

THE KÖRMEND GROWTH STUDY: BODY MEASUREMENTS

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Abstract: Based on his 25 years' human biological research activity at Körmend (Western Hungary), the author is giving a review on the "Körmend Growth Study". He investigated every healthy child between 3 and 18 years of age in 1958 (K-58), in 1968 (K-68), and in 1978 (K-78). During this period Körmend developed from an agricultural village into a relatively strong industrialized town. Its population increased, the town obtained an urbanized character. Medical attention developed, the interpersonal relations influencing education process of the children improved considerably. Physical activity of the children changed both in quality and quantity.

During the afore-mentioned quarter of a century the growth process of children changed remarkably, however, there are findings which augment our concerns. In 1968 the means of body weight both in boys and girls were found to be heavier than in 1958, and in 1978 weights showed an increase again. In 1968 the means of height were taller in both sexes than in 1958, and in 1978 height also increased, however, on the whole not so intensively than earlier. Biacromial width in every age group and in both sexes was narrower in 1968 than in 1958; in 1978 it was wider than in 1968, but narrower than in 1958. Bicristal width shows a similar trend, however, the decrease of means in 1968, related to those in 1958, were greater. Chest circumference does not show any one tendency. Girth measurements of the extremities did not change remarkably between 1968 and 1978, except calf circumference. Bicondylar widths were wider in 1978 than in 1968, especially in femur. Skinfolids were thicker in 1978 than in 1968. — The age at menarche of Körmend girls changed to earlier ages; in 1958 $m = 13.6 \pm 0.06$ year, in 1968 $m = 12.75 \pm 0.04$ year, and in 1978 $m = 12.80 \pm 0.04$ year.

The physique of Körmend children became more linear, but a little bit fatter.

The reasons of these changes are mostly due to environmental factors, belonging to the concept of secular changes.

Key words: Körmend Growth Study, Western-Hungarian youth, body measurements, age at menarche.

Introduction

A special kind of growth studies, a series of recalled cross-sectional growth studies were carried out at Körmend, a small town in Western Hungary. The first investigations of this series were made in 1958, then 10 years later, in 1968 the second series, and again 10 years later, in 1978 the third series.

The present contribution is aimed at

1. presenting an example for secular changes in body measurements of the youth in Hungary,
2. demonstrating the effect of urbanization and differentiation of social strata influencing growth and development of children at Körmend, as well as

3. laying down a documentation of the results of the Körmend Growth Study in body measurements, before a monographic publication.

Besides of the Körmend Growth Study (hereafter KGS) follow-up investigations, also some other, mostly partial human biological investigations were carried out at Körmend by the same author. As an "inventory" of these investigations it is worth mentioning that the first informing growth investigation on grammar school pupils was carried out in the mid-1950s, and a nation-wide systematic growth study of the Hungarian youth was proposed (EIBEN 1958a, 1958b). The survey of growth was combined with a study of physical fitness (EIBEN 1959a, 1959b, 1966). The first series of KGS started in 1958. Based on these investigations it was possible to describe a certain periodicity of growth process (EIBEN 1960a, 1961a, 1961b, 1962a, 1963a). On some aspects of these growth studies — such as nutrition of the children (EIBEN 1961c), the head and face measurements (EIBEN 1967a), body surface (EIBEN 1967—68), some methodological problems of growth studies (EIBEN 1961d), some pedagogical consequences (EIBEN 1961d, 1962b, 1963c, 1964, 1976) — the author published several papers. He also analysed the secular changes, and in the late 1960s he elaborated the first Hungarian reference-zones (EIBEN 1967b, 1969a, 1969b, 1972b, 1972c).

As additional data to all these, he published the body measurements of Körmend newborns (EIBEN 1960b, 1963b), as well as the age at menarche of Körmend girls (BOTTYÁN et al. 1963, EIBEN 1961a, 1968, 1970, 1971, 1972a, EIBEN—BODZSÁR 1970). He published the first data on bicondylar widths in Hungary in the mid-1970s which were based on the 1968 investigation of the KGS (EIBEN 1975). Based on the KGS in 1958 and 1968, he investigated the changes in motor activity and the mode of Körmend children's life (EIBEN 1977a), and analyzed the changes in body measurements and proportions of children (EIBEN 1977a, 1977c, 1978, 1979a, 1979b). Some information on KGS can also be found in IBP-volume of COLLINS and WEINER (EIBEN 1977b).

