

Supporting Information 1 (SI1):

Anthropometry variables percentiles by sport and sex

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Table 1 – Body weight (kg) percentiles by sport and sex

Sport	0.05			0.25			Median			0.75			0.95		
	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High
Females															
Archery and Shooting	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Athletics	42.49	48.54	53.56	50.43	54.80	58.76	55.94	59.16	62.37	59.56	63.51	67.89	64.75	69.77	75.82
Basketball	47.24	54.32	60.25	57.73	62.81	67.42	65.03	68.71	72.40	70.00	74.61	79.69	77.17	83.11	90.18
Fencing	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gymnastics	35.66	43.30	49.45	43.87	49.42	54.36	49.58	53.67	57.77	52.99	57.93	63.48	57.90	64.05	71.69
Handball	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hockey Rink	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Korfball	37.76	48.23	56.53	46.73	54.51	61.40	52.97	58.87	64.77	56.35	63.24	71.01	61.21	69.52	79.98
Modern Pentathlon	35.92	48.29	58.09	46.60	55.76	63.86	54.03	60.95	67.87	58.04	66.14	75.30	63.81	73.61	85.98
Motorsport	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other combat sports	39.87	48.44	55.32	48.50	54.77	60.35	54.50	59.17	63.84	57.99	63.57	69.84	63.02	69.90	78.47
Rowing	43.62	54.80	63.68	52.81	61.17	68.59	59.20	65.60	72.01	62.61	70.03	78.39	67.53	76.41	87.58
Rugby	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sailing	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Soccer	41.64	48.98	54.95	50.05	55.37	60.14	55.89	59.82	63.74	59.50	64.26	69.59	64.69	70.66	78.00
Surf	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Swimming	43.45	49.61	54.68	50.91	55.38	59.41	56.09	59.39	62.69	59.37	63.40	67.88	64.10	69.17	75.33
Tennis	43.34	53.20	61.08	52.27	59.58	66.06	58.49	64.01	69.53	61.95	68.44	75.74	66.94	74.82	84.68
Triathlon	37.38	47.31	55.20	46.46	53.77	60.25	52.77	58.26	63.76	56.28	62.75	70.07	61.33	69.21	79.14
Volleyball	40.29	52.05	61.45	52.57	61.08	68.63	61.10	67.36	73.62	66.09	73.64	82.15	73.28	82.67	94.43
Wrestling and Judo	37.48	46.11	53.10	47.80	54.01	59.54	54.97	59.51	64.01	59.45	65.01	71.18	65.88	72.91	81.51
Males															
Archery and Shooting	41.70	58.63	71.01	55.50	67.45	77.55	65.08	73.59	82.09	69.63	79.72	91.68	76.17	88.55	105.48
Athletics	55.77	62.83	68.53	64.40	69.44	73.92	70.41	74.03	77.66	74.15	78.62	83.66	79.53	85.23	92.29
Basketball	57.13	65.17	71.87	69.26	74.95	80.09	77.70	81.76	85.81	83.42	88.56	94.25	91.65	98.34	106.38
Fencing	47.92	60.40	69.73	58.98	67.81	75.35	66.67	72.96	79.26	70.57	78.11	86.94	76.20	85.52	98.00
Gymnastics	44.43	53.99	61.43	54.58	61.33	67.22	61.63	66.44	71.24	65.66	71.54	78.29	71.45	78.88	88.44
Handball	56.62	66.37	74.29	69.69	76.56	82.69	78.77	83.65	88.53	84.61	90.74	97.61	93.01	100.93	110.68
Hockey Rink	55.33	61.73	67.07	64.97	69.52	73.64	71.67	74.94	78.21	76.23	80.36	84.91	82.80	88.15	94.55
Korfball	46.04	59.62	69.71	57.74	67.35	75.54	65.88	72.73	79.59	69.93	78.11	87.72	75.76	85.85	99.43
Modern Pentathlon	43.31	55.86	65.34	55.09	63.94	71.54	63.28	69.56	75.84	67.59	75.18	84.04	73.79	83.27	95.82
Motorsport	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other combat sports	48.49	56.58	63.13	59.06	64.77	69.86	66.41	70.47	74.53	71.08	76.16	81.88	77.81	84.36	92.44
Rowing	54.76	64.18	71.69	65.98	72.64	78.51	73.79	78.52	83.26	78.53	84.40	91.06	85.35	92.86	102.28
Rugby	55.97	66.58	75.53	74.12	81.56	88.32	86.73	91.97	97.21	95.62	102.38	109.82	108.41	117.37	127.97
Sailing	46.73	57.09	65.52	61.09	68.35	74.82	71.08	76.18	81.28	77.54	84.01	91.27	86.84	95.27	105.63
Soccer	54.43	61.14	66.68	63.90	68.67	72.96	70.48	73.90	77.33	74.85	79.14	83.91	81.13	86.67	93.37
Surf	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Swimming	50.65	57.91	63.93	61.18	66.33	70.96	68.50	72.18	75.85	73.39	78.02	83.17	80.42	86.44	93.70
Tennis	45.32	56.22	64.75	57.61	65.27	71.96	66.15	71.56	76.97	71.16	77.85	85.51	78.37	86.90	97.80
Triathlon	52.60	57.34	61.26	59.16	62.55	65.60	63.73	66.17	68.62	66.74	69.79	73.18	71.08	75.00	79.74
Volleyball	65.18	76.29	84.88	76.15	84.06	90.94	83.77	89.46	95.15	87.98	94.86	102.77	94.04	102.63	113.74
Wrestling and Judo	50.18	56.27	61.48	60.98	65.29	69.24	68.49	71.56	74.64	73.89	77.83	82.15	81.65	86.85	92.95

NA: data not presented for n < 8.

Table 2 – Height (cm) percentiles by sport and sex

Sport	0.05			0.25			Median			0.75			0.95		
	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High
Females															
Archery and Shooting	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Athletics	149.8	155.3	160.2	157.4	161.7	165.7	162.6	166.1	169.6	166.4	170.5	174.8	172.0	176.9	182.3
Basketball	158.3	163.9	168.9	166.9	171.2	175.3	172.9	176.3	179.8	177.3	181.4	185.8	183.7	188.8	194.4
Fencing	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gymnastics	142.8	149.7	155.9	150.5	156.1	161.4	155.9	160.6	165.3	159.8	165.1	170.7	165.3	171.5	178.4
Handball	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hockey Rink	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Korfball	141.5	150.6	158.8	149.7	157.3	164.5	155.4	162.0	168.5	159.4	166.6	174.2	165.1	173.4	182.5
Modern Pentathlon	149.3	158.3	166.5	157.3	164.8	172.0	162.9	169.4	175.9	166.8	174.0	181.5	172.3	180.5	189.5
Motorsport	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other combat sports	144.5	151.8	158.3	152.3	158.1	163.7	157.6	162.6	167.5	161.4	167.0	172.9	166.9	173.4	180.6
Rowing	148.5	157.7	166.0	156.4	164.1	171.5	161.9	168.6	175.3	165.7	173.1	180.8	171.1	179.5	188.7
Rugby	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sailing	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Soccer	147.1	153.3	158.9	154.6	159.5	164.2	159.7	163.8	167.9	163.4	168.1	173.1	168.8	174.3	180.5
Surf	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Swimming	150.8	156.7	162.0	158.3	162.9	167.4	163.5	167.3	171.2	167.2	171.7	176.4	172.7	178.0	183.8
Tennis	148.9	156.9	164.2	156.7	163.3	169.6	162.0	167.7	173.3	165.8	172.1	178.7	171.1	178.4	186.4
Triathlon	148.1	156.5	164.0	156.1	163.0	169.5	161.7	167.6	173.4	165.6	172.1	179.0	171.1	178.6	187.0
Volleyball	152.6	160.9	168.4	161.7	168.4	174.7	168.0	173.6	179.2	172.4	178.8	185.5	178.8	186.3	194.5
Wrestling and Judo	144.8	150.9	156.5	152.5	157.4	162.1	157.9	161.9	166.0	161.8	166.4	171.4	167.4	172.9	179.1
Males															
Archery and Shooting	157.6	166.7	174.6	165.2	172.5	179.3	170.5	176.5	182.6	173.8	180.6	187.9	178.5	186.4	195.5
Athletics	165.6	171.5	176.7	173.0	177.5	181.7	178.0	181.6	185.2	181.5	185.8	190.3	186.6	191.7	197.6
Basketball	168.5	175.4	181.4	179.0	184.2	189.0	186.3	190.3	194.3	191.5	196.3	201.5	199.1	205.1	212.0
Fencing	159.9	168.6	176.0	167.9	174.7	181.0	173.4	179.0	184.5	176.9	183.2	190.0	181.9	189.4	198.0
Gymnastics	153.0	159.8	165.7	160.4	165.7	170.6	165.5	169.8	174.0	168.9	173.9	179.2	173.8	179.7	186.6
Handball	166.6	172.2	177.1	174.1	178.4	182.3	179.3	182.6	186.0	182.9	186.9	191.2	188.1	193.0	198.6
Hockey Rink	161.2	165.5	169.3	167.7	170.9	173.9	172.2	174.7	177.2	175.4	178.4	181.7	180.1	183.9	188.1
Korfball	160.1	169.3	177.2	168.3	175.6	182.4	174.1	180.0	186.0	177.7	184.4	191.7	182.8	190.8	199.9
Modern Pentathlon	158.4	166.2	173.0	165.9	172.1	177.8	171.2	176.2	181.2	174.5	180.3	186.4	179.4	186.1	194.0
Motorsport	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other combat sports	159.8	165.4	170.3	167.2	171.4	175.4	172.3	175.6	178.9	175.8	179.8	184.0	180.9	185.8	191.4
Rowing	166.0	172.1	177.5	173.5	178.2	182.6	178.7	182.4	186.1	182.2	186.6	191.3	187.3	192.7	198.8
Rugby	165.6	170.6	175.0	173.9	177.7	181.1	179.7	182.6	185.4	184.0	187.5	191.2	190.2	194.6	199.6
Sailing	159.6	165.7	171.1	168.1	172.7	177.1	174.0	177.6	181.2	178.1	182.5	187.1	184.1	189.5	195.6
Soccer	161.6	166.5	170.8	168.6	172.3	175.8	173.5	176.4	179.3	177.0	180.4	184.2	182.0	186.3	191.2
Surf	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Swimming	163.0	168.4	173.1	170.9	175.0	178.8	176.4	179.6	182.8	180.4	184.2	188.3	186.1	190.8	196.3
Tennis	160.0	166.6	172.4	167.6	172.7	177.5	172.9	177.0	181.1	176.5	181.2	186.4	181.6	187.3	194.0
Triathlon	161.0	165.9	170.1	167.9	171.6	175.0	172.7	175.6	178.5	176.1	179.6	183.3	181.0	185.3	190.2
Volleyball	171.9	180.9	188.7	181.3	188.3	194.8	187.8	193.4	199.0	192.0	198.5	205.5	198.1	205.8	214.9
Wrestling and Judo	158.0	162.1	165.8	165.2	168.3	171.2	170.2	172.6	174.9	174.0	176.9	179.9	179.4	183.0	187.2

NA: data not presented for n < 8.

