

ON SYSTEMATISATION OF ESTONIANS' BODY BUILD DATA

HELJE KAARMA¹, GUDRUN VELDRE¹, LIIDIA SALUSTE¹,
MART LINTSI¹, JAAN KASMEL¹, ENE-MARGIT TIIT¹,
RAINI STAMM¹, MAIE TOOMSALU¹, ANDRES AREND²

¹ *Centre for Physical Anthropology, University of Tartu, Tartu, Estonia*

² *Department of Anatomy, University of Tartu, Tartu, Estonia*

ABSTRACT

Based on research results of women's, men's and children's body build, we present the arithmetic means of adult Estonian men and women (aged 20–70 years) as the national norms. Classifications based on gender and age enable to somatotype the subjects according to the classes of the classification.

Keywords: body build; height-weight classification; anthropometry

INTRODUCTION

The Centre for Physical Anthropology at the University of Tartu has achieved success in studying the regularities of body build structure. It has been established that the anthropometric structure forms a highly-correlated system of individual characteristics where the leading characteristics are height and weight. Changes in the relations between height and weight cause systemic changes in all height, breadth and depth measurements, circumferences and body proportions. Changes in proportions in the general cohort as well as in the pure types – pycnics and leptosomes – are related to changes in the relation between height and weight. No other special groups of body build have been found; the same regularities are valid for the general cohort and the groups of pycnics and leptosomes. This has enabled us to create a unified classification for characterisation of body build, which consists of the following classes: small, medium, large, pycnomorphs, leptomorphs [1, 2, 8, 9] (see Fig. 1). In principle,

the same regularities are valid for the samples of women, men and schoolchildren [3, 4, 5, 6, 10, 11, 12, 13, 14].

		Weight classes		
		<i>Light</i>	<i>Medium</i>	<i>Heavy</i>
Height classes	<i>Short</i>	Small	Pycnomorphic	
	<i>Medium</i>	Leptomorphic	Medium	
	<i>Tall</i>			Large

Figure 1. Body build classes

Considering the above-mentioned regularities of body build structure and possibilities of differentiation between somatotypes by means of a height-weight classification, the aim was to establish national height and weight norms for the majority of the population of Estonia, and, based on arithmetic means and standard deviations, to establish separate SD height-weight classifications for all age groups of 20–70-year-old men and women. This might facilitate the assessment of peculiarities of body build in medical, health promotional and nutritional studies.

METHODS

The plan for the study was approved by the Ministry of Social Affairs, and it was financed by the National Institute for Health Development [7]. The first task was to collect representative material about 20–70-year-old Estonian men and women. For this, Estonia was divided into four regions – Tallinn, Tartu, East-Estonia and West-Estonia. The data (age, gender, height, weight) were collected by 50 family physicians. The criteria for choice were Estonian ethnicity, age 20–70 years, generally good health. The subjects could not have chronic diseases or physical disabilities. The subjects' names and personal codes were not recorded. The study was conducted from 2003 to 2005. Statistical analysis of data was performed by Säde Koskel, MSc in Mathematical Statistics. The consultant was Professor Emeritus Ene-Margit Tiit. Data were collected on 4587 Estonian women and 4034 men, 8621 in all.

RESULTS

As a result of statistical analysis, we present the arithmetic means of height and weight of 20–70-year-old Estonian men and women, which we can treat as national norms. Next, based on the means and standard deviations, the limits of height and weight were calculated for the classes of the height-weight classification of 20–70-year-old men and women for each year of age. Here, the height-weight classification was concretised – the classes of both pycnomorphs and leptomorphs were divided into three – pycnomorphs 1, 2, 3, and leptomorphs 1, 2, 3 (see Figure 2). These classifications can be used to systematise all the different body measurements in age groups.

		Weight classes		
		Light	Medium	Heavy
Height classes	Short	1. Small	5. Pycnomorphic I	II
	Medium	4. Leptomorph I	2. Medium	III
	Tall	II	III	3. Large

Figure 2. Body build classes.

As a result of the study, mean national norms are presented for assessment of height and weight of 20–70-year-old men and women.

Height-weight classifications compiled according to gender and age make it possible to classify the whole cohort and to associate body build with medical, health promotional and nutritional data.

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Address for correspondence:

Helje Kaarma Dr. Sc., Dr. med.
Centre for Physical Anthropology
Institute of Anatomy
Faculty of Medicine
University of Tartu
E-mail: antrop@ut.ee

Table 1. Mean values of height and weight for Estonian men aged 20–70 years (n=4034)

Age	N	Height				Weight			
		Min	Max	Mean	SD	Min	Max	Mean	SD
20	123	161.00	198.00	180.85	7.56	51.00	107.00	75.15	10.83
21	104	156.00	197.00	180.55	7.47	43.00	122.00	76.61	13.51
22	105	165.00	203.00	181.54	7.99	56.90	123.70	78.54	13.24
23	82	163.00	205.00	181.00	7.69	53.00	113.00	79.86	12.95
24	107	160.00	196.00	180.79	6.44	57.00	120.00	77.67	11.41
25	82	167.00	200.00	180.69	6.77	57.50	139.00	80.17	14.62
26	80	163.00	198.60	180.94	7.23	59.00	149.70	82.84	16.84
27	101	162.50	195.00	182.24	5.86	48.00	132.70	81.97	12.49
28	97	163.00	194.10	180.00	6.52	50.70	128.00	83.78	15.08
29	94	160.50	192.60	180.21	6.33	61.00	126.50	82.02	12.13
30	79	166.60	197.00	180.67	6.31	56.00	120.00	83.92	13.07
31	80	169.00	197.00	180.94	5.87	63.50	122.00	86.08	13.64
32	101	165.00	196.00	180.34	5.68	60.00	115.80	83.09	11.96
33	91	168.00	199.90	181.99	6.53	57.50	127.10	85.95	14.47
34	116	164.00	200.00	179.40	6.36	63.00	132.00	83.52	14.35
35	72	165.00	196.00	179.47	7.10	58.20	111.00	83.88	12.10
36	86	158.00	203.00	181.03	6.64	50.00	145.00	87.83	16.02
37	96	162.00	197.00	181.14	5.97	52.00	135.10	88.03	15.60
38	90	165.00	196.30	180.04	6.29	60.00	151.00	88.14	18.07
39	67	164.00	200.00	177.92	7.38	59.00	132.00	83.42	14.78
40	79	158.30	200.00	179.27	7.12	63.00	123.00	87.45	14.82
41	81	163.50	197.40	180.24	7.05	61.00	144.00	86.83	14.64
42	98	164.00	196.00	178.99	7.04	60.00	120.00	86.19	14.58
43	97	163.00	194.00	178.00	6.74	60.00	138.00	87.90	14.95
44	87	164.00	193.00	179.25	6.07	65.00	130.00	88.09	14.31
45	90	167.00	196.00	179.31	6.27	54.00	132.00	87.96	14.53
46	83	162.00	200.00	180.00	7.00	65.00	140.00	91.77	14.88
47	88	159.50	190.00	179.04	6.93	61.00	144.00	87.22	13.50
48	84	165.00	194.20	177.50	6.65	60.00	127.00	85.37	13.60
49	89	160.00	195.00	176.75	6.49	60.00	117.00	83.85	10.36
50	77	155.00	193.50	178.15	7.00	49.90	142.90	87.51	14.32
51	67	168.00	197.00	177.47	5.88	51.00	111.90	84.36	12.65
52	98	157.00	192.00	177.52	6.30	57.40	115.00	86.86	11.86
53	84	162.00	195.00	177.06	6.88	60.80	125.00	87.78	14.87

Age	N	Height				Weight			
		Min	Max	Mean	SD	Min	Max	Mean	SD
54	81	160.00	193.00	177.79	6.28	55.00	138.00	86.47	14.62
55	84	162.00	196.00	178.29	7.16	56.10	139.00	88.94	16.33
56	80	160.00	193.50	176.79	6.67	54.00	130.00	85.08	14.04
57	87	163.00	195.00	175.78	6.33	55.00	133.00	85.79	13.98
58	76	161.00	190.00	176.19	6.19	54.40	118.00	86.67	13.93
59	79	156.00	190.00	176.93	6.81	59.00	127.00	87.90	14.71
60	48	158.00	188.00	175.55	8.07	57.00	140.00	87.29	17.25
61	45	161.00	189.00	175.27	6.24	57.90	110.00	84.83	12.26
62	48	156.00	197.00	174.88	7.46	54.00	136.00	83.14	15.11
63	54	162.00	190.00	175.71	6.62	57.70	130.00	84.49	14.73
64	52	158.00	190.00	176.36	6.47	67.00	126.00	89.93	13.65
65	78	156.00	191.00	174.82	6.93	53.00	130.00	87.24	17.21
66	35	162.00	184.00	172.25	5.76	60.00	112.30	83.82	14.04
67	41	160.00	186.00	174.52	6.56	54.00	109.40	86.67	13.57
68	31	165.00	188.00	176.05	6.22	58.40	109.00	82.64	12.84
69	39	160.50	187.60	174.53	5.93	58.00	115.50	85.68	12.81
70	21	157.00	181.00	172.87	5.59	72.00	124.00	89.15	12.90

Table 2. Mean values of height and weight for Estonian women aged 20–70 (n=4587)