Recently, the author has presented these investigations and their results at several congresses (EIBEN 1981a, 1982a, 1982b, 1982c), in a report (EIBEN 1981b), and in a supplementum-volume (EIBEN—PANTÓ 1981).

The place of the investigations: Körmend

Körmend, often referred to as the "Gate of the Órség region" is located in the valley of the river Rába in the western part of county Vas. The left bank of this river was already inhabited in ancient times. The history of the settlement, mentioned in early documents written in Latin by the name of *Curmend*, dates back to the Roman times. In the neighbourhood of the town the remains of the "Amber Road" or, as mentioned in a document dating from the year of 1274, the *Via Latinorum* can be found even in our days.

Körmend was granted the franchises of a town, a right of local government in 1244 by King Béla IV; it ceased to be a royal domain in 1394 and became the property of the *Peleskei* and later that of the *Széchy* family. Up to 1606 it changed hands several times, and then it became the property of the *Baththyány* family for more than three centuries.

Owing to its favourable geographic situation, the settlement is an important communication centre; therefore both the municipality and the population of the town have always made every effort to develop commerce. The merchants of Körmend asserted their exemption from tolls all over the country, moreover, even in the territories beyond its borders.

The development of industry does not present so favourable a picture. Even as late as in the 19th century and in the first half of the 20th, its advance was rather slow. In consequence also the number of the inhabitants grew at a slow pace: in 1909 the population was only 6757. Although in the period of economic prosperity after the Compromise of 1867 (between Hungary and Imperial Austria) the progress accelerated also in Körmend, its town status, however, was withdrawn in 1871. In subsequent years its status alternated between that of a small and large village, respectively. Since 1979 Körmend has had its town status again.

At the close of the 19th and early in the 20th century several attempts were made at establishing factories at Körmend. However, these endeavours were short-lived. The number of persons employed in the industry was all in all 1113 even in 1930.

Following World War II, the years of reconstruction, the reorganization of agriculture, and, in particular, industrialization determined its development fairly favourably. Parallel with the large-scale industrial development beginning in the early 1960s, the number of Körmend's inhabitants grew rapidly. Important industrial branches were formed: pharmaceut-

ical and food industrial, shoe manufacturing, timber conversion, brick-making. As a result of industrialization, the settlement has displayed and accelerated development in all fields of life in the past two decades. Besides the factories and vast modern housing estates also the new hospital, the public infants' nurseries, nursery school, the secondary school, the building of the primary-school students' boarding house, and of the new gymnasium, as well as the extended services of the Town and District Library, the prosperous and successfully working amateur ensembles of art, hallmark the effort was covered by the people of Körmend towards obtaining the status of a town.

One of the sights which attracts perhaps most foreign tourists is the Batthyány Castle, an artistic monument built upon the foundation of a water-fortress of the Árpád dynasty. Out of the medieval castle the two-storey, mansard-roofed baroque-like baronial mansion was formed in the 18th century. The order of columns of the entrance, the balcony resting on them, and the reversed adornment of the annexes already remind one of classicism. The ancient monuments of the castle yard: the buildings having more than one storey to be seen on the right and left sides of the main wing, the former marble hall and archive, as well as the riding-hall have at present cultural and industrial functions.

A further outstanding monument of art at Körmend is an example of classicist statues, infrequent even in all-Hungarian respect: the statue of St. John Nepomucenus to be found on the left bank of the river Rába. — The one-steeped Roman Catholic church of Petőfi square has a sanctuary of medieval origin. — The Immaculata (Immaculate Virgin Mary) statue in Szabadság square, the Calvinist and Lutheran churches, as well as several dwelling houses and public buildings are art monuments, and of great importance in the townscape. The town is surrounded by pleasant places of excursion and fine forests.