Table 3 – Body mass index (kg/m²) percentiles by sport and sex

Sport	0.05			0.25			Median			0.75			0.95		
	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High
Females															
Archery and Shooting	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Athletics	17.32	18.60	19.76	19.21	20.22	21.18	20.52	21.34	22.16	21.51	22.46	23.47	22.92	24.08	25.37
Basketball	17.59	18.89	20.06	19.72	20.72	21.68	21.20	22.00	22.80	22.32	23.27	24.28	23.94	25.11	26.40
Fencing	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gymnastics	16.12	17.78	19.28	18.15	19.48	20.75	19.56	20.67	21.78	20.58	21.85	23.19	22.06	23.56	25.21
Handball	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hockey Rink	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Korfball	17.12	19.27	21.25	19.22	21.02	22.74	20.68	22.23	23.78	21.72	23.44	25.24	23.21	25.18	27.34
Modern Pentathlon	15.57	17.84	19.93	17.81	19.70	21.51	19.36	20.99	22.62	20.46	22.28	24.17	22.05	24.13	26.41
Motorsport	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other combat sports	17.31	19.19	20.89	19.47	21.00	22.46	20.98	22.26	23.54	22.06	23.52	25.04	23.62	25.33	27.20
Rowing	17.73	19.93	21.94	19.78	21.62	23.39	21.20	22.80	24.40	22.20	23.97	25.82	23.65	25.67	27.86
Rugby	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sailing	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Soccer	17.56	19.17	20.62	19.66	20.94	22.16	21.12	22.17	23.23	22.19	23.40	24.69	23.72	25.18	26.78
Surf	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Swimming	16.91	18.32	19.59	18.87	19.98	21.04	20.22	21.13	22.04	21.23	22.28	23.40	22.67	23.94	25.35
Tennis	17.67	19.65	21.45	19.72	21.36	22.92	21.15	22.55	23.94	22.17	23.74	25.37	23.63	25.45	27.42
Triathlon	15.56	17.58	19.44	17.69	19.35	20.96	19.17	20.59	22.02	20.22	21.82	23.50	21.74	23.59	25.63
Volleyball	17.29	19.08	20.71	19.40	20.85	22.24	20.87	22.09	23.30	21.94	23.32	24.77	23.47	25.09	26.89
Wrestling and Judo	17.79	19.40	20.85	19.96	21.24	22.45	21.47	22.52	23.56	22.59	23.80	25.07	24.19	25.64	27.25
Males															
Archery and Shooting	13.06	18.62	22.67	17.58	21.50	24.79	20.71	23.49	26.27	22.19	25.49	29.41	24.31	28.36	33.93
Athletics	17.73	19.54	21.00	19.93	21.22	22.37	21.45	22.39	23.32	22.40	23.55	24.85	23.77	25.23	27.04
Basketball	17.63	19.24	20.60	20.02	21.17	22.22	21.68	22.52	23.35	22.81	23.86	25.01	24.44	25.79	27.40
Fencing	16.02	19.34	21.83	18.92	21.28	23.31	20.94	22.63	24.33	21.96	23.98	26.34	23.43	25.92	29.24
Gymnastics	15.54	18.79	21.32	18.98	21.28	23.28	21.37	23.00	24.63	22.73	24.73	27.03	24.69	27.21	30.47
Handball	18.68	20.97	22.85	21.70	23.33	24.79	23.80	24.97	26.14	25.15	26.61	28.24	27.09	28.96	31.25
Hockey Rink	18.86	20.71	22.26	21.63	22.95	24.15	23.55	24.51	25.46	24.87	26.07	27.39	26.75	28.31	30.16
Korfball	14.70	18.60	21.49	18.03	20.79	23.14	20.35	22.32	24.29	21.50	23.85	26.60	23.15	26.04	29.94
Modern Pentathlon	14.57	18.29	21.09	18.03	20.66	22.91	20.44	22.30	24.17	21.70	23.95	26.57	23.51	26.32	30.03
Motorsport	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other combat sports	16.85	19.05	20.83	19.69	21.25	22.63	21.66	22.77	23.89	22.91	24.30	25.86	24.72	26.50	28.70
Rowing	17.88	20.14	21.94	20.52	22.13	23.54	22.36	23.51	24.66	23.48	24.89	26.50	25.08	26.89	29.14
Rugby	17.52	20.48	22.98	22.55	24.64	26.53	26.05	27.52	29.00	28.51	30.41	32.49	32.06	34.56	37.53
Sailing	17.29	19.68	21.63	20.53	22.22	23.74	22.79	23.99	25.20	24.25	25.76	27.45	26.36	28.31	30.69
Soccer	18.85	20.53	21.93	21.18	22.39	23.48	22.81	23.68	24.56	23.88	24.97	26.18	25.44	26.83	28.52
Surf	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Swimming	17.52	19.14	20.50	19.84	21.00	22.05	21.45	22.29	23.13	22.53	23.58	24.74	24.08	25.44	27.06
Tennis	15.58	18.58	20.94	18.92	21.04	22.90	21.25	22.75	24.26	22.61	24.46	26.59	24.57	26.93	29.93
Triathlon	17.45	18.85	20.02	19.37	20.38	21.29	20.70	21.44	22.17	21.59	22.50	23.51	22.86	24.02	25.43
Volleyball	18.30	20.85	22.82	20.79	22.61	24.19	22.53	23.84	25.15	23.48	25.06	26.88	24.85	26.82	29.37
Wrestling and Judo	18.30	19.93	21.32	21.14	22.31	23.37	23.12	23.96	24.80	24.55	25.61	26.78	26.59	27.99	29.62

NA: data not presented for n < 8.

Table 4 – Sum of seven skinfolds [triceps + subscapular + biceps + suprailiac + abdominal + thigh + medial calf (mm)] percentiles by sport and sex

Sport	0.05			0.25			Median			0.75			0.95		
	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High
Females															
Archery and Shooting	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Athletics	1.71	27.21	48.22	35.86	53.97	70.25	59.59	72.57	85.55	74.90	91.18	109.29	96.92	117.94	143.43
Basketball	43.84	70.14	92.33	84.45	103.20	120.25	112.68	126.17	139.66	132.09	149.15	167.90	160.02	182.21	208.51
Fencing	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gymnastics	18.79	47.46	71.11	52.94	73.76	92.52	76.68	92.04	107.40	91.56	110.32	131.14	112.97	136.62	165.29
Handball	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hockey Rink	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Korfball	23.32	64.25	98.02	62.46	93.21	121.02	89.67	113.34	137.01	105.66	133.47	164.22	128.66	162.42	203.36
Modern Pentathlon	0.05	41.22	75.02	38.48	69.30	97.14	65.18	88.82	112.52	80.56	108.34	139.23	102.68	136.42	177.65
Motorsport	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other combat sports	12.71	53.82	87.53	54.74	85.16	112.53	83.96	106.94	129.91	101.34	128.72	159.13	126.35	160.05	201.17
Rowing	19.24	58.85	91.47	55.78	85.70	112.71	81.17	104.36	127.48	95.94	123.02	152.87	117.18	149.87	189.41
Rugby	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sailing	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Soccer	31.47	59.08	82.01	66.41	86.42	104.50	90.71	105.42	120.13	106.34	124.42	144.42	128.83	151.76	179.37
Surf	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Swimming	22.57	47.92	68.95	56.64	74.81	91.20	80.32	93.50	106.67	95.79	112.19	130.35	118.05	139.08	164.42
Tennis	51.97	90.25	122.02	89.31	118.17	144.37	115.26	137.58	159.90	130.79	156.99	185.85	153.13	184.91	223.18
Triathlon	0.00	35.11	74.53	30.27	66.54	99.11	60.50	88.38	116.20	77.59	110.22	146.43	102.17	141.65	189.92
Volleyball	30.00	65.10	94.04	70.08	95.76	118.93	97.93	117.08	136.23	115.23	138.39	164.08	140.11	169.06	204.15
Wrestling and Judo	29.14	64.21	93.23	73.03	98.38	121.24	103.53	122.12	140.71	123.00	145.87	171.22	151.02	180.04	215.11
Males															
Archery and Shooting	0.00	45.84	81.12	35.95	71.63	99.16	67.40	89.55	111.70	79.95	107.48	143.15	97.99	133.26	188.40
Athletics	7.61	24.49	37.06	26.82	38.14	47.68	40.18	47.62	55.06	47.56	57.11	68.42	58.18	70.75	87.64
Basketball	15.76	34.38	49.40	44.34	56.96	68.10	64.20	72.65	81.09	77.20	88.34	100.96	95.90	110.91	129.53
Fencing	0.00	29.49	54.55	25.67	50.06	69.48	48.81	64.36	79.86	59.19	78.66	103.00	74.12	99.23	136.29
Gymnastics	0.00	25.93	44.99	28.09	45.51	59.98	47.83	59.12	70.40	58.25	72.72	90.14	73.24	92.30	118.53
Handball	1.54	40.30	68.27	42.61	68.36	89.66	71.16	87.87	104.53	86.03	107.38	133.08	107.42	135.45	174.15
Hockey Rink	13.78	35.45	52.93	47.38	62.04	74.99	70.73	80.53	90.32	86.06	99.01	113.67	108.12	125.60	147.27
Korfball	0.00	31.84	54.49	27.59	49.89	67.41	48.48	62.43	76.39	57.46	74.98	97.28	70.38	93.03	127.32
Modern Pentathlon	0.00	26.60	47.24	25.03	44.69	60.60	44.66	57.27	69.89	53.95	69.85	89.52	67.31	87.95	117.76
Motorsport	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other combat sports	8.25	29.57	45.81	34.91	49.22	61.43	53.44	62.89	72.29	64.30	76.55	90.82	79.92	96.21	117.48
Rowing	7.66	28.92	45.04	33.52	47.77	59.92	51.49	60.88	70.27	61.83	73.98	88.24	76.71	92.83	114.09
Rugby	0.00	18.39	49.55	46.93	72.38	94.98	93.24	109.90	126.55	124.82	147.42	172.87	170.25	201.40	239.49
Sailing	2.03	33.14	57.53	45.37	66.20	84.32	75.49	89.19	102.94	94.11	112.17	133.07	120.90	145.24	176.41
Soccer	15.13	35.48	50.17	35.59	49.24	60.59	49.82	58.81	67.84	57.06	68.38	82.06	67.49	82.14	102.52
Surf	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Swimming	7.37	24.27	37.72	32.15	43.54	53.52	49.37	56.93	64.50	60.35	70.33	81.72	76.15	89.60	106.50
Tennis	14.61	38.53	56.02	39.79	55.83	69.25	57.30	67.85	78.45	66.50	79.88	95.96	79.73	97.17	121.14
Triathlon	16.03	28.82	38.82	32.78	41.47	49.02	44.42	50.26	56.10	51.51	59.05	67.75	61.70	71.70	84.49
Volleyball	9.60	37.69	57.84	38.01	56.75	72.24	57.76	70.00	82.25	67.77	83.26	102.00	82.17	102.32	130.41
Wrestling and Judo	6.59	21.99	34.72	33.74	44.17	53.50	52.62	59.58	66.55	65.67	75.00	85.42	84.45	97.18	112.58

NA: data not presented for n < 8.