Age	N	Height				Weight			
		Min	Max	Mean	SD	Min	Max	Mean	SD
20	128	156.00	181.00	167.89	5.46	41.00	93.00	60.65	8.75
21	107	152.70	186.40	167.49	5.95	41.60	86.40	59.54	8.07
22	176	144.20	184.00	167.11	6.25	43.70	90.00	61.05	8.26
23	113	146.00	181.00	167.35	6.39	38.00	101.00	60.82	9.95
24	98	152.00	180.10	167.49	6.17	45.00	102.80	61.74	10.46
25	94	149.40	185.00	166.85	6.71	43.30	90.50	61.09	10.03
26	106	154.50	182.00	167.08	5.34	47.00	111.00	63.90	11.65
27	119	148.00	184.00	166.95	6.05	40.00	118.00	62.70	11.50
28	121	154.00	182.00	166.78	5.89	46.00	105.50	63.00	10.87
29	115	152.30	185.00	166.89	6.70	40.00	95.00	63.74	11.17
30	93	146.00	183.00	167.04	6.77	40.00	130.00	66.45	13.72
31	91	152.00	178.00	166.96	5.28	45.30	130.00	67.17	14.53
32	135	152.00	180.20	166.65	5.78	45.00	115.00	64.44	11.73
33	82	152.00	182.00	166.48	5.50	45.00	119.00	66.56	13.74
34	107	148.00	185.50	167.66	6.54	45.60	109.20	66.55	12.31

Age	N	Height				Weight			
		Min	Max	Mean	SD	Min	Max	Mean	SD
35	107	151.00	178.50	166.59	6.44	44.40	113.00	67.22	12.37
36	106	150.40	184.00	166.17	5.21	44.00	124.00	68.15	12.67
37	103	150.40	183.00	166.75	6.28	46.00	109.00	68.00	12.78
38	79	154.70	178.00	166.29	4.73	45.20	110.00	68.68	13.76
39	98	150.00	180.00	166.16	6.05	44.00	117.00	67.82	13.17
40	100	154.80	187.00	166.27	5.46	50.00	140.00	68.38	13.44
41	93	147.60	176.00	166.08	5.91	42.80	114.00	70.24	13.29
42	125	152.00	181.00	166.85	4.94	44.00	118.00	70.82	12.60
43	102	151.80	189.00	165.27	5.74	48.00	112.00	70.90	14.18
44	86	150.00	185.00	165.26	5.88	50.00	116.00	70.81	13.53
45	109	150.50	189.80	165.02	6.67	44.00	117.00	73.13	14.81
46	89	150.00	178.00	164.82	5.89	53.50	125.10	73.03	12.79
47	111	153.00	180.00	165.66	5.07	51.00	106.00	69.48	10.19
48	91	145.50	190.00	164.62	6.62	47.00	120.00	72.61	13.02
49	88	138.00	182.00	163.01	6.47	45.00	130.00	74.02	16.70
50	97	154.00	176.00	164.04	4.84	48.00	118.50	71.55	12.63
51	79	151.00	182.00	164.15	5.26	45.00	109.80	71.44	13.02
52	134	152.00	178.00	164.45	5.69	48.00	132.70	72.98	13.09
53	76	150.00	180.00	163.95	5.47	46.80	105.00	74.90	12.78
54	93	152.00	179.00	163.41	5.34	49.00	98.00	73.56	12.14
55	93	152.00	178.00	163.61	5.21	49.00	125.00	73.61	14.71
56	76	151.00	179.00	163.45	5.40	50.80	116.00	77.31	15.64
57	96	147.50	175.00	163.69	5.27	51.70	130.70	77.17	15.70
58	73	150.00	180.00	163.42	5.57	47.00	120.00	75.92	14.55
59	82	152.90	180.00	162.51	5.48	48.90	135.50	75.27	14.82
60	51	147.10	174.00	162.03	5.82	48.00	114.00	77.22	14.66
61	35	150.00	177.00	162.10	6.48	46.00	125.00	78.23	16.10
62	45	150.00	176.00	162.28	6.59	52.00	106.00	76.46	13.15
63	46	149.10	174.50	161.92	5.32	41.00	114.50	73.83	15.59
64	49	150.00	180.00	163.63	6.15	49.10	115.00	77.87	15.24
65	71	150.00	173.00	161.74	5.62	46.00	128.70	73.71	15.64
66	50	143.00	176.50	161.36	6.87	51.00	107.00	77.10	12.23
67	39	156.50	174.70	162.80	4.25	48.50	102.00	74.69	14.08
68	39	152.00	175.60	162.54	5.67	52.00	114.00	77.22	15.37
69	52	150.00	171.00	161.37	4.94	50.00	110.00	73.80	13.50
70	39	151.00	175.00	160.77	5.49	58.50	100.00	76.75	11.33

Table 3. Height-weight classification of Estonian men according to years of age (20–70 years, n=4034)

Age	Small			Medium	Large	Pycnomorphs			Leptomorphs			
	[min; mean-0.5SD]	[min; mean-0.5SD]	[mean+0.5SD; max]	[mean-0.5SD; mean+0.5SD]	[min; mean-0.5SD]	[min; mean-0.5SD]	II	III	I	II	III	
Height												
Weight												
20	161.00–177.06 51.00–69.72	177.07–184.62 69.73–80.56	184.63–198.00 80.57–107.00	[mean-0.5SD; mean+0.5SD]	[min; mean-0.5SD]	[min; mean-0.5SD]	161.00–177.06 69.73–80.56	161.00–177.06 80.57–107.00	177.07–184.62 80.57–107.00	177.07–184.62 51.00–69.72	184.63–198.00 51.00–69.72	[mean+0.5SD; max]
21	156.00–176.80 43.00–69.84	176.81–184.27 69.85–83.36	184.28–197.00 83.37–122.00	[mean-0.5SD; mean+0.5SD]	[min; mean-0.5SD]	[min; mean-0.5SD]	156.00–176.80 69.85–83.36	156.00–176.80 83.37–122.00	176.81–184.27 83.37–122.00	176.81–184.27 43.00–69.84	184.28–197.00 43.00–69.84	[mean+0.5SD; max]
22	165.00–177.54 56.90–71.91	177.55–185.53 71.92–85.15	185.54–203.00 85.16–123.70	[mean-0.5SD; mean+0.5SD]	[min; mean-0.5SD]	[min; mean-0.5SD]	165.00–177.54 71.92–85.15	165.00–177.54 85.16–123.70	177.55–185.53 85.16–123.70	177.55–185.53 56.90–71.91	185.54–203.00 56.90–71.91	[mean+0.5SD; max]
23	163.00–177.15 53.00–73.38	177.16–184.84 73.39–86.33	184.85–205.00 86.34–113.00	[mean-0.5SD; mean+0.5SD]	[min; mean-0.5SD]	[min; mean-0.5SD]	163.00–177.15 73.39–86.33	163.00–177.15 86.34–113.00	177.16–184.84 86.34–113.00	177.16–184.84 53.00–73.38	184.85–205.00 53.00–73.38	[mean+0.5SD; max]
24	160.00–177.56 57.00–71.96	177.57–184.00 71.97–83.37	184.01–196.00 83.38–120.00	[mean-0.5SD; mean+0.5SD]	[min; mean-0.5SD]	[min; mean-0.5SD]	160.00–177.56 71.97–83.37	160.00–177.56 83.38–120.00	177.57–184.00 83.38–120.00	177.57–184.00 57.00–71.96	184.01–196.00 57.00–71.96	[mean+0.5SD; max]
25	167.00–177.29 57.50–72.85	177.30–184.07 72.86–87.47	184.08–200.00 87.48–139.00	[mean-0.5SD; mean+0.5SD]	[min; mean-0.5SD]	[min; mean-0.5SD]	167.00–177.29 72.86–87.47	167.00–177.29 87.48–139.00	177.30–184.07 87.48–139.00	177.30–184.07 57.50–72.85	184.08–200.00 57.50–72.85	[mean+0.5SD; max]
26	163.00–177.32 59.00–74.41	177.33–184.54 74.42–91.25	184.55–198.60 91.26–149.70	[mean-0.5SD; mean+0.5SD]	[min; mean-0.5SD]	[min; mean-0.5SD]	163.00–177.32 74.42–91.25	163.00–177.32 91.26–149.70	177.33–184.54 91.26–149.70	177.33–184.54 59.00–74.41	184.55–198.60 59.00–74.41	[mean+0.5SD; max]
27	162.50–179.30 48.00–75.71	179.31–185.16 75.72–88.20	185.17–195.00 88.21–132.70	[mean-0.5SD; mean+0.5SD]	[min; mean-0.5SD]	[min; mean-0.5SD]	162.50–179.30 75.72–88.20	162.50–179.30 88.21–132.70	179.31–185.16 88.21–132.70	179.31–185.16 48.00–75.71	185.17–195.00 48.00–75.71	[mean+0.5SD; max]

