
<i>M. mulatta</i>	18.86	<u>5.82</u>	19.05		178.81	282.33	54.12	76.14
<i>M. fascicularis</i>	70.90	66.22	57.30	64.13		37.13	44.72	36.82
<i>T. francoisi</i>	78.78	75.37	68.86	73.84	27.07		59.69	53.93
<i>C. albifrons</i>	47.35	38.89	22.76	35.11	80.91	148.07		14.29
<i>S. sciureus</i>	53.93	46.53	32.41	43.23	58.29	117.06	<u>12.50</u>	

Intraspecific CV for normalized PCSA in the supraspinatus: 14.60

Interspecific differences (%) for normalized PCSA in the supraspinatus

	<i>P. troglodytes</i>	<i>Hylobates sp.</i>	<i>P. hamadryas</i>	<i>M. mulatta</i>	<i>M. fascicularis</i>	<i>T. francoisi</i>	<i>C. albifrons</i>	<i>S. sciureus</i>
<i>P. troglodytes</i>		209.88	15.16	<u>4.01</u>	<u>6.68</u>	64.56	221.79	269.62
<i>Hylobates sp.</i>	67.73		72.62	66.44	65.57	46.90	<u>3.84</u>	19.28
<i>P. hamadryas</i>	17.86	265.23		22.59	25.74	93.95	279.26	335.64
<i>M. mulatta</i>	<u>3.86</u>	197.93	18.43		<u>2.57</u>	58.21	209.38	255.37
<i>M. fascicularis</i>	<u>6.26</u>	190.47	20.47	<u>2.51</u>		54.25	201.63	246.46
<i>T. francoisi</i>	39.23	88.31	48.44	36.79	35.17		95.55	124.62
<i>C. albifrons</i>	68.92	<u>3.70</u>	73.63	67.68	66.85	48.86		14.86
<i>S. sciureus</i>	72.95	16.16	77.05	71.86	71.14	55.48	<u>12.94</u>	

Intraspecific CV for normalized Cbt in the infraspinatus: 19.81

Interspecific differences (%) for normalized Cbt in the infraspinatus

	<i>P. troglodytes</i>	<i>Hylobates sp.</i>	<i>P. hamadryas</i>	<i>M. mulatta</i>	<i>M. fascicularis</i>	<i>T. francoisi</i>	<i>C. albifrons</i>	<i>S. sciureus</i>
<i>P. troglodytes</i>		<u>5.30</u>	<u>18.81</u>	27.04	45.06	122.47	<u>6.62</u>	67.77
<i>Hylobates sp.</i>	<u>5.59</u>		<u>14.27</u>	22.95	53.18	134.91	<u>1.40</u>	77.16
<i>P. hamadryas</i>	23.17	<u>16.64</u>		<u>10.13</u>	78.67	174.01	<u>15.01</u>	106.65
<i>M. mulatta</i>	37.06	29.79	<u>11.27</u>		98.82	204.90	27.98	129.94
<i>M. fascicularis</i>	31.06	34.72	44.03	49.70		53.36	35.63	<u>15.66</u>
<i>T. francoisi</i>	55.05	57.43	63.51	67.20	34.79		58.03	24.58
<i>C. albifrons</i>	<u>7.09</u>	<u>1.42</u>	<u>13.05</u>	21.86	55.35	138.24		79.67
<i>S. sciureus</i>	40.40	43.55	51.61	56.51	<u>13.54</u>	32.60	44.34	

Intraspecific CV for normalized PCSA in the infraspinatus: 16.91

Interspecific differences (%) for normalized PCSA in the infraspinatus

	<i>P. troglodytes</i>	<i>Hylobates sp.</i>	<i>P. hamadryas</i>	<i>M. mulatta</i>	<i>M. fascicularis</i>	<i>T. francoisi</i>	<i>C. albifrons</i>	<i>S. sciureus</i>
<i>P. troglodytes</i>		313.28	<u>13.85</u>	32.64	43.13	41.34	359.15	165.54
<i>Hylobates sp.</i>	75.80		79.16	67.91	65.37	65.80	<u>11.10</u>	35.75
<i>P. hamadryas</i>	<u>16.08</u>	379.74		53.97	66.15	64.07	432.98	208.25
<i>M. mulatta</i>	24.61	211.58	35.05		<u>7.91</u>	<u>6.56</u>	246.16	100.20
<i>M. fascicularis</i>	30.14	188.74	39.81	<u>7.33</u>		<u>1.25</u>	220.78	85.52
<i>T. francoisi</i>	29.25	192.39	39.05	<u>6.16</u>	<u>1.27</u>		224.84	87.87
<i>C. albifrons</i>	78.22	<u>9.99</u>	81.24	71.11	68.83	69.22		42.17
<i>S. sciureus</i>	62.34	55.63	67.56	50.05	46.10	46.77	72.91	