Material and Methods

Three investigations were carried out at Körmend: in 1958 (K-58), in 1968 (K-68), and in 1978 (K-78). The number of the samples and the number of the inhabitants of Körmend developed as follows:

K-58	N = 1656,	7,500 inhabitants,
K-68	N = 1736,	10,000 inhabitants, and
K-78	N = 2420,	12,500 inhabitants.

Practically every healthy child at Körmend between 3 and 18 years of age of both sexes was investigated. Those suffering from serious anomalies or congenital defects were excluded. The number of the age groups of every investigation is given in Table 1. These figures are constant for all body measurements taken in each cohort.

Besides of the individual identification's data (subject's name, place and date of birth) some socio-demographic data were also registered (e.g. birth rank; number of siblings, living, dead; name, place of birth and occupation of the father and of the mother; distance from home to school, etc.).

The anthropometric programme was quite detailed. In K-58 15 body measurements and also 10 face and head measurements were taken, however, at this time the author was not able to measure the skinfolds and the bicondylar widths. In K-58 programme there were some other anthropologic characters such as grasp of the hands, colour of eyes, colour of hair, in girls also the age at menarche, etc. In K-68 21, and in K-78 23 body measurements were taken. From these data seven further measurements and indices were calculated (e.g. length of the upper and lower extremities, Kaup index, etc.). All these are identifiable in the tables.

The K-68 investigation was performed within the International Biological Programme (IBP/HA).

Table 1

The number of Körmend children investigated in frame of the Körmend Growth Study

Age (year)	K-58		K-68		K-78	
	Boys	Girls	Boys	Girls	Boys	Girls
3	13	18	12	17	23	21
4	24	33	22	33	71	68
5	38	22	35	20	59	75
6	49	41	41	29	75	72
7	79	103	53	43	78	75
8	71	62	53	39	80	80
9	61	60	67	52	94	87
10	65	68	51	46	60	69
11	67	65	60	48	93	61
12	41	76	67	43	121	76
13	59	64	87	72	103	88
14	66	65	85	81	81	108
15	50	56	140	73	109	59
16	66	31	109	45	92	62
17	53	22	89	65	86	77
18	44	24	25	34	77	40
<i>Together:</i>	846	810	996	740	1302	1118
<i>Sum total:</i>	1656		1736		2420	

The measuring methods used correspond to MARTIN's measure-techniques (MARTIN—SALLER 1957), taking into consideration also the recommendations of the IBP (see TANNER et al. 1969).

In the course of mathematical-statistical elaboration, the usual parameters were calculated (\bar{x} = means, s = standard deviation, W = range), by which the results of the three investigations (K-58, K-68 and K-78) were comparable. These results are shown in Tables 2—41 with an intention to give a wide documentation of anthropometric data of the KGS. Further elaboration of these data is still in process.

Collecting data of age at menarche also belongs to KGS. Data collection was carried out with "status quo" method, calculation with probit analysis.

Results

In K-68 the mean *weights* of Körmend children, 0.3—3.2 kg in boys and 0.4—5.5 kg in girls, were heavier than in K-58. In K-78 weight increased again; it was found to be 0.5—6.2 kg and 0.9—4.6 kg in different age-groups of boys and girls, respectively (Tables 2 and 3).

In K-68 the mean of *height* was 1.2—5.5 cm in boys and 0.8—5.4 cm in girls taller than in K-58. In K-78 height also increased, however, on the whole not so intensively as earlier: 0.9—6.1 cm in boys and 0.1—6.4 cm in girls (Tables 4 and 5).

Sitting height, the length of the upper extremities, and the length of the lower extremities measured as height of anterior superior iliac spine correlate correctly with height of the children, thus these measurements show more

or less a similar tendency as height. Mean values of *sitting height* do not change between K-68 and K-78 as intensively as height, especially in older age-groups (Tables 6 and 7). The *length of the upper extremities* show small changes between K-58 and K-68, and also between K-68 and K-78 (Tables 8 and 9). The *length of the lower extremities*, as a part of the stature, follows duly its changes (Tables 10 and 11).