Age	Small			Medium			Large			Pycnomorphs						Leptomorphs		
	[min; mean-0.5SD]	[min; mean-0.5SD]	[min; mean-0.5SD]	[mean-0.5SD; mean+0.5SD]	[mean-0.5SD; mean+0.5SD]	[mean-0.5SD; mean+0.5SD]	[mean+0.5SD; max]	[mean+0.5SD; max]	[mean+0.5SD; max]	I	II		III		I	II		III
											[min; mean-0.5SD]	[mean +0.5SD; max]	[min; mean-0.5SD]	[mean-0.5SD; mean+0.5SD]		[min; mean-0.5SD]	[mean+0.5SD; max]	
28	163.00-176.73 50.70-76.23	176.74-183.25 76.24-91.31	183.26-194.10 91.32-128.00	[mean+0.5SD; max]	[mean+0.5SD; max]	[mean+0.5SD; max]	163.00-176.73 76.24-91.31	163.00-176.73 91.32-128.00	176.74-183.25 91.32-128.00	176.74-183.25 50.70-76.23	[min; mean-0.5SD]	[mean +0.5SD; max]	[mean-0.5SD; mean+0.5SD]	[mean-0.5SD; mean+0.5SD]	183.26-194.10 50.70-76.23	183.26-194.10 50.70-76.23	[mean+0.5SD; max]	[mean+0.5SD; max]
29	160.50-177.04 61.00-75.95	177.05-183.36 75.96-88.07	183.37-192.60 88.08-126.50	[mean+0.5SD; max]	[mean+0.5SD; max]	[mean+0.5SD; max]	160.50-177.04 75.96-88.07	160.50-177.04 88.08-126.50	177.05-183.36 88.08-126.50	177.05-183.36 61.00-75.95	[min; mean-0.5SD]	[mean +0.5SD; max]	[mean-0.5SD; mean+0.5SD]	[mean-0.5SD; mean+0.5SD]	183.37-192.60 61.00-75.95	183.37-192.60 61.00-75.95	[mean+0.5SD; max]	[mean+0.5SD; max]
30	166.60-177.50 56.00-77.38	177.51-183.81 77.39-90.45	183.82-197.00 90.46-120.00	[mean+0.5SD; max]	[mean+0.5SD; max]	[mean+0.5SD; max]	166.60-177.50 77.39-90.45	166.60-177.50 90.46-120.00	177.51-183.81 90.46-120.00	177.51-183.81 56.00-77.38	[min; mean-0.5SD]	[mean +0.5SD; max]	[mean-0.5SD; mean+0.5SD]	[mean-0.5SD; mean+0.5SD]	183.82-197.00 56.00-77.38	183.82-197.00 56.00-77.38	[mean+0.5SD; max]	[mean+0.5SD; max]
31	169.00-177.99 63.50-79.25	178.00-183.86 79.26-92.89	183.87-197.00 92.90-122.00	[mean+0.5SD; max]	[mean+0.5SD; max]	[mean+0.5SD; max]	169.00-177.99 79.26-92.89	169.00-177.99 92.90-122.00	178.00-183.86 92.90-122.00	178.00-183.86 63.50-79.25	[min; mean-0.5SD]	[mean +0.5SD; max]	[mean-0.5SD; mean+0.5SD]	[mean-0.5SD; mean+0.5SD]	183.87-197.00 63.50-79.25	183.87-197.00 63.50-79.25	[mean+0.5SD; max]	[mean+0.5SD; max]
32	165.00-177.49 60.00-77.10	177.50-183.17 77.11-89.07	183.18-196.00 89.08-115.80	[mean+0.5SD; max]	[mean+0.5SD; max]	[mean+0.5SD; max]	165.00-177.49 77.11-89.07	165.00-177.49 89.08-115.80	177.50-183.17 89.08-115.80	177.50-183.17 60.00-77.10	[min; mean-0.5SD]	[mean +0.5SD; max]	[mean-0.5SD; mean+0.5SD]	[mean-0.5SD; mean+0.5SD]	183.18-196.00 60.00-77.10	183.18-196.00 60.00-77.10	[mean+0.5SD; max]	[mean+0.5SD; max]
33	168.00-178.71 57.50-78.71	178.72-184.24 78.72-93.18	184.25-199.90 93.19-127.10	[mean+0.5SD; max]	[mean+0.5SD; max]	[mean+0.5SD; max]	168.00-178.71 78.72-93.18	168.00-178.71 93.19-127.10	178.72-184.24 93.19-127.10	178.72-184.24 57.50-78.71	[min; mean-0.5SD]	[mean +0.5SD; max]	[mean-0.5SD; mean+0.5SD]	[mean-0.5SD; mean+0.5SD]	184.25-199.90 57.50-78.71	184.25-199.90 57.50-78.71	[mean+0.5SD; max]	[mean+0.5SD; max]
34	164.00-176.21 63.00-76.33	176.22-182.57 76.34-90.68	182.58-200.00 90.69-132.00	[mean+0.5SD; max]	[mean+0.5SD; max]	[mean+0.5SD; max]	164.00-176.21 76.34-90.68	164.00-176.21 90.69-132.00	176.22-182.57 90.69-132.00	176.22-182.57 63.00-76.33	[min; mean-0.5SD]	[mean +0.5SD; max]	[mean-0.5SD; mean+0.5SD]	[mean-0.5SD; mean+0.5SD]	182.58-200.00 63.00-76.33	182.58-200.00 63.00-76.33	[mean+0.5SD; max]	[mean+0.5SD; max]
35	165.00-175.90 58.20-77.82	175.91-183.01 77.83-89.92	183.02-196.00 89.93-111.00	[mean+0.5SD; max]	[mean+0.5SD; max]	[mean+0.5SD; max]	165.00-175.90 77.83-89.92	165.00-175.90 89.93-111.00	175.91-183.01 89.93-111.00	175.91-183.01 58.20-77.82	[min; mean-0.5SD]	[mean +0.5SD; max]	[mean-0.5SD; mean+0.5SD]	[mean-0.5SD; mean+0.5SD]	183.02-196.00 58.20-77.82	183.02-196.00 58.20-77.82	[mean+0.5SD; max]	[mean+0.5SD; max]
36	158.00-177.70 50.00-79.82	177.71-184.34 79.83-95.83	184.35-203.00 95.84-145.00	[mean+0.5SD; max]	[mean+0.5SD; max]	[mean+0.5SD; max]	158.00-177.70 79.83-95.83	158.00-177.70 95.84-145.00	177.71-184.34 95.84-145.00	177.71-184.34 50.00-79.82	[min; mean-0.5SD]	[mean +0.5SD; max]	[mean-0.5SD; mean+0.5SD]	[mean-0.5SD; mean+0.5SD]	184.35-203.00 50.00-79.82	184.35-203.00 50.00-79.82	[mean+0.5SD; max]	[mean+0.5SD; max]

Age	Small			Medium			Large			Pycnomorphs						Leptomorphs						
	[min; mean-0.5SD]			[mean-0.5SD; mean+0.5SD]			[mean+0.5SD; max]			I		II		III		I		II		III		
	[min; mean-0.5SD]	[min; mean-0.5SD]	[min; mean-0.5SD]	[mean-0.5SD; mean+0.5SD]	[mean-0.5SD; mean+0.5SD]	[mean-0.5SD; mean+0.5SD]	[mean+0.5SD; max]	[mean+0.5SD; max]	[mean+0.5SD; max]	[min; mean-0.5SD]	[mean+0.5SD; max]	[min; mean-0.5SD]	[mean+0.5SD; max]	[min; mean-0.5SD]	[mean+0.5SD; max]	[min; mean-0.5SD]	[mean+0.5SD; max]	[min; mean-0.5SD]	[mean+0.5SD; max]	[min; mean-0.5SD]	[mean+0.5SD; max]	
37	162.00-178.15	52.00-80.22	178.16-184.12	80.23-95.82	184.13-197.00	95.83-135.10	162.00-178.15	80.23-95.82	184.13-197.00	162.00-178.15	80.23-95.82	162.00-178.15	80.23-95.82	178.16-184.12	95.83-135.10	178.16-184.12	95.83-135.10	178.16-184.12	52.00-80.22	52.00-80.22	184.13-197.00	80.23-95.82
38	165.00-176.88	60.00-79.10	176.89-183.18	79.11-97.17	183.19-196.30	97.18-151.00	165.00-176.88	79.11-97.17	183.19-196.30	165.00-176.88	97.18-151.00	165.00-176.88	97.18-151.00	176.89-183.18	183.19-196.30	176.89-183.18	183.19-196.30	176.89-183.18	60.00-79.10	60.00-79.10	183.19-196.30	79.11-97.17
39	164.00-174.23	59.00-76.02	174.24-181.60	76.03-90.81	181.61-200.00	90.82-132.00	164.00-174.23	76.03-90.81	181.61-200.00	164.00-174.23	90.82-132.00	164.00-174.23	90.82-132.00	174.24-181.60	90.82-132.00	174.24-181.60	90.82-132.00	174.24-181.60	59.00-76.02	59.00-76.02	181.61-200.00	76.03-90.81
40	158.30-175.70	63.00-80.03	175.71-182.82	80.04-94.85	182.83-200.00	94.86-123.00	158.30-175.70	80.04-94.85	182.83-200.00	158.30-175.70	94.86-123.00	158.30-175.70	94.86-123.00	175.71-182.82	94.86-123.00	175.71-182.82	94.86-123.00	175.71-182.82	63.00-80.03	63.00-80.03	182.83-200.00	80.04-94.85
41	163.50-176.70	61.00-79.50	176.71-183.75	79.51-94.14	183.76-197.40	94.15-144.00	163.50-176.70	79.51-94.14	183.76-197.40	163.50-176.70	94.15-144.00	163.50-176.70	94.15-144.00	176.71-183.75	94.15-144.00	176.71-183.75	94.15-144.00	176.71-183.75	61.00-79.50	61.00-79.50	183.76-197.40	79.51-94.14
42	164.00-175.46	60.00-78.89	175.47-182.50	78.90-93.47	182.51-196.00	93.48-120.00	164.00-175.46	78.90-93.47	182.51-196.00	164.00-175.46	93.48-120.00	164.00-175.46	93.48-120.00	175.47-182.50	93.48-120.00	175.47-182.50	93.48-120.00	175.47-182.50	60.00-78.89	60.00-78.89	182.51-196.00	78.90-93.47
43	163.00-174.62	60.00-80.41	174.63-181.36	80.42-95.37	181.37-194.00	95.38-138.00	163.00-174.62	80.42-95.37	181.37-194.00	163.00-174.62	95.38-138.00	163.00-174.62	95.38-138.00	174.63-181.36	95.38-138.00	174.63-181.36	95.38-138.00	174.63-181.36	60.00-80.41	60.00-80.41	181.37-194.00	80.42-95.37
44	164.00-176.20	65.00-80.92	176.21-182.27	80.93-95.23	182.28-193.00	95.24-130.00	164.00-176.20	80.93-95.23	182.28-193.00	164.00-176.20	95.24-130.00	164.00-176.20	95.24-130.00	176.21-182.27	95.24-130.00	176.21-182.27	95.24-130.00	176.21-182.27	65.00-80.92	65.00-80.92	182.28-193.00	80.93-95.23
45	167.00-176.17	54.00-80.69	176.18-182.44	80.70-95.21	182.45-196.00	95.22-132.00	167.00-176.17	80.70-95.21	182.45-196.00	167.00-176.17	95.22-132.00	167.00-176.17	95.22-132.00	176.18-182.44	95.22-132.00	176.18-182.44	95.22-132.00	176.18-182.44	54.00-80.69	54.00-80.69	182.45-196.00	80.70-95.21