Table 5 – Sum of appendicular skinfolds [triceps + biceps + thigh + medial calf (mm)] percentiles by sport and sex

Sport	0.05			0.25			Median			0.75			0.95		
	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High
Females															
Archery and Shooting	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Athletics	0.00	10.62	23.06	15.14	25.93	35.42	29.13	36.57	44.01	37.72	47.21	58.00	50.08	62.52	78.13
Basketball	18.69	34.51	47.56	42.39	53.44	63.36	58.86	66.60	74.35	69.84	79.76	90.82	85.64	98.70	114.51
Fencing	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gymnastics	10.29	28.44	42.82	30.90	43.74	55.01	45.23	54.38	63.49	53.71	65.02	77.82	65.91	80.32	98.44
Handball	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hockey Rink	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Korfball	10.52	34.51	53.26	32.37	49.76	65.00	47.55	60.36	73.17	55.71	70.96	88.35	67.45	86.21	110.19
Modern Pentathlon	0.84	24.51	42.91	21.80	38.94	53.93	36.37	48.98	61.59	44.02	59.01	76.16	55.04	73.44	97.11
Motorsport	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other combat sports	2.97	27.67	46.92	27.06	44.71	60.12	43.80	56.55	69.30	52.97	68.39	86.04	66.18	85.43	110.13
Rowing	8.44	32.17	50.71	29.31	46.59	61.75	43.81	56.62	69.43	51.49	66.65	83.93	62.54	81.07	104.80
Rugby	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sailing	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Soccer	15.08	31.99	45.58	35.61	47.56	58.15	49.88	58.38	66.88	58.61	69.20	81.15	71.17	84.76	101.68
Surf	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Swimming	11.66	26.17	37.87	30.38	40.57	49.59	43.39	50.58	57.74	51.54	60.59	70.76	63.27	74.99	89.48
Tennis	29.68	51.05	67.95	49.43	65.05	78.84	63.15	74.78	86.41	70.72	84.51	100.13	81.61	98.51	119.88
Triathlon	0.00	18.80	39.48	14.95	34.38	51.26	30.95	45.21	59.45	39.14	56.05	75.45	50.92	71.63	98.46
Volleyball	7.90	31.17	49.49	33.39	49.86	64.28	51.11	62.85	74.55	61.38	75.84	92.27	76.17	94.54	117.76
Wrestling and Judo	11.62	33.74	51.38	38.13	53.69	67.42	56.56	67.56	78.57	67.70	81.43	96.99	83.74	101.38	123.50
Males															
Archery and Shooting	1.42	22.75	36.30	18.70	32.50	43.10	30.71	39.27	47.83	35.44	46.05	59.84	42.24	55.79	77.12
Athletics	4.53	11.28	16.29	12.14	16.67	20.48	17.43	20.42	23.39	20.35	24.17	28.68	24.54	29.56	36.29
Basketball	9.05	17.23	23.82	21.54	27.09	31.98	30.22	33.94	37.66	35.90	40.79	46.34	44.06	50.65	58.83
Fencing	0.00	11.13	23.27	9.29	21.21	30.47	20.92	28.21	35.48	25.92	35.21	47.11	33.13	45.28	63.84
Gymnastics	1.51	12.99	21.30	13.84	21.46	27.77	22.42	27.34	32.27	26.92	33.23	40.84	33.39	41.70	53.17
Handball	1.51	17.44	28.91	18.29	28.86	37.58	29.96	36.79	43.61	35.99	44.72	55.28	44.67	56.13	72.07
Hockey Rink	2.00	13.26	22.31	19.49	27.05	33.72	31.65	36.64	41.65	39.57	46.22	53.81	50.98	60.01	71.30
Korfball	0.00	14.31	23.79	12.39	21.80	29.14	21.17	27.02	32.85	24.88	32.23	41.63	30.22	39.73	54.25
Modern Pentathlon	0.00	9.60	20.51	8.74	19.18	27.52	19.27	25.83	32.40	24.14	32.49	42.92	31.15	42.06	58.07
Motorsport	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other combat sports	0.00	9.13	19.44	12.65	21.70	29.37	24.61	30.44	36.27	31.51	39.18	48.23	41.44	51.76	65.44
Rowing	1.81	11.95	19.61	14.12	20.88	26.64	22.68	27.10	31.53	27.57	33.31	40.09	34.61	42.25	52.40
Rugby	0.00	2.68	17.55	16.34	28.47	39.20	38.52	46.39	54.25	53.58	64.31	76.44	75.23	90.10	108.35
Sailing	0.00	9.32	22.39	15.96	27.15	36.77	32.31	39.54	46.77	42.30	51.93	63.11	56.68	69.76	86.62
Soccer	3.73	13.70	20.80	13.74	20.37	25.83	20.70	25.01	29.32	24.20	29.65	36.28	29.23	36.33	46.30
Surf	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Swimming	5.70	12.80	18.45	16.03	20.84	25.04	23.21	26.42	29.62	27.79	32.01	36.80	34.39	40.05	47.14
Tennis	9.13	19.09	26.33	19.50	26.18	31.75	26.71	31.11	35.52	30.47	36.04	42.72	35.89	43.14	53.09
Triathlon	7.37	13.30	17.92	15.11	19.13	22.62	20.49	23.19	25.88	23.76	27.24	31.27	28.45	33.08	39.01
Volleyball	0.00	12.97	22.29	13.11	21.83	28.94	22.38	27.98	33.57	27.01	34.14	42.84	33.66	43.00	56.19
Wrestling and Judo	4.22	10.78	16.19	15.74	20.19	24.16	23.75	26.73	29.70	29.29	33.27	37.70	37.25	42.68	49.22

NA: data not presented for n < 8.

Table 6 – Sum of arm skinfolds [triceps + biceps (mm)] percentiles by sport and sex

Sport	0.05			0.25			Median			0.75			0.95		
	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High
Females															
Archery and Shooting	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Athletics	0,00	4,20	8,91	6,05	10,11	13,73	11,38	14,22	17,08	14,73	18,33	22,40	19,55	24,25	30,06
Basketball	4,79	10,88	15,95	14,11	18,39	22,24	20,60	23,61	26,62	24,97	28,83	33,10	31,27	36,34	42,43
Fencing	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gymnastics	0,12	7,95	14,25	9,32	14,89	19,82	15,72	19,71	23,70	19,59	24,54	30,10	25,17	31,48	39,29
Handball	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hockey Rink	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Korfball	3,67	13,40	21,24	12,81	19,99	26,39	19,15	24,56	29,97	22,74	29,14	36,32	27,89	35,72	45,45
Modern Pentathlon	0,00	9,38	17,19	8,52	15,72	22,11	14,71	20,12	25,53	18,13	24,53	31,72	23,06	30,86	40,62
Motorsport	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other combat sports	0,17	10,34	18,47	10,38	17,76	24,31	17,48	22,93	28,37	21,54	28,09	35,47	27,38	35,52	45,68
Rowing	1,93	11,79	19,70	10,88	18,18	24,68	17,10	22,63	28,14	20,56	27,07	34,36	25,53	33,46	43,30
Rugby	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sailing	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Soccer	3,33	9,57	14,65	11,13	15,57	19,53	16,55	19,74	22,93	19,94	23,91	28,35	24,82	29,91	36,15
Surf	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Swimming	1,79	7,86	12,80	9,84	14,12	17,93	15,44	18,47	21,50	19,00	22,82	27,10	24,13	29,08	35,15
Tennis	9,46	18,82	26,39	18,42	25,36	31,55	24,65	29,90	35,13	28,24	34,45	41,36	33,40	40,98	50,33
Triathlon	0,00	6,20	15,30	4,88	13,31	20,76	11,94	18,25	24,56	15,73	23,20	31,61	21,20	30,31	41,76
Volleyball	2,75	10,77	17,24	11,78	17,54	22,66	18,05	22,24	26,43	21,82	26,94	32,70	27,24	33,71	41,73
Wrestling and Judo	1,60	10,28	17,32	12,32	18,47	23,95	19,76	24,17	28,57	24,38	29,86	36,02	31,02	38,05	46,73
Males															
Archery and Shooting	2.67	10.91	16.19	9.30	14.66	18.81	13.90	17.27	20.63	15.73	19.87	25.24	18.35	23.62	31.87
Athletics	1.03	4.44	6.95	4.89	7.16	9.06	7.57	9.05	10.53	9.04	10.94	13.21	11.15	13.67	17.07
Basketball	3.36	6.86	9.69	8.71	11.09	13.19	12.43	14.03	15.62	14.86	16.96	19.34	18.36	21.19	24.70
Fencing	0.00	5.58	10.40	4.83	9.55	13.24	9.40	12.30	15.22	11.37	15.06	19.78	14.21	19.03	26.36
Gymnastics	0.39	5.49	9.18	5.87	9.25	12.05	9.68	11.87	14.05	11.68	14.48	17.86	14.55	18.24	23.35
Handball	0.00	6.25	11.58	6.66	11.58	15.62	12.14	15.29	18.44	14.95	19.00	23.91	19.00	24.34	31.79
Hockey Rink	1.74	5.92	9.28	8.21	11.03	13.51	12.71	14.58	16.44	15.64	18.12	20.94	19.87	23.23	27.41
Korfball	0.00	6.28	10.79	5.37	9.84	13.32	9.54	12.31	15.07	11.30	14.78	19.25	13.82	18.33	25.25
Modern Pentathlon	0.00	3.62	9.00	3.19	8.35	12.46	8.43	11.65	14.86	10.83	14.94	20.10	14.29	19.67	27.63
Motorsport	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other combat sports	0.08	4.74	8.28	5.92	9.02	11.67	9.97	12.00	14.03	12.33	14.97	18.08	15.71	19.25	23.92
Rowing	1.36	5.43	8.50	6.29	9.00	11.32	9.71	11.49	13.28	11.67	13.97	16.70	14.48	17.55	21.62
Rugby	0.00	1.25	7.23	6.74	11.62	15.94	15.66	18.83	21.99	21.71	26.03	30.91	30.42	36.40	43.75
Sailing	0.67	6.24	10.59	8.39	12.12	15.34	13.76	16.20	18.65	17.06	20.29	24.02	21.82	26.17	31.74
Soccer	0.93	5.52	8.78	5.54	8.59	11.08	8.75	10.72	12.69	10.36	12.85	15.90	12.67	15.92	20.52
Surf	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Swimming	2.14	4.96	7.20	6.24	8.14	9.81	9.09	10.36	11.63	10.91	12.57	14.48	13.52	15.76	18.58
Tennis	3.65	8.12	11.38	8.30	11.31	13.81	11.54	13.52	15.50	13.23	15.73	18.73	15.66	18.92	23.39
Triathlon	2.34	5.06	7.18	5.91	7.74	9.34	8.39	9.61	10.83	9.89	11.47	13.31	12.04	14.15	16.88
Volleyball	1.46	6.14	9.48	6.16	9.28	11.83	9.44	11.45	13.47	11.07	13.63	16.74	13.43	16.76	21.45
Wrestling and Judo	2.10	4.61	6.68	6.50	8.20	9.72	9.55	10.69	11.84	11.66	13.19	14.89	14.70	16.78	19.29

NA: data not presented for n < 8.