Biacromial width in every age-group and in both sexes was narrower in K-68 than in K-58: the differences were 0.2–0.9 cm in boys and 0.2–1.9 cm in girls. In K-78 it was wider than in K-68, but narrower than in K-58 (Tables 12 and 13). *Bicristal width* shows a similar trend, however, the decrease of the means in K-68, related to those in K-58, were greater. In K-78 the mean values were greater than in K-68, but not as great as in K-58 (Tables 14 and 15). Mean values of *transverse chest diameter* increased modestly from K-58 to K-68, and again from K-68 to K-78. Except for two cases, differences are less than 1 cm (Tables 16 and 17). One can find the same in the *antero-posterior chest diameter*: the differences are small (Tables 18 and 19).

Chest circumference does not show any one tendency but one cannot speak of an increase in means either (Tables 20 and 21). The circumferences of the extremities were measured by the K-68 investigation. Mean values of *upper arm circumference* are not greater (if not smaller) in K-78 than in K-68 (Tables 22 and 23). *Thigh circumference* starts in the early childhood with smaller mean values in K-78 than in K-68, in boys till 7 years of age, in girls only till 5 years of age. By these ages means are generally higher in K-78, in boys more expressed than in girls (Tables 24 and 25). *Calf circumference* shows relatively greater increases in K-78 as compared to K-68 in both sexes, but this change is more remarkable in boys (Tables 26 and 27).

Bicondylar widths were measured only in K-68 and K-78, there are no data from K-58. *Bicondylar width of humerus* does not show any unambiguous tendency, however, mean values in K-78 are higher in more age groups than in K-68, especially in boys (Tables 28 and 29). *Bicondylar width of femur* produces the same phenomenon, more remarkably in boys (Tables 30 and 31).

Subcutan fat were measured in K-68 at five, in K-78 at six places of the body, no data in K-58. Means of *skin folds* in K-78 are practically in all cases higher than in K-68 (Tables 32–41).

Analyzing the *age at menarche* of Körmend girls constitutes the basis of another paper, however, it seemed to be necessary to give its median values in the Abstract of this paper.

Discussion

The KGS — as the cross-sectional growth studies in general — is not meant to explain the growth and development *process* of the Körmend children, however, it presents *information with human biological contents and value* about differences between age groups. On the other hand, means of body measurements in different age groups following each other in a certain series do not show in all cases any increase. But this is characteristic of cross-sectional growth studies.

Instead of studying the rate of growth we can analyze the *age differences*. Supposing that the age groups following each other have very similar population

genetical and environmental (socio-economic, etc.) factors influencing their growth and development, age differences may serve as "quasi growth rates".

In this paper special emphasis is laid on the *age differences in height*. In K-58 boys show the greatest age differences, 8.16 cm, between the 11 and 12 year age groups, then between the 14 and 15 year age groups (8.62 cm). These "quasi peak height velocities" may be explained as prepuberal and puberal growth spurts. In K-68 prepuberal gain is not so expressed, it seems to be distributed in the 10—12 year age groups. Between the 14 and 15 year age groups there is a gain of 7.19 cm, as a "quasi puberal growth spurt". In K-78 prepuberal growth gain seems to merge in the 10—11—12 year age groups, but between the 12 and 13 year age groups there is a gain of 6.95 cm, and between the 13 and 14 year age groups there is a gain of 7.70 cm. Thus it may be concluded — corresponding to the concept of secular changes — that puberal growth spurt also occurred earlier in Körmend boys.

The age groups of *girls* show a different character. In K-58 between 9 and 10 year age groups there is a difference of 6.94 cm, and then every age group is taller by 5—6 cm than the previous one. In K-68 the great age differences are distributed between 9 and 13 years, but there is a striking age difference (7.91 cm) between 11 and 12 year age groups. In K-78 this phenomenon is more or less similar: the great age differences are also between 9 and 13 years. The greatest one, however, appears between 10 and 11, then between 12 and 13 year age groups. It seems to be a tendency that a puberal growth spurt also in Körmend girls occurs earlier.