Age	Small			Medium			Large			Pycnomorphs			Leptomorphs		
	[min; mean-0.5SD]	[min; mean-0.5SD]	[min; mean-0.5SD]	[mean-0.5SD; mean+0.5SD]	[mean-0.5SD; mean+0.5SD]	[mean-0.5SD; mean+0.5SD]	[mean+0.5SD; max]	[mean+0.5SD; max]	[mean+0.5SD; max]	I	II	III	[min; mean-0.5SD]	[min; mean-0.5SD]	[min-0.5SD; min+0.5SD]
46	162.00-176.49 65.00-84.32	176.50-183.49 84.33-99.19	183.50-200.00 99.20-140.00	[mean+0.5SD; max]	[mean+0.5SD; max]	[mean+0.5SD; max]	162.00-176.49 84.33-99.19	162.00-176.49 99.20-140.00	176.50-183.49 99.20-140.00	176.50-183.49 65.00-84.32	183.50-200.00 65.00-84.32	183.50-200.00 84.33-99.19	[mean-0.5SD; mean+0.5SD]	[mean-0.5SD; mean+0.5SD]	[mean+0.5SD; max]
47	159.50-175.56 61.00-80.46	175.57-182.49 80.47-93.87	182.50-190.00 93.88-144.00	[mean+0.5SD; max]	[mean+0.5SD; max]	[mean+0.5SD; max]	159.50-175.56 80.47-93.87	159.50-175.56 93.88-144.00	175.57-182.49 93.88-144.00	175.57-182.49 61.00-80.46	182.50-190.00 61.00-80.46	182.50-190.00 80.47-93.87	[mean-0.5SD; mean+0.5SD]	[mean-0.5SD; mean+0.5SD]	[min-0.5SD; min+0.5SD]
48	165.00-174.17 60.00-78.56	174.18-180.82 78.57-92.17	180.83-194.20 92.18-127.00	[mean+0.5SD; max]	[mean+0.5SD; max]	[mean+0.5SD; max]	165.00-174.17 78.57-92.17	165.00-174.17 92.18-127.00	174.18-180.82 92.18-127.00	174.18-180.82 60.00-78.56	180.83-194.20 60.00-78.56	180.83-194.20 78.57-92.17	[mean-0.5SD; mean+0.5SD]	[mean-0.5SD; mean+0.5SD]	[min-0.5SD; min+0.5SD]
49	160.00-173.50 60.00-78.66	173.51-179.99 78.67-89.02	180.00-195.00 89.03-117.00	[mean+0.5SD; max]	[mean+0.5SD; max]	[mean+0.5SD; max]	160.00-173.50 78.67-89.02	160.00-173.50 89.03-117.00	173.51-179.99 89.03-117.00	173.51-179.99 60.00-78.66	180.00-195.00 60.00-78.66	180.00-195.00 78.67-89.02	[mean-0.5SD; mean+0.5SD]	[mean-0.5SD; mean+0.5SD]	[min-0.5SD; min+0.5SD]
50	155.00-174.64 49.90-80.34	174.65-181.64 80.35-94.65	181.65-193.50 94.66-142.90	[mean+0.5SD; max]	[mean+0.5SD; max]	[mean+0.5SD; max]	155.00-174.64 80.35-94.65	155.00-174.64 94.66-142.90	174.65-181.64 94.66-142.90	174.65-181.64 49.90-80.34	181.65-193.50 49.90-80.34	181.65-193.50 80.35-94.65	[mean-0.5SD; mean+0.5SD]	[mean-0.5SD; mean+0.5SD]	[min-0.5SD; min+0.5SD]
51	168.00-174.52 51.00-78.03	174.53-180.41 78.04-90.68	180.42-197.00 90.69-111.90	[mean+0.5SD; max]	[mean+0.5SD; max]	[mean+0.5SD; max]	168.00-174.52 78.04-90.68	168.00-174.52 90.69-111.90	174.53-180.41 90.69-111.90	174.53-180.41 51.00-78.03	180.42-197.00 51.00-78.03	180.42-197.00 78.04-90.68	[mean-0.5SD; mean+0.5SD]	[mean-0.5SD; mean+0.5SD]	[min-0.5SD; min+0.5SD]
52	157.00-174.36 57.40-80.92	174.37-180.66 80.93-92.78	180.67-192.00 92.79-115.00	[mean+0.5SD; max]	[mean+0.5SD; max]	[mean+0.5SD; max]	157.00-174.36 80.93-92.78	157.00-174.36 92.79-115.00	174.37-180.66 92.79-115.00	174.37-180.66 57.40-80.92	180.67-192.00 57.40-80.92	180.67-192.00 80.93-92.78	[mean-0.5SD; mean+0.5SD]	[mean-0.5SD; mean+0.5SD]	[min-0.5SD; min+0.5SD]
53	162.00-173.61 60.80-80.34	173.62-180.50 80.35-95.20	180.51-195.00 95.21-125.00	[mean+0.5SD; max]	[mean+0.5SD; max]	[mean+0.5SD; max]	162.00-173.61 80.35-95.20	162.00-173.61 95.21-125.00	173.62-180.50 95.21-125.00	173.62-180.50 60.80-80.34	180.51-195.00 60.80-80.34	180.51-195.00 80.35-95.20	[mean-0.5SD; mean+0.5SD]	[mean-0.5SD; mean+0.5SD]	[min-0.5SD; min+0.5SD]
54	160.00-174.65 55.00-79.15	174.66-180.92 79.16-93.77	180.93-193.00 93.78-138.00	[mean+0.5SD; max]	[mean+0.5SD; max]	[mean+0.5SD; max]	160.00-174.65 79.16-93.77	160.00-174.65 93.78-138.00	174.66-180.92 93.78-138.00	174.66-180.92 55.00-79.15	180.93-193.00 55.00-79.15	180.93-193.00 79.16-93.77	[mean-0.5SD; mean+0.5SD]	[mean-0.5SD; mean+0.5SD]	[min-0.5SD; min+0.5SD]