Table 7 – Sum of leg skinfolds [thigh + medial calf (mm)] percentiles by sport and sex

Sport	0.05			0.25			Median			0.75			0.95		
	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High
Females															
Archery and Shooting	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Athletics	0.00	4.46	13.24	7.31	15.00	21.61	17.21	22.32	27.43	23.03	29.64	37.32	31.39	40.17	51.56
Basketball	11.18	21.95	30.70	26.92	34.36	40.96	37.86	42.97	48.09	44.99	51.59	59.03	55.25	63.99	74.77
Fencing	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gymnastics	4.59	17.45	27.30	18.71	27.58	35.22	28.52	34.63	40.73	34.03	41.67	50.54	41.95	51.80	64.67
Handball	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hockey Rink	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Korfball	3.00	19.59	31.81	17.49	29.11	38.91	27.57	35.72	43.85	32.51	42.34	53.93	39.62	51.86	68.43
Modern Pentathlon	0.00	13.06	25.40	10.55	22.33	32.24	20.58	28.78	36.99	25.33	35.22	47.02	32.17	44.49	61.44
Motorsport	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other combat sports	0.00	16.05	28.23	14.99	26.38	36.03	25.68	33.56	41.44	31.10	40.74	52.13	38.89	51.07	67.51
Rowing	2.94	19.02	30.86	16.50	27.81	37.37	25.93	33.92	41.90	30.46	40.02	51.33	36.97	48.81	64.89
Rugby	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sailing	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Soccer	7.33	19.99	29.86	22.24	30.98	38.58	32.60	38.61	44.64	38.66	46.24	55.01	47.38	57.23	69.92
Surf	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Swimming	6.91	16.62	24.27	19.05	25.75	31.60	27.48	32.09	36.70	32.58	38.43	45.13	39.91	47.55	57.26
Tennis	13.40	28.99	40.70	27.32	38.33	47.75	37.00	44.81	52.65	41.90	51.30	62.33	48.95	60.63	76.26
Triathlon	0.00	10.73	23.98	7.46	20.25	30.93	17.98	26.87	35.76	22.81	33.49	46.28	29.76	43.02	61.41
Volleyball	0.00	17.22	31.15	18.33	30.99	41.80	31.93	40.57	49.20	39.34	50.14	62.80	49.99	63.92	82.37
Wrestling and Judo	1.20	18.48	31.78	21.33	33.16	43.36	35.32	43.36	51.41	43.36	53.56	65.40	54.94	68.24	85.52
Males															
Archery and Shooting	0.00	12.74	21.42	10.13	19.00	25.77	17.90	23.35	28.80	20.92	27.70	36.57	25.27	33.95	47.75
Athletics	0.00	4.81	8.66	5.54	9.01	11.91	9.69	11.93	14.17	11.95	14.85	18.32	15.20	19.05	24.29
Basketball	3.77	9.16	13.50	12.03	15.67	18.88	17.77	20.19	22.62	21.51	24.72	28.36	26.89	31.23	36.62
Fencing	0.00	4.74	13.38	3.45	11.94	18.50	11.84	16.94	22.05	15.39	21.94	30.44	20.51	29.14	42.50
Gymnastics	0.00	6.70	12.13	7.29	12.26	16.37	12.92	16.12	19.31	15.87	19.98	24.95	20.10	25.54	33.06
Handball	1.77	11.00	17.64	11.47	17.59	22.65	18.20	22.17	26.13	21.68	26.75	32.87	26.70	33.33	42.56
Hockey Rink	0.00	6.51	12.61	10.75	15.85	20.32	19.00	22.34	25.68	24.35	28.83	33.92	32.06	38.16	45.79
Korfball	0.00	6.48	13.40	5.11	12.00	17.30	11.64	15.83	20.01	14.35	19.66	26.54	18.25	25.18	35.94
Modern Pentathlon	0.00	5.07	11.79	4.53	10.97	16.10	11.06	15.08	19.11	14.06	19.19	25.63	18.38	25.10	35.02
Motorsport	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other combat sports	0.00	0.50	9.32	3.63	11.35	17.83	14.04	18.89	23.74	19.95	26.43	34.16	28.46	37.28	49.14
Rowing	0.00	5.46	10.79	7.02	11.73	15.71	13.05	16.09	19.13	16.47	20.45	25.16	21.39	26.72	33.84
Rugby	0.00	0.99	10.10	9.37	16.79	23.36	22.97	27.78	32.58	32.19	38.76	46.18	45.45	54.56	65.76
Sailing	0.00	1.29	10.93	6.28	14.51	21.54	18.46	23.69	28.92	25.83	32.87	41.09	36.44	46.08	58.61
Soccer	0.00	6.74	11.89	6.82	11.63	15.57	11.96	15.04	18.12	14.51	18.44	23.26	18.18	23.34	30.66
Surf	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Swimming	1.89	6.85	10.79	9.13	12.47	15.39	14.17	16.38	18.59	17.37	20.29	23.62	21.97	25.91	30.87
Tennis	2.97	9.89	14.89	10.22	14.83	18.65	15.27	18.27	21.26	17.88	21.70	26.31	21.64	26.64	33.56
Triathlon	2.33	6.69	10.06	8.06	10.99	13.51	12.04	13.98	15.91	14.44	16.96	19.89	17.89	21.26	25.62
Volleyball	0.00	6.03	12.96	6.19	12.67	17.92	13.18	17.28	21.37	16.63	21.89	28.36	21.59	28.52	38.42
Wrestling and Judo	0.95	5.40	9.07	8.79	11.80	14.48	14.25	16.24	18.24	18.01	20.69	23.69	23.42	27.09	31.54

NA: data not presented for n < 8.

Table 8 – Sum of trunk skinfolds [subscapular + suprailiac + abdominal (mm)] percentiles by sport and sex

Sport		0.05			0.25			Median			0.75			0.95		
		Low	Estimate	High	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High
Females																
Archery and Shooting	0.00	17.37	42.54	11.08	36.32	55.81	33.96	49.49	65.03	43.18	62.67	87.91	56.44	81.62	120.84	
Athletics	0.00	9.11	18.57	11.13	19.59	26.71	21.39	26.88	32.36	27.04	34.16	42.62	35.18	44.64	57.38	
Basketball	1.55	13.59	23.27	20.20	28.31	35.46	33.16	38.54	43.92	41.63	48.77	56.89	53.81	63.49	75.54	
Fencing	0.00	14.70	29.43	12.80	27.00	38.40	26.46	35.54	44.63	32.69	44.09	58.29	41.65	56.38	77.94	
Gymnastics	0.00	9.72	21.95	11.39	22.51	31.74	24.25	31.40	38.54	31.06	40.29	51.40	40.85	53.07	69.90	
Handball	0.00	16.77	36.37	18.86	36.78	51.62	39.16	50.69	62.22	49.76	64.60	82.53	65.01	84.61	111.74	
Hockey Rink	4.93	17.46	27.58	24.49	32.96	40.43	38.09	43.73	49.37	47.02	54.50	62.96	59.88	70.00	82.52	
Korfball	0.00	13.63	28.92	11.19	26.10	37.86	25.48	34.76	44.06	31.69	43.42	58.35	40.62	55.89	78.91	
Modern Pentathlon	0.00	11.90	24.46	11.20	23.12	32.76	23.29	30.92	38.53	29.06	38.72	50.62	37.37	49.94	68.00	
Motorsport	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Other combat sports	1.85	13.59	22.58	16.69	24.56	31.30	27.00	32.18	37.36	33.07	39.80	47.67	41.79	50.77	62.51	
Rowing	0.73	13.72	23.57	16.70	25.39	32.79	27.80	33.50	39.20	34.21	41.61	50.30	43.42	53.28	66.27	
Rugby	0.00	11.45	29.06	27.67	42.09	54.88	53.90	63.38	72.82	71.85	84.68	99.06	97.67	115.32	136.81	
Sailing	0.00	15.08	29.88	22.71	35.35	46.31	41.16	49.44	57.73	52.58	63.53	76.18	69.01	83.81	102.72	
Soccer	6.18	18.71	27.78	18.94	27.35	34.34	27.81	33.36	38.90	32.38	39.37	47.78	38.94	48.01	60.54	
Surf	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Swimming	0.00	8.99	17.67	14.25	21.58	27.98	25.51	30.33	35.15	32.67	39.08	46.41	42.98	51.66	62.61	
Tennis	0.15	16.24	27.96	17.38	28.10	37.03	29.36	36.35	43.33	35.67	44.60	55.31	44.74	56.46	72.54	
Triathlon	4.43	12.73	19.20	15.45	21.06	25.91	23.11	26.84	30.57	27.77	32.62	38.23	34.48	40.95	49.25	
Volleyball	3.08	20.81	33.58	21.23	33.07	42.87	33.84	41.59	49.33	40.30	50.11	61.95	49.59	62.37	80.10	
Wrestling and Judo	0.00	7.94	16.25	15.78	22.56	28.62	28.25	32.73	37.21	36.84	42.90	49.68	49.21	57.52	67.62	
Males																
Archery and Shooting	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Athletics	0.00	12.55	23.74	17.03	26.68	35.31	29.65	36.50	43.34	37.69	46.32	55.97	49.26	60.45	74.14	
Basketball	14.93	29.39	41.49	37.19	47.39	56.62	52.65	59.90	67.14	63.17	72.40	82.61	78.30	90.40	104.86	
Fencing	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Gymnastics	0.00	13.98	26.89	16.98	28.35	38.48	30.16	38.34	46.53	38.21	48.33	59.71	49.79	62.70	78.66	
Handball	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Hockey Rink	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Korfball	3.55	26.91	45.84	25.76	43.05	58.53	41.20	54.28	67.35	50.02	65.50	82.79	62.71	81.64	105.00	
Modern Pentathlon	0.00	12.56	33.01	10.78	29.50	46.17	27.27	41.28	55.32	36.42	53.06	71.81	49.58	70.01	95.54	
Motorsport	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Other combat sports	0.00	22.27	40.93	22.61	39.50	54.54	38.94	51.47	64.00	48.40	63.44	80.33	62.01	80.66	103.81	
Rowing	1.09	23.73	42.10	21.91	38.74	53.84	36.38	49.18	62.00	44.54	59.61	76.47	56.28	74.62	97.29	
Rugby	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Sailing	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Soccer	5.80	21.55	34.45	25.68	36.92	46.99	39.50	47.60	55.71	48.22	58.29	69.53	60.76	73.66	89.41	
Surf	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Swimming	3.68	17.99	29.73	22.85	32.98	42.05	36.18	43.39	50.61	44.74	53.81	63.93	57.05	68.79	83.10	
Tennis	14.19	36.71	55.03	36.11	52.79	67.76	51.34	63.98	76.61	60.19	75.16	91.84	72.93	91.24	113.76	
Triathlon	0.00	12.22	36.51	9.04	31.43	51.35	27.91	44.78	61.65	38.22	58.14	80.53	53.05	77.35	107.68	
Volleyball	10.20	28.46	43.35	30.89	44.11	55.96	45.26	54.99	64.72	54.03	65.87	79.10	66.63	81.52	99.78	
Wrestling and Judo	4.89	24.05	39.71	28.74	42.40	54.64	45.32	55.15	65.01	55.70	67.90	81.60	70.63	86.25	105.45	

NA: data not presented for n < 8.