The well-known difference between boys and girls in this relation is recognizable also in Körmend children: the above described "quasi peak height velocity" appears earlier in girls.

The KGS showed that the Körmend children, in general, had become larger. During a quarter of a century their stature and weight had increased, but their trunk had become slender. Building-up of their extremities had not changed too much. Circumference of the upper arm practically had not changed at all. The only remarkable changes in a positive direction were found in calf circumference; these really demonstrate some increase in muscle-mass. The modest increase in thigh circumference seemed to be in connection with increase of fat and not of the muscles.

The fact, that girth measurements, in general, did not show an increasing tendency during the investigated period, but at the same time subcutan fat became greater, calls our attention to an undesirable phenomenon: a weak development of children's musculature. Physical education, and thereby muscle power of the children should be improved more intentionally. These findings indicate necessity of further investigations connected with physical fitness of Körmend children.

The above-described insufficiency seems to be interrelated to changes in mode of life at Körmend. The development of the settlement from an agricultural village into a relatively strong industrialized town, increasing of its population, in general: its urbanization consists of several parts.

Medical attention, compared to K-58, has developed about 150—200 per cent, first of all in the school doctors' service, the number of doctors, number of beds in the hospital, capacity of the polyclinic, and in like areas.

Nutrition of the children has also changed. Instead of a fat- and carbohydrate nutrition (cereals) which was characteristic for the Hungarian diet

of K-58's period, today (K-78) it is more mixed, richer in proteins. On the other hand, however, it is rich in calories, too. In the last decade the increase of sugar consumption is considerable.

Nursery schools and schools became more modern. Interpersonal relations influencing the educational process of children improved remarkably. In K-58's period many teachers had only college certificates, now (K-78) the majority of them has his/her university-level diploma.

Physical activity of children changed both in quality and quantity. Instead of taking part in hard peasant work beside their parents (in K-58 period), children can now (K-78) participate in different sports in a very large, modern gymnasium. The grammar school pupils do not need to bicycle every day 10–20 km from home to school and back, as several of them living in the surrounding villages did in K-58's period. This could cause their wide hip (c.f. values of bicristal width in K-58 and K-68!). Today, they live in a well-equipped student home. There is a tendency to have every modern comfort. On the other hand, however, spontaneous physical activity of children became to be limited, a mode of "sitting life" spread. The less physical activity combined with high calory intake led to overweight in many children, also at Körmend.

All these phenomena: biological, socio-economical, and demographic changes together led also to a differentiation of social strata, as well as to the fact, that the population's genetic balance of Körmend also changed slightly, first of all because of migration.

Accordingly, there are some problems. With full knowledge of the results of K-68 investigation, we put the questions:

— Do we consider the more linear physique of the children an "improvement" or is it a phenomenon showing a tendency for regression?

— How can these children resist "the benefits" or injuries of civilization, and how will they achieve the balance of their somatic and mental development?

— How will these children, having a more linear physique, be able to adapt to the burdens of a modern life?

Are these questions timely also today?

In the meantime the "more linear" physique of Körmend children became a little bit fatter. Their growth and development on the whole seems to be satisfactory. Taking into consideration the remarkable improvement of the environmental factors influencing their growth, they seem to come close to their *genetically given* possibilities in growth and development. The earlier regression in growth (c.f. EIBEN 1967b, 1972b) seems to be eliminated also in Körmend children. Hence, some good tendencies are recognizable. The mentioned environmental factors have further, up to the present not yet well-utilized aspects. With a more intentional improvement of these, the desirable tendencies could be more considerable. To sum it up, based on a quarter of a century's growth study, secular changes seem to be manifested in Körmend children.