Age	Small	Medium	Large	Pycnomorphs			Leptomorphs		
				I	II	III	I	II	III
Height	[min; mean-0.5SD]	[mean-0.5SD; mean+0.5SD]	[mean+0.5SD; max]	[min; mean-0.5SD]	[min; mean-0.5SD]	[mean-0.5SD; mean+0.5SD]	[mean-0.5SD; mean+0.5SD]	[mean-0.5SD; mean+0.5SD]	[mean+0.5SD; max]
Weight	[min; mean-0.5SD]	[mean-0.5SD; mean+0.5SD]	[mean+0.5SD; max]	[mean-0.5SD; mean+0.5SD]	[mean+0.5SD; max]	[mean+0.5SD; max]	[min; mean-0.5SD]	[min; mean-0.5SD]	[min-0.5SD; min+0.5SD]
64	158.00-173.12 67.00-83.09	173.13-179.58 83.10-96.74	179.59-190.00 96.75-126.00	158.00-173.12 83.10-96.74	158.00-173.12 96.75-126.00	173.13-179.58 96.75-126.00	173.13-179.58 67.00-83.09	179.59-190.00 67.00-83.09	179.59-190.00 83.10-96.74
65	156.00-171.35 53.00-78.63	171.36-178.28 78.64-95.83	178.29-191.00 95.84-130.00	156.00-171.35 78.64-95.83	156.00-171.35 95.84-130.00	171.36-178.28 95.84-130.00	171.36-178.28 53.00-78.63	178.29-191.00 53.00-78.63	178.29-191.00 78.64-95.83
66	162.00-169.36 60.00-76.80	169.37-175.12 76.81-90.83	175.13-184.00 90.84-112.30	162.00-169.36 76.81-90.83	162.00-169.36 90.84-112.30	169.37-175.12 90.84-112.30	169.37-175.12 60.00-76.80	175.13-184.00 60.00-76.80	175.13-184.00 76.81-90.83
67	160.00-171.23 54.00-79.88	171.24-177.79 79.89-93.45	177.80-186.00 93.46-109.40	160.00-171.23 79.89-93.45	160.00-171.23 93.46-109.40	171.24-177.79 93.46-109.40	171.24-177.79 54.00-79.88	177.80-186.00 54.00-79.88	177.80-186.00 79.89-93.45
68	165.00-172.93 58.40-76.21	172.94-179.15 76.22-89.05	179.16-188.00 89.06-109.00	165.00-172.93 76.22-89.05	165.00-172.93 89.06-109.00	172.94-179.15 89.06-109.00	172.94-179.15 58.40-76.21	179.16-188.00 58.40-76.21	179.16-188.00 76.22-89.05
69	160.50-171.55 58.00-79.27	171.56-177.48 79.28-92.08	177.49-187.60 92.09-115.50	160.50-171.55 79.28-92.08	160.50-171.55 92.09-115.50	171.56-177.48 92.09-115.50	171.56-177.48 58.00-79.27	177.49-187.60 58.00-79.27	177.49-187.60 79.28-92.08
70	157.00-170.06 72.00-82.69	170.07-175.66 82.70-96.59	175.67-181.00 96.60-124.00	157.00-170.06 82.70-96.59	157.00-170.06 96.60-124.00	170.07-175.66 96.60-124.00	170.07-175.66 72.00-82.69	175.67-181.00 72.00-82.69	175.67-181.00 82.70-96.59

Table 4. Height-weight classification of Estonian women according to years of age (20–70 years, n=4587)

Age	Small			Medium			Large			Pycnomorphs			Leptomorphs		
	[min; mean -0.5SD]	[min; mean -0.5SD]	[mean +0.5SD; max]	[min; mean -0.5SD]	[min; mean -0.5SD]	[mean +0.5SD; max]	[min; mean -0.5SD]	[min; mean -0.5SD]	[mean +0.5SD; max]	I	II	III	I	II	III
Height	[min; mean -0.5SD]	[min; mean -0.5SD]	[mean +0.5SD; max]	[min; mean -0.5SD]	[min; mean -0.5SD]	[mean +0.5SD; max]	[min; mean -0.5SD]	[min; mean -0.5SD]	[mean +0.5SD; max]	[mean -0.5SD; mean +0.5SD]	[min; mean -0.5SD]	[min; mean -0.5SD]	[mean +0.5SD; max]	[mean -0.5SD; mean +0.5SD]	[mean +0.5SD; max]
20	156.00–165.15 41.00–56.26	165.16–170.61 56.27–65.02	170.62–181.00 65.03–93.00	156.00–165.15 56.27–65.02	156.00–165.15 65.03–93.00	165.16–170.61 65.03–93.00	165.16–170.61 65.03–93.00	156.00–165.15 65.03–93.00	165.16–170.61 65.03–93.00	165.16–170.61 41.00–56.26	170.62–181.00 41.00–56.26	170.62–181.00 41.00–56.26	165.16–170.61 41.00–56.26	170.62–181.00 41.00–56.26	170.62–181.00 56.27–65.02
21	[min; mean -0.5SD]	[min; mean -0.5SD]	[mean +0.5SD; max]	[min; mean -0.5SD]	[min; mean -0.5SD]	[mean +0.5SD; max]	[min; mean -0.5SD]	[min; mean -0.5SD]	[mean +0.5SD; max]	[mean -0.5SD; mean +0.5SD]	[min; mean -0.5SD]	[min; mean -0.5SD]	[mean +0.5SD; max]	[mean -0.5SD; mean +0.5SD]	[mean +0.5SD; max]
22	144.20–163.97 43.70–56.90	163.98–170.22 56.91–65.17	170.23–184.00 65.18–90.00	144.20–163.97 56.91–65.17	144.20–163.97 65.18–90.00	163.98–170.22 65.18–90.00	163.98–170.22 65.18–90.00	144.20–163.97 65.18–90.00	163.98–170.22 65.18–90.00	144.20–163.97 43.70–56.90	170.23–184.00 43.70–56.90	170.23–184.00 43.70–56.90	163.98–170.22 43.70–56.90	170.23–184.00 43.70–56.90	170.23–184.00 56.91–65.17
23	[min; mean -0.5SD]	[min; mean -0.5SD]	[mean +0.5SD; max]	[min; mean -0.5SD]	[min; mean -0.5SD]	[mean +0.5SD; max]	[min; mean -0.5SD]	[min; mean -0.5SD]	[mean +0.5SD; max]	[mean -0.5SD; mean +0.5SD]	[min; mean -0.5SD]	[min; mean -0.5SD]	[mean +0.5SD; max]	[mean -0.5SD; mean +0.5SD]	[mean +0.5SD; max]
24	146.00–164.14 38.00–55.83	164.15–170.53 55.84–65.78	170.54–181.00 65.79–101	146.00–164.14 55.84–65.78	146.00–164.14 65.79–101	164.15–170.53 65.79–101	164.15–170.53 65.79–101	146.00–164.14 65.79–101	164.15–170.53 65.79–101	146.00–164.14 38.00–55.83	170.54–181.00 38.00–55.83	170.54–181.00 38.00–55.83	164.15–170.53 38.00–55.83	170.54–181.00 38.00–55.83	170.54–181.00 55.84–65.78
25	[min; mean -0.5SD]	[min; mean -0.5SD]	[mean +0.5SD; max]	[min; mean -0.5SD]	[min; mean -0.5SD]	[mean +0.5SD; max]	[min; mean -0.5SD]	[min; mean -0.5SD]	[mean +0.5SD; max]	[mean -0.5SD; mean +0.5SD]	[min; mean -0.5SD]	[min; mean -0.5SD]	[mean +0.5SD; max]	[mean -0.5SD; mean +0.5SD]	[mean +0.5SD; max]
26	152.00–164.39 45.00–56.50	164.40–170.57 56.51–66.96	170.58–180.10 66.97–102.80	152.00–164.39 56.51–66.96	152.00–164.39 66.97–102.80	164.40–170.57 66.97–102.80	164.40–170.57 66.97–102.80	152.00–164.39 66.97–102.80	164.40–170.57 66.97–102.80	152.00–164.39 45.00–56.50	170.58–180.10 45.00–56.50	170.58–180.10 45.00–56.50	164.40–170.57 45.00–56.50	170.58–180.10 45.00–56.50	170.58–180.10 56.51–66.96
27	[min; mean -0.5SD]	[min; mean -0.5SD]	[mean +0.5SD; max]	[min; mean -0.5SD]	[min; mean -0.5SD]	[mean +0.5SD; max]	[min; mean -0.5SD]	[min; mean -0.5SD]	[mean +0.5SD; max]	[mean -0.5SD; mean +0.5SD]	[min; mean -0.5SD]	[min; mean -0.5SD]	[mean +0.5SD; max]	[mean -0.5SD; mean +0.5SD]	[mean +0.5SD; max]
28	149.40–163.49 43.30–56.06	163.50–170.20 56.07–66.10	170.21–185.00 66.11–90.50	149.40–163.49 56.07–66.10	149.40–163.49 66.11–90.50	163.50–170.20 66.11–90.50	163.50–170.20 66.11–90.50	149.40–163.49 66.11–90.50	163.50–170.20 66.11–90.50	149.40–163.49 43.30–56.06	170.21–185.00 43.30–56.06	170.21–185.00 43.30–56.06	163.50–170.20 43.30–56.06	170.21–185.00 43.30–56.06	170.21–185.00 56.07–66.10
29	[min; mean -0.5SD]	[min; mean -0.5SD]	[mean +0.5SD; max]	[min; mean -0.5SD]	[min; mean -0.5SD]	[mean +0.5SD; max]	[min; mean -0.5SD]	[min; mean -0.5SD]	[mean +0.5SD; max]	[mean -0.5SD; mean +0.5SD]	[min; mean -0.5SD]	[min; mean -0.5SD]	[mean +0.5SD; max]	[mean -0.5SD; mean +0.5SD]	[mean +0.5SD; max]
30	154.50–164.40 47.00–58.06	164.41–169.74 58.07–69.71	169.75–182.00 69.72–111.00	154.50–164.40 58.07–69.71	154.50–164.40 69.72–111.00	164.41–169.74 69.72–111.00	164.41–169.74 69.72–111.00	154.50–164.40 69.72–111.00	164.41–169.74 69.72–111.00	154.50–164.40 47.00–58.06	169.75–182.00 47.00–58.06	169.75–182.00 47.00–58.06	164.41–169.74 47.00–58.06	169.75–182.00 47.00–58.06	169.75–182.00 58.07–69.71
31	[min; mean -0.5SD]	[min; mean -0.5SD]	[mean +0.5SD; max]	[min; mean -0.5SD]	[min; mean -0.5SD]	[mean +0.5SD; max]	[min; mean -0.5SD]	[min; mean -0.5SD]	[mean +0.5SD; max]	[mean -0.5SD; mean +0.5SD]	[min; mean -0.5SD]	[min; mean -0.5SD]	[mean +0.5SD; max]	[mean -0.5SD; mean +0.5SD]	[mean +0.5SD; max]
32	148.00–163.92 40.00–56.94	163.93–169.97 56.95–68.44	169.98–184.00 68.45–118.00	148.00–163.92 56.95–68.44	148.00–163.92 68.45–118.00	163.93–169.97 68.45–118.00	163.93–169.97 68.45–118.00	148.00–163.92 68.45–118.00	163.93–169.97 68.45–118.00	148.00–163.92 40.00–56.94	169.98–184.00 40.00–56.94	169.98–184.00 40.00–56.94	163.93–169.97 40.00–56.94	169.98–184.00 40.00–56.94	169.98–184.00 56.95–68.44