Table 9 – Arm circumference (cm) percentiles by sport and sex

Sport	0.05			0.25			Median			0.75			0.95		
	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High
Females															
Archery and Shooting	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Athletics	20.69	22.24	23.71	23.07	24.38	25.64	24.73	25.86	26.99	26.08	27.34	28.65	28.01	29.48	31.03
Basketball	22.11	23.47	24.75	24.52	25.64	26.73	26.20	27.15	28.10	27.57	28.66	29.78	29.55	30.83	32.19
Fencing	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gymnastics	19.91	21.69	23.37	22.36	23.87	25.34	24.06	25.38	26.71	25.43	26.90	28.41	27.40	29.08	30.86
Handball	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hockey Rink	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Korfball	20.79	23.06	25.23	23.22	25.21	27.17	24.90	26.71	28.52	26.25	28.21	30.20	28.19	30.36	32.63
Modern Pentathlon	20.64	23.05	25.36	23.12	25.25	27.34	24.84	26.78	28.71	26.22	28.31	30.44	28.19	30.50	32.91
Motorsport	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other combat sports	21.81	23.97	26.02	24.29	26.17	28.01	26.02	27.71	29.40	27.40	29.24	31.12	29.39	31.45	33.61
Rowing	21.36	23.73	25.98	23.78	25.87	27.91	25.46	27.37	29.25	26.80	28.86	30.94	28.74	31.01	33.35
Rugby	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sailing	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Soccer	20.86	22.53	24.09	23.29	24.71	26.06	24.99	26.22	27.44	26.36	27.74	29.13	28.34	29.92	31.57
Surf	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Swimming	22.75	24.29	25.76	25.14	26.44	27.70	26.80	27.93	29.05	28.15	29.42	30.71	30.09	31.56	33.11
Tennis	22.67	24.90	27.03	25.14	27.09	29.01	26.85	28.62	30.38	28.23	30.14	32.10	30.21	32.34	34.57
Triathlon	20.77	23.31	25.78	23.27	25.54	27.78	25.02	27.08	29.17	26.40	28.63	30.91	28.40	30.85	33.41
Volleyball	22.42	24.33	26.14	24.92	26.56	28.17	26.67	28.12	29.57	28.07	29.67	31.31	30.09	31.91	33.82
Wrestling and Judo	22.38	24.10	25.75	24.87	26.32	27.76	26.60	27.87	29.16	28.00	29.42	30.89	30.01	31.65	33.38
Males															
Archery and Shooting	18.49	23.96	28.12	23.01	26.97	30.39	26.15	29.06	31.97	27.73	31.15	35.11	30.00	34.16	39.63
Athletics	22.28	24.89	26.98	25.18	27.06	28.73	27.19	28.57	29.95	28.40	30.08	31.96	30.15	32.25	34.86
Basketball	23.28	25.43	27.25	26.49	28.03	29.44	28.72	29.84	30.97	30.24	31.65	33.20	32.44	34.25	36.41
Fencing	19.84	23.47	26.28	23.09	25.72	28.01	25.34	27.28	29.21	26.54	28.84	31.47	28.27	31.08	34.71
Gymnastics	20.86	24.33	27.09	24.59	27.08	29.27	27.18	28.99	30.79	28.70	30.90	33.38	30.89	33.64	37.11
Handball	22.71	26.25	29.06	26.42	28.97	31.22	29.00	30.86	32.72	30.50	32.75	35.30	32.66	35.46	39.01
Hockey Rink	23.49	25.41	27.04	26.37	27.75	29.01	28.37	29.38	30.39	29.75	31.01	32.39	31.72	33.34	35.27
Korfball	18.41	22.85	26.27	22.30	25.51	28.30	25.00	27.36	29.72	26.41	29.21	32.42	28.45	31.87	36.31
Modern Pentathlon	20.23	24.20	27.28	23.98	26.84	29.33	26.58	28.67	30.76	28.00	30.50	33.36	30.06	33.14	37.10
Motorsport	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other combat sports	22.69	25.20	27.25	25.76	27.56	29.18	27.89	29.21	30.52	29.24	30.85	32.65	31.17	33.21	35.72
Rowing	23.58	26.06	28.06	26.51	28.29	29.88	28.54	29.85	31.15	29.81	31.40	33.18	31.63	33.64	36.11
Rugby	25.15	28.02	30.48	30.03	32.08	33.96	33.43	34.90	36.38	35.85	37.72	39.78	39.33	41.78	44.66
Sailing	21.65	24.62	27.07	25.69	27.81	29.72	28.50	30.03	31.56	30.34	32.25	34.37	33.00	35.44	38.41
Soccer	21.14	24.86	27.79	24.90	27.57	29.93	27.51	29.46	31.41	28.99	31.34	34.02	31.13	34.06	37.77
Surf	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Swimming	23.51	25.70	27.52	26.61	28.18	29.60	28.76	29.90	31.05	30.21	31.63	33.20	32.29	34.11	36.30
Tennis	20.14	23.60	26.34	23.78	26.26	28.45	26.31	28.12	29.92	27.78	29.97	32.46	29.90	32.64	36.10
Triathlon	22.96	24.84	26.38	25.33	26.69	27.91	26.98	27.98	28.98	28.05	29.27	30.62	29.58	31.12	32.99
Volleyball	23.15	27.48	30.88	27.53	30.64	33.36	30.57	32.83	35.09	32.30	35.02	38.13	34.78	38.18	42.51
Wrestling and Judo	23.87	25.99	27.82	27.48	29.00	30.40	29.99	31.09	32.20	31.78	33.19	34.71	34.37	36.19	38.32

NA: data not presented for n < 8.

Table 10 – Arm muscle circumference (cm) percentiles by sport and sex

Sport	0.05			0.25			Median			0.75			0.95		
	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High
Females															
Archery and Shooting	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Athletics	17.93	19.80	21.32	20.09	21.45	22.66	21.59	22.59	23.59	22.52	23.74	25.09	23.87	25.39	27.25
Basketball	17.42	18.94	20.21	19.52	20.62	21.61	20.97	21.78	22.58	21.95	22.94	24.04	23.35	24.62	26.13
Fencing	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gymnastics	15.73	18.09	19.98	18.18	19.90	21.41	19.89	21.15	22.41	20.89	22.41	24.12	22.33	24.21	26.57
Handball	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hockey Rink	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Korfball	15.82	18.53	20.66	18.03	20.04	21.81	19.57	21.09	22.62	20.37	22.14	24.15	21.53	23.65	26.36
Modern Pentathlon	15.19	18.69	21.42	17.98	20.57	22.85	19.92	21.88	23.84	20.91	23.19	25.78	22.34	25.07	28.57
Motorsport	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other combat sports	16.75	19.60	21.84	19.25	21.34	23.19	20.99	22.56	24.13	21.92	23.77	25.86	23.27	25.51	28.36
Rowing	16.29	19.35	21.75	18.71	20.98	22.99	20.39	22.12	23.85	21.25	23.25	25.53	22.49	24.88	27.95
Rugby	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sailing	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Soccer	16.29	18.50	20.28	18.75	20.35	21.77	20.46	21.63	22.81	21.50	22.92	24.52	22.99	24.77	26.98
Surf	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Swimming	18.68	20.72	22.38	21.08	22.56	23.88	22.75	23.84	24.92	23.79	25.11	26.59	25.29	26.96	29.00
Tennis	13.36	17.61	20.91	17.07	20.16	22.86	19.64	21.93	24.21	21.00	23.70	26.79	22.95	26.24	30.49
Triathlon	15.57	19.62	22.75	18.69	21.69	24.31	20.85	23.12	25.39	21.93	24.56	27.56	23.49	26.62	30.67
Volleyball	16.60	19.47	21.75	19.47	21.55	23.40	21.46	23.00	24.54	22.61	24.45	26.54	24.25	26.53	29.41
Wrestling and Judo	15.55	18.37	20.63	18.68	20.71	22.51	20.86	22.34	23.82	22.16	23.97	26.00	24.04	26.31	29.13
Males															
Archery and Shooting	15.04	21.64	26.00	20.18	24.61	28.11	23.76	26.68	29.58	25.22	28.75	33.15	27.33	31.72	38.29
Athletics	20.82	23.65	25.83	23.83	25.81	27.53	25.93	27.32	28.71	27.11	28.83	30.81	28.81	30.99	33.82
Basketball	21.33	23.31	24.95	24.18	25.58	26.85	26.16	27.16	28.16	27.47	28.74	30.14	29.37	31.01	32.99
Fencing	16.83	21.48	24.76	20.74	23.93	26.56	23.46	25.63	27.81	24.71	27.34	30.53	26.51	29.79	34.44
Gymnastics	19.94	23.20	25.66	23.24	25.51	27.46	25.54	27.12	28.70	26.78	28.73	31.00	28.58	31.04	34.30
Handball	20.50	24.03	26.68	23.99	26.46	28.56	26.42	28.14	29.86	27.72	29.82	32.29	29.59	32.25	35.78
Hockey Rink	20.58	22.59	24.25	23.50	24.93	26.21	25.53	26.55	27.57	26.89	28.17	29.60	28.85	30.51	32.52
Korfball	14.75	20.77	24.93	19.72	23.81	27.14	23.17	25.93	28.68	24.71	28.04	32.13	26.92	31.08	37.10
Modern Pentathlon	18.34	22.79	25.99	22.28	25.35	27.90	25.02	27.13	29.24	26.36	28.91	31.98	28.27	31.47	35.92
Motorsport	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other combat sports	21.20	23.58	25.46	23.99	25.66	27.13	25.92	27.10	28.29	27.08	28.55	30.22	28.75	30.63	33.01
Rowing	22.79	24.96	26.66	25.22	26.75	28.09	26.91	28.00	29.09	27.90	29.24	30.78	29.33	31.04	33.20
Rugby	23.17	25.58	27.62	27.14	28.85	30.39	29.90	31.11	32.32	31.83	33.38	35.08	34.61	36.64	39.05
Sailing	18.17	21.36	23.92	22.40	24.63	26.59	25.35	26.90	28.45	27.21	29.17	31.39	29.88	32.44	35.63
Soccer	19.97	23.79	26.62	23.61	26.26	28.50	26.13	27.97	29.80	27.44	29.68	32.33	29.32	32.14	35.97
Surf	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Swimming	0.00	9.46	18.25	14.67	22.11	28.59	26.04	30.91	35.78	33.23	39.71	47.15	43.57	52.36	63.50
Tennis	17.65	21.46	24.31	21.46	24.10	26.34	24.11	25.93	27.75	25.52	27.76	30.40	27.55	30.39	34.20
Triathlon	21.27	23.24	24.83	23.70	25.10	26.33	25.39	26.38	27.38	26.43	27.67	29.07	27.94	29.52	31.50
Volleyball	22.27	26.53	29.68	26.32	29.28	31.77	29.13	31.18	33.23	30.59	33.09	36.04	32.68	35.83	40.09
Wrestling and Judo	21.68	23.88	25.75	25.36	26.93	28.35	27.93	29.04	30.15	29.73	31.16	32.72	32.33	34.20	36.41

NA: data not presented for n < 8.