Table 2
Weight of Körmend boys (kg)

Age (years)	K-58			K-68			K-78		
	\bar{x}	s	W	\bar{x}	s	W	\bar{x}	s	W
3	14.54	1.56	12.5—16.7	14.83	1.91	12.0—19.5	14.87	1.42	12.5—18.0
4	26.75	2.28	13.5—21.0	15.64	1.85	13.0—19.5	16.05	2.01	11.5—23.0
5	18.23	2.22	14.0—24.0	18.03	2.49	13.5—23.5	17.58	1.97	12.5—21.5
6	19.28	2.28	15.0—23.5	20.36	3.16	16.0—29.0	19.89	2.72	15.0—28.0
7	19.67	2.55	15.0—25.0	21.74	2.35	17.5—27.5	22.96	3.74	16.5—35.0
8	23.54	3.75	16.0—35.0	24.34	3.57	17.5—37.0	27.10	4.26	17.0—41.0
9	25.13	3.48	19.0—34.5	27.07	5.59	16.0—50.5	28.91	5.27	19.0—47.7
10	29.12	4.65	19.5—42.0	30.35	4.78	20.0—65.0	32.33	6.44	22.0—56.0
11	29.96	4.11	20.0—39.0	32.65	5.79	26.0—54.0	34.40	6.45	22.5—59.0
12	33.74	5.88	27.0—55.0	35.42	5.65	27.0—50.0	38.78	7.69	26.0—75.0
13	37.98	5.43	25.0—53.0	39.57	7.27	29.0—65.5	43.79	9.24	29.0—81.0
14	41.30	8.97	26.0—77.0	44.47	8.06	29.5—73.0	50.91	10.31	29.0—92.0
15	50.16	8.88	31.5—75.0	51.59	9.45	33.5—91.0	54.33	8.58	36.0—79.0
16	54.41	6.60	35.0—70.0	56.60	9.86	34.0—95.0	59.34	8.49	42.5—90.0
17	57.17	8.52	45.0—80.0	60.21	6.63	45.0—79.0	59.42	7.75	38.5—81.0
18	61.77	8.22	45.5—80.0	59.48	4.72	52.0—68.5	64.40	7.96	48.5—80.0

Table 3
Weight of Körmend girls (kg)

Age (years)	K-58			K-68			K-78		
	\bar{x}	s	W	\bar{x}	s	W	\bar{x}	s	W
3	14.33	2.13	12.6—19.0	13.35	1.75	10.5—17.5	14.67	1.77	11.0—19.0
4	16.09	1.77	13.0—20.5	16.09	2.31	12.5—22.0	15.75	2.10	11.0—21.0
5	17.59	2.28	12.5—21.0	17.32	2.37	14.0—20.5	17.87	2.29	12.0—24.0
6	20.49	3.39	13.5—26.5	21.11	3.93	15.5—35.0	19.47	2.89	14.5—29.8
7	20.42	3.30	17.5—38.0	21.84	2.58	17.5—28.0	22.73	3.73	15.5—40.0
8	21.82	3.96	17.0—41.0	24.21	3.57	29.0—33.0	24.69	4.16	17.0—35.5
9	25.40	4.65	16.0—40.0	26.31	4.07	19.0—40.0	28.81	4.16	19.5—46.0
10	29.08	4.35	22.0—43.0	31.46	5.83	22.0—52.0	31.06	5.66	21.0—51.5
11	39.92	5.52	21.5—48.0	34.19	7.13	25.0—59.5	35.30	7.00	25.0—56.0
12	35.21	7.23	23.0—58.0	39.72	7.63	27.0—63.0	40.28	8.26	24.5—68.5
13	38.06	5.82	28.0—54.5	43.54	7.75	28.0—63.0	45.36	8.53	27.5—71.0
14	44.91	7.14	33.0—70.0	47.81	7.22	35.5—75.0	48.77	8.31	26.0—86.0
15	48.96	6.30	33.0—62.0	51.69	7.09	40.0—75.0	51.17	8.16	35.5—75.0
16	48.97	6.09	34.5—60.0	52.20	7.36	40.5—68.5	51.92	6.96	38.0—77.0
17	51.41	6.36	41.0—64.0	52.74	6.86	41.0—70.0	54.92	9.10	34.0—88.0
18	54.00	2.90	42.0—78.0	55.56	6.49	43.0—68.0	52.38	6.21	42.0—65.0