		Pycnomorphs						Leptomorphs		
Age	Small	Medium	Large	I	II	III	I	II	III	
Height	[min; mean -0.5SD]	[mean -0.5SD; mean +0.5SD]	[mean +0.5SD; max]	[min; mean -0.5SD]	[min; mean -0.5SD]	[mean -0.5SD; mean +0.5SD]	[mean -0.5SD; mean +0.5SD]	[mean +0.5SD; max]	[mean +0.5SD; max]	
Weight	[min; mean -0.5SD]	[mean -0.5SD; mean +0.5SD]	[mean +0.5SD; max]	[mean -0.5SD; mean +0.5SD]	[mean +0.5SD; max]	[mean +0.5SD; max]	[min; mean -0.5SD]	[min; Mean -0.5SD]	[mean -0.5SD; mean +0.5SD]	
28	154.00-163.82 46.00-57.55	163.83-169.72 57.56-68.42	169.73-182.00 68.43-105.50	154.00-163.82 57.56-68.42	154.00-163.82 68.43-105.50	163.83-169.72 68.43-105.50	163.83-169.72 46.00-57.55	169.73-182.00 46.00-57.55	169.73-182.00 57.56-68.42	
29	152.30-163.53 40.00-58.14	163.54-170.23 58.15-69.31	170.24-185.00 69.32-95.00	152.30-163.53 58.15-69.31	152.30-163.53 69.32-95.00	163.54-170.23 69.32-95.00	163.54-170.23 40.00-58.14	170.24-185.00 40.00-58.14	170.24-185.00 58.15-69.31	
30	146.00-163.64 40.00-59.58	163.65-170.42 59.59-73.30	170.43-183.00 73.31-130.00	146.00-163.64 59.59-73.30	146.00-163.64 73.31-130.00	163.65-170.42 73.31-130.00	163.65-170.42 40.00-59.58	170.43-183.00 40.00-59.58	170.43-183.00 59.59-73.30	
31	152.00-164.32 45.30-59.90	164.33-169.59 59.91-74.43	169.60-178.00 74.44-130.00	152.00-164.32 59.91-74.43	152.00-164.32 74.44-130.00	164.33-169.59 74.44-130.00	164.33-169.59 45.30-59.90	169.60-178.00 45.30-59.90	169.60-178.00 59.91-74.43	
32	152.00-163.75 45.00-58.57	163.76-169.54 58.58-70.29	169.55-180.20 70.30-115.00	152.00-163.75 58.58-70.29	152.00-163.75 70.30-115.00	163.76-169.54 70.30-115.00	163.76-169.54 45.00-58.57	169.55-180.20 45.00-58.57	169.55-180.20 58.58-70.29	
33	152.00-163.72 45.00-59.68	163.73-169.22 59.69-73.42	169.23-182.00 73.43-119.00	152.00-163.72 59.69-73.42	152.00-163.72 73.43-119.00	163.73-169.22 73.43-119.00	163.73-169.22 45.00-59.68	169.23-182.00 45.00-59.68	169.23-182.00 59.69-73.42	
34	148.00-164.38 45.60-60.38	164.39-170.92 60.39-72.70	170.93-185.5 72.71-109.20	148.00-164.38 60.39-72.70	148.00-164.38 72.71-109.20	164.39-170.92 72.71-109.20	164.39-170.92 45.60-60.38	170.93-185.5 45.60-60.38	170.93-185.5 60.39-72.70	
35	151.00-163.36 44.40-61.02	163.37-169.80 61.03-73.39	169.81-178.50 73.40-113.00	151.00-163.36 61.03-73.39	151.00-163.36 73.40-113.00	163.37-169.80 73.40-113.00	163.37-169.80 44.40-61.02	169.81-178.50 44.40-61.02	169.81-178.50 61.03-73.39	
36	150.40-163.56 44.00-61.81	163.57-168.76 61.82-74.48	168.77-184.00 74.49-124.00	150.40-163.56 61.82-74.48	150.40-163.56 74.49-124.00	163.57-168.76 74.49-124.00	163.57-168.76 44.00-61.81	168.77-184.00 44.00-61.81	168.77-184.00 61.82-74.48	

Age	Small			Medium			Large			Pycnomorphs						Leptomorphs							
	[min; mean -0.5SD]	[min; mean -0.5SD]	[min; mean -0.5SD]	[mean -0.5SD; mean +0.5SD]	[mean -0.5SD; mean +0.5SD]	[mean -0.5SD; mean +0.5SD]	[mean +0.5SD; max]	[mean +0.5SD; max]	[mean +0.5SD; max]	I	II	III	I	II	III	I	II	III	I	II	III		
37	150.40-163.60 46.00-61.60	150.40-163.60 61.61-74.38	150.40-163.60 74.39-109.00	163.61-169.88 61.61-74.38	163.61-169.88 74.39-109.00	163.61-169.88 74.39-109.00	169.89-183.00 74.39-109.00	169.89-183.00 74.39-109.00	169.89-183.00 74.39-109.00	163.61-169.88 46.00-61.60	150.40-163.60 74.39-109.00	150.40-163.60 74.39-109.00	163.61-169.88 74.39-109.00	163.61-169.88 46.00-61.60	150.40-163.60 74.39-109.00	163.61-169.88 46.00-61.60	169.89-183.00 46.00-61.60	169.89-183.00 46.00-61.60	169.89-183.00 46.00-61.60	163.61-169.88 46.00-61.60	150.40-163.60 74.39-109.00	150.40-163.60 74.39-109.00	163.61-169.88 74.39-109.00
38	154.70-163.92 45.20-61.79	154.70-163.92 61.80-75.55	154.70-163.92 75.56-110.00	163.93-168.65 61.80-75.55	163.93-168.65 61.80-75.55	163.93-168.65 75.56-110.00	168.66-178.00 75.56-110.00	168.66-178.00 75.56-110.00	168.66-178.00 75.56-110.00	154.70-163.92 61.80-75.55	154.70-163.92 75.56-110.00	154.70-163.92 75.56-110.00	163.93-168.65 75.56-110.00	163.93-168.65 45.20-61.79	154.70-163.92 75.56-110.00	163.93-168.65 45.20-61.79	168.66-178.00 45.20-61.79	168.66-178.00 45.20-61.79	168.66-178.00 45.20-61.79	154.70-163.92 45.20-61.79	154.70-163.92 45.20-61.79	163.93-168.65 45.20-61.79	
39	150.00-163.13 44.00-61.23	150.00-163.13 61.24-74.40	150.00-163.13 74.41-117.00	163.14-169.18 61.24-74.40	163.14-169.18 61.24-74.40	163.14-169.18 74.41-117.00	169.19-180.00 74.41-117.00	169.19-180.00 74.41-117.00	169.19-180.00 74.41-117.00	150.00-163.13 44.00-61.23	150.00-163.13 74.41-117.00	150.00-163.13 74.41-117.00	163.14-169.18 74.41-117.00	163.14-169.18 44.00-61.23	150.00-163.13 74.41-117.00	163.14-169.18 44.00-61.23	169.19-180.00 44.00-61.23	169.19-180.00 44.00-61.23	169.19-180.00 44.00-61.23	150.00-163.13 44.00-61.23	150.00-163.13 44.00-61.23	163.14-169.18 44.00-61.23	
40	154.80-163.53 50.00-61.65	154.80-163.53 61.66-75.09	154.80-163.53 75.10-140.00	163.54-168.99 61.66-75.09	163.54-168.99 61.66-75.09	163.54-168.99 75.10-140.00	169.00-187.00 75.10-140.00	169.00-187.00 75.10-140.00	169.00-187.00 75.10-140.00	154.80-163.53 50.00-61.65	154.80-163.53 75.10-140.00	154.80-163.53 75.10-140.00	163.54-168.99 75.10-140.00	163.54-168.99 50.00-61.65	154.80-163.53 75.10-140.00	163.54-168.99 50.00-61.65	169.00-187.00 50.00-61.65	169.00-187.00 50.00-61.65	169.00-187.00 50.00-61.65	154.80-163.53 50.00-61.65	154.80-163.53 50.00-61.65	163.54-168.99 50.00-61.65	
41	147.60-163.11 42.80-63.58	147.60-163.11 63.59-76.88	147.60-163.11 76.89-114.00	163.12-169.02 63.59-76.88	163.12-169.02 63.59-76.88	163.12-169.02 76.89-114.00	169.03-176.00 76.89-114.00	169.03-176.00 76.89-114.00	169.03-176.00 76.89-114.00	147.60-163.11 42.80-63.58	147.60-163.11 76.89-114.00	147.60-163.11 76.89-114.00	163.12-169.02 76.89-114.00	163.12-169.02 42.80-63.58	147.60-163.11 76.89-114.00	163.12-169.02 42.80-63.58	169.03-176.00 42.80-63.58	169.03-176.00 42.80-63.58	169.03-176.00 42.80-63.58	147.60-163.11 42.80-63.58	147.60-163.11 42.80-63.58	163.12-169.02 42.80-63.58	
42	152.00-164.37 44.00-64.51	152.00-164.37 64.52-77.11	152.00-164.37 77.12-118.00	164.38-169.31 64.52-77.11	164.38-169.31 64.52-77.11	164.38-169.31 77.12-118.00	169.32-181.00 77.12-118.00	169.32-181.00 77.12-118.00	169.32-181.00 77.12-118.00	152.00-164.37 44.00-64.51	152.00-164.37 77.12-118.00	152.00-164.37 77.12-118.00	164.38-169.31 77.12-118.00	164.38-169.31 44.00-64.51	152.00-164.37 77.12-118.00	164.38-169.31 44.00-64.51	169.32-181.00 44.00-64.51	169.32-181.00 44.00-64.51	169.32-181.00 44.00-64.51	152.00-164.37 44.00-64.51	152.00-164.37 44.00-64.51	164.38-169.31 44.00-64.51	
43	151.80-162.39 48.00-63.80	151.80-162.39 63.81-77.98	151.80-162.39 77.99-112.00	162.40-168.13 63.81-77.98	162.40-168.13 63.81-77.98	162.40-168.13 77.99-112.00	168.1-189.00 77.99-112.00	168.1-189.00 77.99-112.00	168.1-189.00 77.99-112.00	151.80-162.39 48.00-63.80	151.80-162.39 77.99-112.00	151.80-162.39 77.99-112.00	162.40-168.13 77.99-112.00	162.40-168.13 48.00-63.80	151.80-162.39 77.99-112.00	162.40-168.13 48.00-63.80	168.1-189.00 48.00-63.80	168.1-189.00 48.00-63.80	168.1-189.00 48.00-63.80	151.80-162.39 48.00-63.80	151.80-162.39 48.00-63.80	162.40-168.13 48.00-63.80	
44	150.00-162.32 50.00-64.03	150.00-162.32 64.04-77.57	150.00-162.32 77.58-116.00	162.33-168.19 64.04-77.57	162.33-168.19 64.04-77.57	162.33-168.19 77.58-116.00	168.20-185.00 77.58-116.00	168.20-185.00 77.58-116.00	168.20-185.00 77.58-116.00	150.00-162.32 50.00-64.03	150.00-162.32 77.58-116.00	150.00-162.32 77.58-116.00	162.33-168.19 77.58-116.00	162.33-168.19 50.00-64.03	150.00-162.32 77.58-116.00	162.33-168.19 50.00-64.03	168.20-185.00 50.00-64.03	168.20-185.00 50.00-64.03	168.20-185.00 50.00-64.03	150.00-162.32 50.00-64.03	150.00-162.32 50.00-64.03	162.33-168.19 50.00-64.03	
45	150.50-161.68 44.00-65.71	150.50-161.68 65.72-80.53	150.50-161.68 80.54-117.00	161.69-168.34 65.72-80.53	161.69-168.34 65.72-80.53	161.69-168.34 80.54-117.00	168.35-189.90 80.54-117.00	168.35-189.90 80.54-117.00	168.35-189.90 80.54-117.00	150.50-161.68 44.00-65.71	150.50-161.68 80.54-117.00	150.50-161.68 80.54-117.00	161.69-168.34 80.54-117.00	161.69-168.34 44.00-65.71	150.50-161.68 80.54-117.00	161.69-168.34 44.00-65.71	168.35-189.90 44.00-65.71	168.35-189.90 44.00-65.71	168.35-189.90 44.00-65.71	150.50-161.68 44.00-65.71	150.50-161.68 44.00-65.71	161.69-168.34 44.00-65.71	