Table 11 – Thigh circumference (cm) percentiles by sport and sex

Sport	0.05			0.25			Median			0.75			0.95		
	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High
Females															
Archery and Shooting	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Athletics	44.00	45.32	46.63	47.12	48.42	49.73	49.29	50.59	51.88	51.44	52.75	54.05	54.54	55.85	57.17
Basketball	46.50	47.56	48.61	49.62	50.67	51.71	51.79	52.83	53.86	53.94	54.99	56.03	57.04	58.10	59.15
Fencing	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gymnastics	41.97	43.50	45.03	45.09	46.61	48.13	47.26	48.77	50.28	49.41	50.93	52.45	52.51	54.04	55.56
Handball	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hockey Rink	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Korfball	39.40	41.55	43.64	42.52	44.66	46.74	44.68	46.82	48.90	46.84	48.98	51.06	49.94	52.09	54.18
Modern Pentathlon	40.79	43.04	45.30	43.91	46.15	48.40	46.08	48.31	50.55	48.23	50.47	52.72	51.33	53.58	55.84
Motorsport	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other combat sports	43.08	45.06	47.11	46.20	48.17	50.20	48.37	50.33	52.36	50.52	52.49	54.53	53.62	55.60	57.64
Rowing	44.25	46.49	48.73	47.37	49.60	51.83	49.54	51.76	53.99	51.69	53.92	56.15	54.79	57.03	59.27
Rugby	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sailing	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Soccer	43.31	44.71	46.10	46.43	47.82	49.20	48.59	49.98	51.36	50.75	52.14	53.53	53.85	55.25	56.64
Surf	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Swimming	42.33	43.63	44.90	45.44	46.74	48.00	47.61	48.90	50.15	49.76	51.06	52.32	52.86	54.17	55.43
Tennis	42.16	44.17	46.18	45.28	47.28	49.28	47.45	49.44	51.43	49.60	51.60	53.60	52.70	54.71	56.72
Triathlon	41.27	43.65	46.07	44.39	46.76	49.17	46.56	48.92	51.32	48.71	51.08	53.49	51.81	54.19	56.61
Volleyball	45.32	46.92	48.55	48.44	50.03	51.65	50.61	52.19	53.81	52.76	54.35	55.97	55.86	57.46	59.09
Wrestling and Judo	43.63	45.03	46.47	46.74	48.14	49.57	48.91	50.30	51.73	51.07	52.46	53.89	54.17	55.57	57.01
Males															
Archery and Shooting	37.75	43.89	48.48	42.54	46.96	50.76	45.87	49.09	52.35	47.46	51.23	55.68	49.74	54.29	60.47
Athletics	43.47	47.84	51.31	48.20	51.33	54.09	51.48	53.75	56.03	53.41	56.17	59.31	56.20	59.66	64.03
Basketball	45.14	48.37	51.08	49.80	52.13	54.24	53.04	54.73	56.43	55.23	57.34	59.67	58.39	61.10	64.33
Fencing	41.62	48.71	54.04	47.75	52.81	57.15	52.01	55.66	59.31	54.17	58.51	63.57	57.28	62.61	69.70
Gymnastics	37.11	42.12	46.04	42.32	45.90	49.02	45.95	48.52	51.09	48.01	51.14	54.71	50.99	54.91	59.92
Handball	42.90	48.03	52.03	48.07	51.74	54.95	51.66	54.32	56.98	53.69	56.90	60.58	56.61	60.62	65.74
Hockey Rink	45.23	48.30	50.88	49.71	51.92	53.93	52.81	54.43	56.04	54.93	56.94	59.15	57.97	60.55	63.62
Korfball	37.53	43.57	48.09	42.58	46.91	50.61	46.09	49.22	52.36	47.84	51.54	55.87	50.35	54.88	60.92
Modern Pentathlon	31.70	42.21	50.10	41.57	48.95	55.25	48.43	53.63	58.83	52.01	58.31	65.69	57.16	65.05	75.56
Motorsport	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other combat sports	43.70	47.49	50.54	48.19	50.90	53.32	51.31	53.28	55.25	53.24	55.66	58.37	56.02	59.07	62.86
Rowing	43.71	47.80	51.09	48.42	51.36	53.96	51.69	53.82	55.96	53.69	56.29	59.23	56.56	59.84	63.94
Rugby	44.54	49.02	52.85	52.03	55.21	58.16	57.24	59.52	61.84	60.93	63.83	67.05	66.23	70.03	74.55
Sailing	37.05	43.09	48.01	45.19	49.45	53.26	50.85	53.88	56.91	54.50	58.31	62.57	59.76	64.68	70.71
Soccer	42.47	47.85	51.98	47.67	51.53	54.84	51.29	54.08	56.84	53.28	56.63	60.45	56.14	60.31	65.65
Surf	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Swimming	42.95	45.92	48.40	47.04	49.18	51.12	49.89	51.45	53.01	51.78	53.72	55.86	54.50	56.97	59.95
Tennis	39.63	44.69	48.62	44.77	48.37	51.52	48.34	50.93	53.53	50.35	53.50	57.10	53.25	57.18	62.24
Triathlon	41.75	44.84	47.36	45.60	47.81	49.80	48.27	49.88	51.50	49.97	51.95	54.17	52.41	54.93	58.02
Volleyball	44.57	50.06	54.30	49.90	53.82	57.23	53.60	56.44	59.27	55.64	59.05	62.98	58.57	62.81	68.30
Wrestling and Judo	44.26	46.81	48.95	48.43	50.27	51.93	51.33	52.68	53.99	53.39	55.09	56.89	56.37	58.55	61.06

NA: data not presented for n < 8.

Table 12 – Thigh muscle circumference (cm) percentiles by sport and sex

Sport	0.05			0.25			Median			0.75			0.95		
	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High
Females															
Archery and Shooting	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Athletics	39.20	40.47	41.74	42.29	43.56	44.83	44.44	45.71	46.97	46.59	47.85	49.12	49.67	50.94	52.21
Basketball	39.13	40.15	41.17	42.22	43.24	44.25	44.37	45.38	46.40	46.52	47.53	48.55	49.60	50.62	51.64
Fencing	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gymnastics	37.70	39.21	40.68	40.80	42.30	43.77	42.95	44.44	45.91	45.09	46.59	48.06	48.18	49.68	51.16
Handball	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hockey Rink	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Korfball	31.36	33.44	35.57	34.45	36.53	38.66	36.60	38.68	40.80	38.75	40.82	42.95	41.83	43.91	46.05
Modern Pentathlon	35.29	37.60	39.76	38.38	40.69	42.84	40.54	42.83	44.99	42.68	44.98	47.14	45.76	48.07	50.23
Motorsport	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other combat sports	35.85	37.88	39.86	38.94	40.97	42.94	41.09	43.12	45.09	43.24	45.27	47.24	46.32	48.36	50.33
Rowing	37.53	39.78	41.99	40.63	42.87	45.07	42.78	45.01	47.22	44.92	47.16	49.37	48.01	50.25	52.46
Rugby	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sailing	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Soccer	37.36	38.73	40.07	40.46	41.82	43.16	42.61	43.97	45.30	44.75	46.12	47.45	47.84	49.21	50.55
Surf	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Swimming	37.06	38.27	39.54	40.15	41.36	42.62	42.30	43.51	44.77	44.45	45.65	46.92	47.53	48.74	50.01
Tennis	32.50	34.50	36.48	35.59	37.59	39.57	37.74	39.74	41.71	39.89	41.89	43.86	42.97	44.98	46.96
Triathlon	35.45	37.83	40.23	38.55	40.92	43.32	40.70	43.07	45.46	42.84	45.21	47.61	45.93	48.30	50.71
Volleyball	38.58	40.18	41.74	41.68	43.27	44.83	43.83	45.41	46.97	45.97	47.56	49.12	49.06	50.65	52.22
Wrestling and Judo	36.93	38.32	39.70	40.03	41.41	42.79	42.18	43.55	44.93	44.32	45.70	47.08	47.41	48.79	50.18
Males															
Archery and Shooting	24.18	36.14	44.87	33.99	42.42	49.52	40.82	46.79	52.76	44.05	51.15	59.58	48.70	57.44	69.40
Athletics	38.38	44.10	48.61	44.69	48.76	52.34	49.07	52.00	54.93	51.66	55.24	59.31	55.38	59.90	65.62
Basketball	40.79	44.22	47.10	45.81	48.27	50.50	49.30	51.08	52.87	51.66	53.90	56.36	55.07	57.94	61.37
Fencing	37.79	45.71	51.67	44.74	50.38	55.22	49.57	53.63	57.68	52.04	56.88	62.52	55.59	61.55	69.47
Gymnastics	30.12	37.14	42.62	37.62	42.57	46.90	42.83	46.34	49.87	45.81	50.11	55.09	50.09	55.54	62.59
Handball	34.76	41.52	46.77	41.77	46.56	50.73	46.65	50.06	53.48	49.40	53.57	58.36	53.36	58.61	65.36
Hockey Rink	39.62	42.94	45.73	44.50	46.89	49.06	47.90	49.64	51.37	50.21	52.38	54.77	53.54	56.33	59.66
Korfball	27.41	37.53	45.03	36.20	43.34	49.41	42.32	47.39	52.45	45.36	51.43	58.57	49.74	57.25	67.37
Modern Pentathlon	28.57	39.58	47.89	39.03	46.75	53.38	46.30	51.73	57.19	50.12	56.71	64.46	55.60	63.88	74.92
Motorsport	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other combat sports	38.96	43.50	47.17	44.43	47.67	50.55	48.23	50.57	52.91	50.58	53.46	56.71	53.97	57.63	62.18
Rowing	38.96	43.68	47.46	44.50	47.86	50.84	48.35	50.77	53.19	50.70	53.67	57.04	54.08	57.86	62.57
Rugby	41.15	44.65	47.62	46.94	49.44	51.73	50.96	52.77	54.58	53.82	56.11	58.61	57.92	60.90	64.40
Sailing	31.77	37.77	42.66	39.94	44.17	47.94	45.62	48.62	51.61	49.29	53.06	57.29	54.57	59.46	65.46
Soccer	37.54	44.13	49.22	44.04	48.73	52.81	48.56	51.93	55.31	51.06	55.13	59.83	54.65	59.74	66.33
Surf	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Swimming	38.14	41.80	44.84	43.25	45.87	48.24	46.81	48.71	50.60	49.17	51.54	54.16	52.57	55.61	59.27
Tennis	31.72	38.81	44.29	39.13	44.13	48.47	44.27	47.82	51.37	47.17	51.52	56.52	51.35	56.83	63.92
Triathlon	36.24	40.56	44.06	41.73	44.80	47.54	45.54	47.75	49.96	47.96	50.70	53.78	51.44	54.95	59.26
Volleyball	40.11	46.22	50.96	46.12	50.48	54.28	50.29	53.44	56.60	52.61	56.41	60.77	55.93	60.67	66.78
Wrestling and Judo	41.19	43.74	45.93	45.42	47.26	48.95	48.36	49.71	51.05	50.47	52.15	53.99	53.49	55.67	58.22

NA: data not presented for n < 8.