Table 4
Height of Körmend boys (cm)

Age (years)	K-58			K-68			K-78		
	\bar{x}	s	W	\bar{x}	s	W	\bar{x}	s	W
3	94.46	4.38	96.4—99.0	97.99	3.74	94.3—104.5	97.57	3.46	91.8—106.3
4	100.12	4.44	93.3—110.3	101.73	4.13	95.3—111.5	102.23	4.04	91.7—110.5
5	107.66	5.13	98.2—112.0	109.40	5.34	100.5—125.3	108.70	4.24	98.3—115.8
6	112.43	4.77	99.9—121.4	114.88	5.38	106.1—132.6	115.72	5.10	100.4—138.8
7	116.86	4.83	106.8—128.6	120.60	4.92	108.9—130.1	121.22	5.37	111.5—138.8
8	123.43	5.43	109.3—133.8	126.07	5.30	117.0—137.3	126.93	6.10	111.5—141.3
9	128.62	5.76	115.6—144.2	131.18	6.26	112.7—143.0	132.87	6.36	111.7—148.5
10	134.20	6.60	121.3—149.8	137.29	7.08	115.8—160.3	139.10	6.28	126.0—152.7
11	135.60	6.60	115.8—151.5	141.20	7.54	122.8—158.0	142.46	6.22	128.1—155.7
12	143.76	7.53	132.6—165.0	145.26	6.71	133.3—162.5	148.26	6.86	134.0—164.8
13	148.81	6.78	133.8—164.7	152.07	7.34	135.7—170.8	155.21	8.39	137.4—173.0
14	153.00	8.85	134.1—169.5	156.85	8.36	135.1—177.5	162.91	7.71	146.0—180.8
15	161.62	8.31	143.7—179.8	164.04	8.46	130.0—191.0	166.76	8.05	148.2—189.8
16	164.82	5.79	147.5—176.4	167.74	7.07	152.0—187.7	170.59	6.73	146.4—188.4
17	166.45	7.08	149.9—181.4	171.07	6.54	158.0—190.3	172.21	7.74	157.8—186.1
18	171.18	7.44	153.7—182.4	171.12	7.37	157.7—186.5	172.83	6.38	159.6—187.1

Table 5
Height of Körmend girls (cm)

Age (years)	K-58			K-68			K-78		
	\bar{x}	s	W	\bar{x}	s	W	\bar{x}	s	W
3	95.00	4.41	86.4—110.4	94.23	3.69	86.5—102.5	96.67	3.48	87.4—103.4
4	101.00	3.39	93.5—109.6	103.09	4.29	96.0—113.3	102.03	5.52	85.0—115.3
5	105.27	4.53	98.9—110.0	109.25	5.26	99.0—119.3	109.11	4.89	94.6—120.8
6	113.56	5.37	110.9—123.3	115.65	4.31	107.5—124.8	114.94	4.67	106.0—127.2
7	117.40	4.92	105.2—130.5	121.43	5.98	108.5—131.3	121.03	5.08	109.3—130.8
8	120.77	6.18	109.3—132.5	126.15	5.69	115.8—137.3	126.25	5.92	114.4—139.3
9	125.45	6.51	111.8—141.2	130.09	4.64	119.7—142.2	132.60	6.75	115.6—154.4
10	132.39	7.68	119.1—148.7	137.06	6.37	125.8—153.0	137.97	7.24	119.5—160.8
11	137.72	7.41	118.1—156.3	141.44	6.22	128.0—153.8	144.07	5.41	132.0—155.5
12	144.35	7.11	126.6—159.1	149.35	6.55	138.3—164.2	148.09	6.19	133.4—164.5
13	149.81	6.06	133.4—168.8	154.75	7.13	139.8—172.0	155.80	6.48	134.4—170.8
14	155.31	4.89	138.8—167.7	156.33	4.73	143.8—165.4	158.26	5.83	140.9—172.5
15	157.76	5.73	147.3—168.4	158.62	4.87	148.0—170.3	160.54	6.29	146.3—181.3
16	157.55	5.07	147.3—172.4	159.59	5.89	148.5—170.3	159.95	5.30	148.0—176.6
17	161.45	5.79	153.8—176.0	159.17	5.48	146.8—171.5	161.21	4.93	145.0—171.7
18	168.25	4.44	148.0—172.2	158.85	5.29	149.5—159.0	160.22	5.19	146.7—170.7