		Pycnomorphs			Leptomorphs				
Age	Small	Medium	Large	I	II	III	I	II	III
Height	[min; mean -0.5SD]	[mean -0.5SD; mean +0.5SD]	[mean +0.5SD; max]	[min; mean -0.5SD]	[min; mean -0.5SD]	[mean -0.5SD; mean +0.5SD]	[mean -0.5SD; mean +0.5SD]	[mean +0.5SD; max]	[mean +0.5SD; max]
Weight	[min; mean -0.5SD]	[mean -0.5SD; mean +0.5SD]	[mean +0.5SD; max]	[mean -0.5SD; mean +0.5SD]	[mean +0.5SD; max]	[mean +0.5SD; max]	[min; mean -0.5SD]	[min; Mean -0.5SD]	[mean -0.5SD; mean +0.5SD]
46	150.00-161.87 53.50-66.62	161.88-167.76 66.63-79.41	167.77-178.00 79.42-125.10	150.00-161.87 66.63-79.41	150.00-161.87 79.42-125.10	161.88-167.76 79.42-125.10	161.88-167.76 53.50-66.62	167.77-178.00 53.50-66.62	167.77-178.00 66.63-79.41
47	153.00-163.11 51.00-64.37	163.12-168.19 64.38-74.57	168.20-180.00 74.58-106.00	153.00-163.11 64.38-74.57	153.00-163.11 74.58-106.00	163.12-168.19 74.58-106.00	163.12-168.19 51.00-64.37	168.20-180.00 51.00-64.37	168.20-180.00 64.38-74.57
48	145.50-161.30 47.00-66.09	161.31-167.92 66.10-79.11	167.93-190.00 79.12-120.00	145.50-161.30 66.10-79.11	145.50-161.30 79.12-120.00	161.31-167.92 79.12-120.00	161.31-167.92 47.00-66.09	167.93-190.00 47.00-66.09	167.93-190.00 66.10-79.11
49	138.00-159.76 45.00-65.66	159.77-166.23 65.67-82.36	166.24-182.00 82.36-130.00	138.00-159.76 65.67-82.36	138.00-159.76 82.36-130.00	159.77-166.23 82.36-130.00	159.77-166.23 45.00-65.66	166.24-182.00 45.00-65.66	166.24-182.00 65.67-82.36
50	154.00-161.61 48.00-65.22	161.62-166.45 65.23-77.85	166.46-176.00 77.86-118.50	154.00-161.61 65.23-77.85	154.00-161.61 77.86-118.50	161.62-166.45 77.86-118.50	161.62-166.45 48.00-65.22	166.46-176.00 48.00-65.22	166.46-176.00 65.23-77.85
51	151.00-161.51 45.00-64.92	161.52-166.77 64.93-77.94	166.78-182.00 77.95-109.80	151.00-161.51 64.93-77.94	151.00-161.51 77.95-109.80	161.52-166.77 77.95-109.80	161.52-166.77 45.00-64.92	166.78-182.00 45.00-64.92	166.78-182.00 64.93-77.94
52	152.00-161.60 48.00-66.43	161.61-167.28 66.44-79.52	161.29-178.00 79.53-132.70	152.00-161.60 66.44-79.52	152.00-161.60 79.53-132.70	161.61-167.28 79.53-132.70	161.61-167.28 48.00-66.43	161.29-178.00 48.00-66.43	161.29-178.00 66.44-79.52
53	150.00-161.20 46.80-68.50	161.21-166.68 68.51-81.28	166.69-180.00 81.29-105.00	150.00-161.20 68.51-81.28	150.00-161.20 81.29-105.00	161.21-166.68 81.29-105.00	161.21-166.68 46.80-68.50	166.69-180.00 46.80-68.50	166.69-180.00 68.51-81.28
54	152.00-160.73 49.00-67.48	160.74-166.07 67.49-79.62	166.08-179.00 79.63-98.00	152.00-160.73 67.49-79.62	152.00-160.73 79.63-98.00	160.74-166.07 79.63-98.00	160.74-166.07 49.00-67.48	166.08-179.00 49.00-67.48	166.08-179.00 67.49-79.62