Table 13 – Calf circumference (cm) percentiles by sport and sex

Sport	0.05			0.25			Median			0.75			0.95		
	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High
Females															
Archery and Shooting	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Athletics	30.07	32.27	34.02	32.48	34.06	35.45	34.16	35.30	36.44	35.15	36.54	38.12	36.58	38.33	40.54
Basketball	31.02	33.30	35.17	34.03	35.65	37.12	36.11	37.29	38.47	37.47	38.93	40.56	39.42	41.29	43.56
Fencing	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gymnastics	28.20	30.80	32.80	30.70	32.55	34.16	32.43	33.77	35.10	33.37	34.98	36.84	34.74	36.73	39.33
Handball	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hockey Rink	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Korfball	28.96	32.52	35.09	31.63	34.17	36.30	33.49	35.32	37.14	34.33	36.46	39.00	35.54	38.11	41.67
Modern Pentathlon	19.21	27.41	33.07	25.57	31.20	35.79	29.99	33.84	37.69	31.88	36.48	42.11	34.61	40.27	48.47
Motorsport	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other combat sports	28.71	32.63	35.49	31.79	34.57	36.92	33.92	35.92	37.92	34.92	37.27	40.06	36.36	39.21	43.14
Rowing	27.59	32.25	35.55	31.06	34.34	37.06	33.48	35.79	38.11	34.53	37.25	40.53	36.04	39.34	44.00
Rugby	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sailing	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Soccer	27.43	30.85	33.52	31.06	33.48	35.59	33.58	35.31	37.04	35.02	37.13	39.56	37.10	39.76	43.19
Surf	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Swimming	29.85	32.02	33.75	32.24	33.80	35.18	33.91	35.04	36.17	34.90	36.28	37.84	36.33	38.06	40.23
Tennis	29.06	32.83	35.58	32.01	34.69	36.96	34.05	35.98	37.91	35.01	37.27	39.96	36.38	39.13	42.90
Triathlon	28.02	32.38	35.44	31.11	34.19	36.74	33.25	35.44	37.64	34.15	36.70	39.78	35.45	38.51	42.87
Volleyball	28.86	32.92	36.00	32.66	35.53	38.00	35.29	37.34	39.40	36.69	39.16	42.03	38.69	41.77	45.83
Wrestling and Judo	28.12	31.10	33.43	31.20	33.33	35.18	33.35	34.87	36.39	34.56	36.42	38.54	36.31	38.64	41.62
Males															
Archery and Shooting	28.56	32.25	35.27	31.64	34.46	37.01	33.78	36.00	38.22	35.00	37.54	40.37	36.74	39.76	43.45
Athletics	31.04	33.50	35.56	33.83	35.67	37.34	35.78	37.18	38.58	37.01	38.68	40.52	38.79	40.85	43.32
Basketball	32.20	34.34	36.18	35.40	36.97	38.42	37.62	38.80	39.97	39.18	40.62	42.20	41.42	43.25	45.39
Fencing	29.94	33.17	35.83	32.89	35.34	37.55	34.95	36.85	38.75	36.15	38.36	40.81	37.87	40.53	43.76
Gymnastics	28.46	31.32	33.68	31.58	33.70	35.62	33.75	35.36	36.97	35.09	37.02	39.14	37.04	39.40	42.26
Handball	31.11	33.93	36.26	34.12	36.22	38.11	36.21	37.81	39.41	37.50	39.40	41.49	39.36	41.68	44.50
Hockey Rink	31.44	33.43	35.13	34.44	35.90	37.24	36.52	37.61	38.70	37.98	39.33	40.78	40.09	41.79	43.78
Korfball	29.97	33.37	36.17	32.90	35.50	37.84	34.94	36.98	39.01	36.11	38.45	41.05	37.79	40.58	43.99
Modern Pentathlon	29.32	32.41	34.94	32.28	34.60	36.70	34.34	36.13	37.93	35.56	37.66	39.98	37.32	39.86	42.94
Motorsport	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other combat sports	30.96	33.28	35.23	33.83	35.55	37.11	35.83	37.12	38.42	37.13	38.70	40.42	39.02	40.97	43.29
Rowing	29.20	32.04	34.41	32.66	34.75	36.65	35.06	36.64	38.21	36.62	38.52	40.61	38.86	41.24	44.07
Rugby	32.87	35.03	36.91	36.53	38.11	39.56	39.07	40.24	41.41	40.92	42.38	43.95	43.57	45.45	47.61
Sailing	30.68	32.82	34.64	33.56	35.13	36.58	35.55	36.74	37.93	36.90	38.35	39.92	38.84	40.66	42.80
Soccer	29.40	32.55	35.14	32.64	34.99	37.11	34.89	36.69	38.49	36.27	38.39	40.74	38.24	40.84	43.98
Surf	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Swimming	31.42	33.06	34.46	33.75	34.95	36.06	35.36	36.27	37.17	36.48	37.58	38.79	38.08	39.47	41.11
Tennis	30.22	32.74	34.82	32.90	34.78	36.48	34.76	36.19	37.63	35.91	37.61	39.49	37.56	39.64	42.16
Triathlon	31.00	32.72	34.17	33.20	34.48	35.64	34.73	35.70	36.66	35.76	36.92	38.19	37.23	38.68	40.39
Volleyball	31.95	34.83	37.21	34.90	37.06	39.01	36.94	38.60	40.26	38.19	40.15	42.31	39.99	42.37	45.25
Wrestling and Judo	30.21	32.01	33.56	33.23	34.55	35.77	35.34	36.32	37.30	36.87	38.08	39.40	39.07	40.63	42.43

NA: data not presented for n < 8.

Table 14 – Calf muscle circumference (cm) percentiles by sport and sex

Sport	0.05			0.25			Median			0.75			0.95		
	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High
Females															
Archery and Shooting	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Athletics	27.26	29.66	31.54	29.87	31.57	33.06	31.68	32.90	34.11	32.74	34.23	35.93	34.26	36.14	38.54
Basketball	24.98	27.44	29.44	28.26	30.00	31.55	30.54	31.78	33.01	32.00	33.55	35.29	34.11	36.11	38.57
Fencing	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gymnastics	23.48	26.43	28.65	26.32	28.39	30.16	28.29	29.75	31.21	29.35	31.11	33.18	30.86	33.08	36.02
Handball	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hockey Rink	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Korfball	23.61	27.64	30.43	26.67	29.46	31.73	28.79	30.72	32.64	29.70	31.98	34.77	31.00	33.79	37.82
Modern Pentathlon	14.80	23.92	29.91	21.77	27.89	32.70	26.62	30.64	34.64	28.56	33.40	39.49	31.35	37.36	46.46
Motorsport	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other combat sports	25.37	28.81	31.24	28.01	30.42	32.42	29.85	31.54	33.23	30.67	32.66	35.07	31.84	34.27	37.71
Rowing	24.98	28.67	31.21	27.64	30.21	32.30	29.49	31.28	33.06	30.25	32.34	34.91	31.35	33.88	37.57
Rugby	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sailing	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Soccer	23.14	26.48	29.05	26.66	29.00	31.02	29.10	30.75	32.39	30.47	32.49	34.84	32.44	35.01	38.35
Surf	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Swimming	25.77	28.03	29.81	28.26	29.86	31.27	29.99	31.14	32.29	31.01	32.42	34.02	32.47	34.26	36.52
Tennis	22.65	26.70	29.55	25.79	28.61	30.94	27.98	29.94	31.91	28.95	31.27	34.09	30.34	33.19	37.23
Triathlon	23.41	28.74	32.29	27.17	30.82	33.75	29.78	32.27	34.77	30.79	33.72	37.38	32.25	35.81	41.13
Volleyball	24.68	28.45	31.25	28.17	30.81	33.05	30.60	32.44	34.29	31.84	34.08	36.72	33.64	36.44	40.21
Wrestling and Judo	20.14	24.14	27.18	24.33	27.11	29.50	27.24	29.17	31.10	28.85	31.23	34.02	31.16	34.20	38.20
Males															
Archery and Shooting	25.99	29.78	32.70	29.01	31.80	34.22	31.11	33.20	35.29	32.17	34.60	37.39	33.70	36.61	40.40
Athletics	29.73	32.30	34.38	32.55	34.42	36.08	34.52	35.90	37.27	35.71	37.37	39.24	37.42	39.49	42.07
Basketball	29.94	32.05	33.83	33.01	34.54	35.94	35.15	36.28	37.40	36.61	38.01	39.54	38.72	40.50	42.61
Fencing	27.73	31.27	34.02	30.83	33.41	35.67	32.98	34.90	36.82	34.13	36.39	38.97	35.78	38.53	42.06
Gymnastics	26.52	29.53	31.93	29.69	31.86	33.79	31.89	33.49	35.08	33.18	35.11	37.28	35.04	37.44	40.45
Handball	29.07	31.87	34.10	31.94	33.97	35.77	33.93	35.43	36.93	35.09	36.89	38.92	36.76	38.98	41.78
Hockey Rink	28.09	30.33	32.22	31.43	33.04	34.51	33.75	34.93	36.10	35.34	36.81	38.42	37.64	39.52	41.76
Korfball	28.83	32.33	35.05	31.69	34.27	36.52	33.68	35.62	37.55	34.71	36.97	39.54	36.19	38.90	42.40
Modern Pentathlon	27.83	31.03	33.55	30.77	33.11	35.17	32.82	34.56	36.30	33.94	36.00	38.34	35.56	38.08	41.29
Motorsport	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other combat sports	24.31	28.19	31.32	29.12	31.88	34.34	32.46	34.45	36.43	34.56	37.02	39.78	37.57	40.71	44.59
Rowing	27.43	30.29	32.62	30.80	32.87	34.72	33.15	34.66	36.17	34.61	36.45	38.52	36.70	39.03	41.90
Rugby	30.03	32.05	33.77	33.36	34.81	36.15	35.67	36.74	37.80	37.32	38.66	40.11	39.70	41.42	43.44
Sailing	26.52	29.18	31.38	30.06	31.97	33.69	32.52	33.91	35.29	34.12	35.84	37.75	36.43	38.63	41.29
Soccer	27.31	30.86	33.66	30.84	33.41	35.67	33.29	35.18	37.06	34.69	36.95	39.52	36.70	39.50	43.05
Surf	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Swimming	29.63	31.28	32.66	31.91	33.11	34.20	33.50	34.38	35.27	34.57	35.66	36.86	36.11	37.49	39.14
Tennis	28.27	30.86	32.93	30.91	32.79	34.47	32.74	34.13	35.53	33.80	35.48	37.36	35.34	37.41	39.99
Triathlon	29.63	31.35	32.77	31.78	33.03	34.16	33.27	34.20	35.12	34.24	35.36	36.61	35.62	37.04	38.76
Volleyball	30.26	33.22	35.58	33.16	35.32	37.24	35.18	36.79	38.39	36.33	38.25	40.41	37.99	40.35	43.32
Wrestling and Judo	27.89	29.83	31.48	31.11	32.51	33.79	33.35	34.37	35.39	34.96	36.24	37.63	37.26	38.92	40.85

NA: data not presented for n < 8.