Age	Small			Medium			Large			Pycnomorphs						Leptomorphs			
	[min; mean -0.5SD]	[min; mean -0.5SD]	[mean +0.5SD; max]	[mean -0.5SD; mean +0.5SD]	[mean -0.5SD; mean +0.5SD]	[mean +0.5SD; max]	[min; mean -0.5SD]	[min; mean -0.5SD]	[mean +0.5SD; max]	I	II	III	I	II	III	I	II	III	
55	152.00-161.00 49.00-66.24	161.01-166.21 66.25-80.96	166.22-178.00 80.97-125.00	152.00-161.00 66.25-80.96	152.00-161.00 80.97-125.00	161.01-166.21 80.97-125.00	161.01-166.21 49.00-66.24	166.22-178.00 49.00-66.24	166.22-178.00 49.00-66.24	161.01-166.21 49.00-66.24	166.22-178.00 49.00-66.24	166.22-178.00 49.00-66.24	161.01-166.21 49.00-66.24	166.22-178.00 49.00-66.24	166.22-178.00 49.00-66.24	161.01-166.21 49.00-66.24	166.22-178.00 49.00-66.24	166.22-178.00 49.00-66.24	166.22-178.00 49.00-66.24
56	151.00-160.74 50.80-69.47	160.75-166.14 69.48-85.12	166.15-179.00 85.13-116.00	151.00-160.74 69.48-85.12	151.00-160.74 85.13-116.00	160.75-166.14 85.13-116.00	160.75-166.14 50.80-69.47	166.15-179.00 50.80-69.47	166.15-179.00 50.80-69.47	160.75-166.14 50.80-69.47	166.15-179.00 50.80-69.47	166.15-179.00 50.80-69.47	160.75-166.14 50.80-69.47	166.15-179.00 50.80-69.47	166.15-179.00 50.80-69.47	160.75-166.14 50.80-69.47	166.15-179.00 50.80-69.47	166.15-179.00 50.80-69.47	166.15-179.00 50.80-69.47
57	147.50-161.04 51.70-69.32	161.05-166.31 69.33-85.01	166.32-175.00 85.02-130.70	147.50-161.04 69.33-85.01	147.50-161.04 85.02-130.70	161.05-166.31 85.02-130.70	161.05-166.31 51.70-69.32	166.32-175.00 51.70-69.32	166.32-175.00 51.70-69.32	161.05-166.31 51.70-69.32	166.32-175.00 51.70-69.32	166.32-175.00 51.70-69.32	161.05-166.31 51.70-69.32	166.32-175.00 51.70-69.32	166.32-175.00 51.70-69.32	161.05-166.31 51.70-69.32	166.32-175.00 51.70-69.32	166.32-175.00 51.70-69.32	166.32-175.00 51.70-69.32
58	150.00-160.62 47.00-68.64	160.63-166.20 68.65-83.19	166.21-180.00 83.20-120.00	150.00-160.62 68.65-83.19	150.00-160.62 83.20-120.00	160.63-166.20 83.20-120.00	160.63-166.20 47.00-68.64	166.21-180.00 47.00-68.64	166.21-180.00 47.00-68.64	160.63-166.20 47.00-68.64	166.21-180.00 47.00-68.64	166.21-180.00 47.00-68.64	160.63-166.20 47.00-68.64	166.21-180.00 47.00-68.64	166.21-180.00 47.00-68.64	160.63-166.20 47.00-68.64	166.21-180.00 47.00-68.64	166.21-180.00 47.00-68.64	166.21-180.00 47.00-68.64
59	152.90-159.76 48.90-67.85	159.77-165.24 67.86-82.67	165.25-180.00 82.68-135.50	152.90-159.76 67.86-82.67	152.90-159.76 82.68-135.50	159.77-165.24 82.68-135.50	159.77-165.24 48.90-67.85	165.25-180.00 48.90-67.85	165.25-180.00 48.90-67.85	152.90-159.76 48.90-67.85	159.77-165.24 48.90-67.85	159.77-165.24 48.90-67.85	152.90-159.76 48.90-67.85	159.77-165.24 48.90-67.85	159.77-165.24 48.90-67.85	152.90-159.76 48.90-67.85	159.77-165.24 48.90-67.85	159.77-165.24 48.90-67.85	159.77-165.24 48.90-67.85
60	147.10-159.11 48.00-69.88	159.12-164.92 69.89-84.54	164.93-174.00 84.55-114.00	147.10-159.11 69.89-84.54	147.10-159.11 84.55-114.00	159.12-164.92 84.55-114.00	159.12-164.92 48.00-69.88	164.93-174.00 48.00-69.88	164.93-174.00 48.00-69.88	147.10-159.11 48.00-69.88	159.12-164.92 48.00-69.88	159.12-164.92 48.00-69.88	147.10-159.11 48.00-69.88	159.12-164.92 48.00-69.88	159.12-164.92 48.00-69.88	147.10-159.11 48.00-69.88	159.12-164.92 48.00-69.88	159.12-164.92 48.00-69.88	159.12-164.92 48.00-69.88
61	150.00-158.85 46.00-70.17	158.86-165.33 70.18-86.27	165.34-177.00 86.28-125.00	150.00-158.85 70.18-86.27	150.00-158.85 86.28-125.00	158.86-165.33 86.28-125.00	158.86-165.33 46.00-70.17	165.34-177.00 46.00-70.17	165.34-177.00 46.00-70.17	150.00-158.85 46.00-70.17	158.86-165.33 46.00-70.17	158.86-165.33 46.00-70.17	150.00-158.85 46.00-70.17	158.86-165.33 46.00-70.17	158.86-165.33 46.00-70.17	150.00-158.85 46.00-70.17	158.86-165.33 46.00-70.17	158.86-165.33 46.00-70.17	158.86-165.33 46.00-70.17
62	150.00-158.97 52.00-69.87	158.98-165.56 69.88-83.02	165.57-176.00 83.03-106.00	150.00-158.97 69.88-83.02	150.00-158.97 83.03-106.00	158.98-165.56 83.03-106.00	158.98-165.56 52.00-69.87	165.57-176.00 52.00-69.87	165.57-176.00 52.00-69.87	150.00-158.97 52.00-69.87	158.98-165.56 52.00-69.87	158.98-165.56 52.00-69.87	150.00-158.97 52.00-69.87	158.98-165.56 52.00-69.87	158.98-165.56 52.00-69.87	150.00-158.97 52.00-69.87	158.98-165.56 52.00-69.87	158.98-165.56 52.00-69.87	158.98-165.56 52.00-69.87
63	149.10-159.25 41.00-66.03	159.26-164.57 66.04-81.62	164.58-174.50 81.63-114.50	149.10-159.25 66.04-81.62	149.10-159.25 81.63-114.50	159.26-164.57 81.63-114.50	159.26-164.57 41.00-66.03	164.58-174.50 41.00-66.03	164.58-174.50 41.00-66.03	149.10-159.25 41.00-66.03	159.26-164.57 41.00-66.03	159.26-164.57 41.00-66.03	149.10-159.25 41.00-66.03	159.26-164.57 41.00-66.03	159.26-164.57 41.00-66.03	149.10-159.25 41.00-66.03	159.26-164.57 41.00-66.03	159.26-164.57 41.00-66.03	159.26-164.57 41.00-66.03

			Pycnomorphs			Leptomorphs			
Age	Small	Medium	Large	I	II	III	I	II	III
Height	[min; mean -0.5SD]	[mean -0.5SD; mean +0.5SD]	[mean +0.5SD; max]	[min; mean -0.5SD]	[min; mean -0.5SD]	[mean -0.5SD; mean +0.5SD]	[mean -0.5SD; mean +0.5SD]	[mean +0.5SD; max]	[mean +0.5SD; max]
Weight	[min; mean -0.5SD]	[mean -0.5SD; mean +0.5SD]	[mean +0.5SD; max]	[mean -0.5SD; mean +0.5SD]	[mean +0.5SD; max]	[mean +0.5SD; max]	[min; mean -0.5SD]	[min; Mean -0.5SD]	[mean -0.5SD; mean +0.5SD]
64	150.00-160.54 49.10-70.24	160.55-166.69 70.25-85.48	166.70-180.00 85.49-115.00	150.00-160.54 70.25-85.48	150.00-160.54 85.49-115.00	160.55-166.69 85.49-115.00	160.55-166.69 49.10-70.24	166.70-180.00 49.10-70.24	166.70-180.00 70.25-85.48
65	150.00-158.92 46.00-65.88	158.93-164.54 65.89-81.52	164.55-173.00 81.53-128.70	150.00-158.92 65.89-81.52	150.00-158.92 81.53-128.70	158.93-164.54 81.53-128.70	158.93-164.54 46.00-65.88	164.55-173.00 46.00-65.88	164.55-173.00 65.89-81.52
66	143.00-157.91 51.00-70.97	157.92-164.78 70.98-83.20	164.79-176.50 83.21-107.00	143.00-157.91 70.98-83.20	143.00-157.91 83.21-107.00	157.92-164.78 83.21-107.00	157.92-164.78 51.00-70.97	164.79-176.50 51.00-70.97	164.79-176.50 70.98-83.20
67	156.50-160.67 48.50-67.64	160.68-164.92 67.65-81.72	164.93-174.70 81.73-102.00	156.50-160.67 67.65-81.72	156.50-160.67 81.73-102.00	160.68-164.92 81.73-102.00	160.68-164.92 48.50-67.64	164.93-174.70 48.50-67.64	164.93-174.70 67.65-81.72
68	152.00-159.70 52.00-69.52	150.71-165.37 69.53-84.90	165.38-175.60 84.91-114.00	152.00-159.70 69.53-84.90	152.00-159.70 84.91-114.00	150.71-165.37 84.91-114.00	150.71-165.37 52.00-69.52	165.38-175.60 52.00-69.52	165.38-175.60 69.53-84.90
69	150.00-158.89 50.00-67.04	158.90-163.83 67.05-80.54	163.84-171.00 80.55-110.00	150.00-158.89 67.05-80.54	150.00-158.89 80.55-110.00	158.90-163.83 80.55-110.00	158.90-163.83 50.00-67.04	163.84-171.00 50.00-67.04	163.84-171.00 67.05-80.54
70	151.00-158.02 58.50-71.07	158.03-163.51 71.08-82.40	163.52-175.00 82.41-100.00	151.00-158.02 71.08-82.40	151.00-158.02 82.41-100.00	158.03-163.51 82.41-100.00	158.03-163.51 58.50-71.07	163.52-175.00 58.50-71.07	163.52-175.00 71.08-82.40