Table 15 – Abdominal circumference (cm) percentiles by sport and sex

Sport	0.05			0.25			Median			0.75			0.95		
	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High
Females															
Archery and Shooting	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Athletics	59.84	64.43	68.23	65.15	68.54	71.60	68.85	71.39	73.94	71.19	74.25	77.64	74.56	78.36	82.95
Basketball	63.58	68.29	72.26	70.12	73.56	76.69	74.67	77.22	79.76	77.75	80.88	84.31	82.17	86.15	90.86
Fencing	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gymnastics	56.81	62.74	67.59	62.98	67.36	71.31	67.26	70.57	73.89	69.84	73.79	78.17	73.56	78.41	84.34
Handball	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hockey Rink	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Korfball	60.79	69.90	77.20	68.39	75.24	81.36	73.67	78.96	84.25	76.56	82.68	89.53	80.72	88.02	97.13
Modern Pentathlon	53.90	65.55	74.84	63.44	72.18	79.96	70.06	76.79	83.52	73.62	81.40	90.14	78.74	88.03	99.67
Motorsport	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other combat sports	62.22	69.99	76.25	69.09	74.91	80.11	73.87	78.33	82.79	76.56	81.75	87.57	80.42	86.68	94.45
Rowing	58.63	68.66	76.70	66.73	74.31	81.06	72.37	78.23	84.10	75.40	82.16	89.73	79.77	87.80	97.84
Rugby	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sailing	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Soccer	61.01	66.41	70.86	67.04	71.02	74.61	71.23	74.22	77.21	73.83	77.42	81.40	77.58	82.03	87.44
Surf	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Swimming	59.67	64.95	69.33	65.93	69.81	73.31	70.28	73.18	76.08	73.05	76.56	80.43	77.04	81.41	86.69
Tennis	62.12	71.13	78.35	69.90	76.64	82.65	75.30	80.47	85.65	78.29	84.30	91.05	82.60	89.82	98.82
Triathlon	56.07	66.63	75.13	64.30	72.30	79.49	70.03	76.25	82.52	73.06	80.19	88.25	77.42	85.87	96.48
Volleyball	61.73	69.44	75.69	69.48	75.18	80.28	74.87	79.17	83.47	78.06	83.16	88.85	82.65	88.90	96.61
Wrestling and Judo	57.97	64.23	69.36	64.91	69.50	73.63	69.72	73.16	76.60	72.69	76.82	81.41	76.96	82.09	88.35
Males															
Archery and Shooting	49.48	66.83	79.61	63.56	75.85	86.31	73.34	82.12	90.96	78.00	88.40	100.75	84.70	97.42	114.83
Athletics	62.27	68.01	72.59	68.50	72.63	76.28	72.84	75.84	78.85	75.40	79.05	83.18	79.09	83.67	89.42
Basketball	65.70	70.70	74.90	73.01	76.60	79.86	78.10	80.70	83.31	81.55	84.80	88.40	86.51	90.70	95.71
Fencing	56.09	67.37	75.85	65.96	74.00	80.89	72.82	78.60	84.39	76.32	83.21	91.25	81.35	89.84	101.11
Gymnastics	58.20	66.27	72.59	66.60	72.36	77.41	72.44	76.60	80.76	75.79	80.83	86.60	80.60	86.92	95.00
Handball	60.08	70.04	77.80	70.34	77.42	83.61	77.47	82.56	87.65	81.51	87.69	94.77	87.32	95.08	105.03
Hockey Rink	65.80	70.98	75.31	73.45	77.15	80.52	78.76	81.45	84.13	82.38	85.74	89.45	87.58	91.92	97.09
Korfball	56.28	67.66	76.19	65.92	74.05	81.02	72.61	78.50	84.38	75.97	82.94	91.08	80.80	89.34	100.71
Modern Pentathlon	56.11	66.00	73.53	65.21	72.26	78.34	71.53	76.61	81.69	74.88	80.97	88.02	79.70	87.23	97.11
Motorsport	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other combat sports	63.15	68.67	73.13	69.59	73.56	77.10	74.07	76.97	79.86	76.83	80.37	84.34	80.80	85.26	90.79
Rowing	61.61	69.03	74.97	70.29	75.58	80.27	76.32	80.14	83.96	80.01	84.70	89.99	85.31	91.25	98.68
Rugby	63.86	71.21	77.46	76.21	81.43	86.21	84.79	88.54	92.28	90.87	95.64	100.86	99.61	105.86	113.21
Sailing	61.38	69.02	75.26	71.63	77.05	81.90	78.75	82.64	86.52	83.37	88.22	93.64	90.01	96.25	103.89
Soccer	59.77	68.72	75.66	68.55	74.94	80.51	74.65	79.27	83.89	78.02	83.59	89.99	82.88	89.82	98.76
Surf	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Swimming	63.41	68.45	72.63	70.42	74.03	77.29	75.29	77.91	80.53	78.53	81.79	85.40	83.19	87.37	92.41
Tennis	61.96	69.47	75.34	69.56	74.94	79.66	74.84	78.75	82.65	77.84	82.55	87.93	82.15	88.03	95.53
Triathlon	63.19	68.04	72.01	69.22	72.72	75.86	73.42	75.97	78.53	76.09	79.22	82.72	79.93	83.90	88.76
Volleyball	64.47	73.69	80.83	73.51	80.09	85.83	79.79	84.54	89.30	83.26	89.00	95.58	88.26	95.40	104.62
Wrestling and Judo	62.97	67.21	70.79	69.98	73.04	75.80	74.86	77.10	79.28	78.35	81.15	84.16	83.35	86.99	91.18

NA: data not presented for n < 8.

Table 16 – Hip circumference (cm) percentiles by sport and sex

Sport	0.05			0.25			Median			0.75			0.95		
	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High	Low	Estimate	High
Females															
Archery and Shooting	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Athletics	80.60	84.11	87.47	85.93	88.95	91.91	89.64	92.31	94.99	92.72	95.68	98.69	97.16	100.52	104.03
Basketball	89.25	92.40	95.41	94.78	97.44	100.04	98.62	100.94	103.26	101.83	104.44	107.10	106.46	109.47	112.62
Fencing	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gymnastics	79.56	83.60	87.48	85.06	88.58	92.04	88.89	92.05	95.21	92.06	95.51	99.03	96.62	100.50	104.54
Handball	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hockey Rink	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Korfball	80.01	85.18	90.19	85.47	90.11	94.68	89.27	93.54	97.81	92.40	96.97	101.61	96.90	101.90	107.08
Modern Pentathlon	80.63	86.04	91.28	86.11	90.98	95.78	89.92	94.42	98.92	93.05	97.85	102.73	97.56	102.80	108.21
Motorsport	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other combat sports	81.12	85.93	90.51	86.54	90.83	94.99	90.31	94.24	98.10	93.42	97.64	101.87	97.89	102.54	107.29
Rowing	82.66	88.09	93.36	88.13	93.03	97.86	91.93	96.46	100.99	95.05	99.89	104.79	99.55	104.82	110.26
Rugby	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sailing	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Soccer	83.52	87.30	90.92	89.05	92.31	95.51	92.89	95.79	98.70	96.08	99.27	102.54	100.66	104.29	108.06
Surf	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Swimming	82.49	85.92	89.21	87.81	90.76	93.64	91.52	94.12	96.72	94.59	97.48	100.42	99.02	102.31	105.75
Tennis	84.83	89.81	94.63	90.28	94.74	99.12	94.07	98.16	102.25	97.20	101.59	106.04	101.69	106.51	111.49
Triathlon	78.88	84.53	90.06	84.34	89.45	94.54	88.13	92.87	97.66	91.25	96.28	101.45	95.73	101.20	106.91
Volleyball	88.24	92.62	96.76	93.86	97.71	101.42	97.77	101.24	104.65	101.00	104.78	108.56	105.66	109.87	114.18
Wrestling and Judo	82.11	85.89	89.52	87.55	90.82	94.03	91.33	94.25	97.17	94.47	97.68	100.96	98.99	102.62	106.40
Males															
Archery and Shooting	79.74	87.90	94.55	86.43	92.66	98.27	91.08	95.97	100.86	93.66	99.27	105.50	97.39	104.03	112.19
Athletics	83.42	88.31	92.37	88.88	92.52	95.82	92.68	95.45	98.21	95.08	98.37	102.01	98.52	102.58	107.47
Basketball	86.43	90.66	94.29	92.63	95.75	98.63	96.94	99.29	101.64	99.95	102.83	105.95	104.28	107.91	112.15
Fencing	78.82	87.03	93.72	86.26	92.44	98.00	91.43	96.21	100.98	94.41	99.97	106.16	98.70	105.39	113.60
Gymnastics	78.19	84.09	88.97	84.50	88.90	92.88	88.89	92.24	95.59	91.61	95.59	99.98	95.51	100.39	106.30
Handball	84.23	90.97	96.53	91.30	96.33	100.87	96.22	100.05	103.88	99.23	103.77	108.80	103.57	109.13	115.87
Hockey Rink	86.10	89.93	93.21	91.76	94.58	97.18	95.70	97.82	99.94	98.46	101.06	103.88	102.43	105.71	109.54
Korfball	77.25	85.30	91.85	84.32	90.41	95.88	89.23	93.96	98.69	92.03	97.51	103.60	96.06	102.62	110.67
Modern Pentathlon	78.05	85.26	91.15	84.91	90.32	95.18	89.67	93.83	97.99	92.48	97.35	102.75	96.51	102.40	109.61
Motorsport	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other combat sports	83.41	87.72	91.33	88.62	91.81	94.73	92.23	94.66	97.09	94.59	97.51	100.71	97.99	101.60	105.91
Rowing	82.97	88.29	92.74	89.28	93.23	96.82	93.66	96.66	99.65	96.50	100.09	104.04	100.57	105.02	110.35
Rugby	86.08	91.45	96.08	95.11	99.01	102.60	101.38	104.26	107.14	105.91	109.51	113.41	112.44	117.07	122.43
Sailing	81.73	87.05	91.55	88.91	92.82	96.40	93.90	96.83	99.77	97.26	100.84	104.76	102.11	106.61	111.94
Soccer	80.63	87.25	92.70	87.31	92.27	96.74	91.96	95.75	99.55	94.76	99.24	104.19	98.80	104.25	110.87
Surf	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Swimming	82.85	86.74	90.06	88.29	91.16	93.80	92.06	94.23	96.40	94.66	97.30	100.17	98.40	101.72	105.60
Tennis	80.79	86.40	91.04	86.61	90.81	94.61	90.66	93.88	97.10	93.14	96.95	101.14	96.72	101.36	106.96
Triathlon	77.69	82.40	86.37	83.72	87.20	90.37	87.91	90.54	93.16	90.70	93.87	97.35	94.71	98.68	103.39
Volleyball	90.64	96.01	100.45	95.98	100.03	103.68	99.70	102.82	105.93	101.95	105.61	109.65	105.19	109.62	115.00
Wrestling and Judo	81.70	85.15	88.16	87.44	89.98	92.33	91.43	93.33	95.23	94.33	96.68	99.22	98.51	101.51	104.96

NA: data not presented for n < 8.