Table 6
Sitting height of Körmend boys (cm)

Age (years)	K-58			K-68			K-78		
	\bar{x}	s	W	\bar{x}	s	W	\bar{x}	s	W
3	54.92	2.73	52.8—58.8	56.75	2.38	54.0—59.8	55.74	2.42	51.8—60.0
4	57.00	3.45	52.4—65.3	58.41	2.82	54.8—65.0	58.56	2.63	53.3—64.0
5	58.34	3.57	49.7—66.7	61.14	2.65	56.8—66.1	60.83	2.44	55.7—68.0
6	61.53	2.85	54.2—66.4	63.95	3.18	59.5—73.3	63.97	2.69	55.3—69.7
7	64.18	2.58	60.1—69.1	65.64	2.61	59.8—70.0	66.32	3.22	59.8—75.0
8	66.34	2.73	59.2—72.8	67.72	3.15	61.5—74.7	68.98	2.97	62.0—76.4
9	68.81	2.76	63.2—74.0	70.12	3.34	60.8—77.5	71.33	3.34	61.8—80.1
10	71.59	3.33	64.2—78.5	73.06	3.38	65.8—83.1	73.85	3.07	66.0—80.0
11	72.07	3.12	63.0—77.9	74.50	3.59	67.3—83.0	75.04	3.22	67.1—82.5
12	75.95	3.24	68.7—87.9	75.89	3.31	69.8—84.0	77.33	3.99	64.7—88.0
13	77.80	3.51	69.9—86.5	78.57	3.74	71.0—90.1	80.44	4.41	71.4—91.3
14	79.32	4.80	69.4—89.3	81.51	4.56	72.0—94.0	84.64	4.86	75.4—93.8
15	83.28	4.68	73.3—94.7	84.85	4.89	67.5—97.0	85.56	4.45	73.4—98.9
16	85.64	3.39	77.2—93.2	87.00	4.85	79.5—96.4	88.48	3.87	77.4—100.1
17	86.21	3.60	77.1—94.1	88.90	3.86	80.5—98.9	89.27	3.48	78.7—96.3
18	88.64	3.81	80.5—95.1	89.76	3.49	80.6—94.5	89.80	3.85	80.3—100.3

Table 7
Sitting height of Körmend girls (cm)

Age (years)	K-58			K-68			K-78		
	\bar{x}	s	W	\bar{x}	s	W	\bar{x}	s	W
3	54.48	3.03	50.7—60.4	54.65	2.35	57.3—50.9	54.86	2.08	51.3—59.1
4	55.53	2.22	51.4—61.3	58.27	0.87	55.0—63.2	57.63	3.16	46.5—65.5
5	57.66	2.04	53.4—61.4	61.00	4.13	55.5—76.0	59.76	2.97	50.9—68.3
6	62.10	2.64	56.2—67.0	63.42	3.33	67.2—70.2	62.94	2.82	56.4—69.1
7	63.81	2.91	58.5—70.9	66.16	3.04	59.0—72.5	66.13	3.19	57.7—72.6
8	65.16	2.88	57.7—71.8	67.69	3.26	60.4—75.5	68.25	3.15	62.8—74.7
9	67.53	3.42	59.3—77.0	69.02	3.02	63.2—76.1	70.86	3.55	63.8—72.6
10	70.14	3.00	63.4—77.4	72.41	3.52	67.0—82.8	72.38	3.59	64.8—85.7
11	72.09	3.78	62.7—80.5	74.19	3.44	69.3—81.8	75.56	3.46	69.1—85.5
12	75.69	4.02	66.8—86.3	78.77	3.94	71.0—84.4	77.92	3.71	69.3—88.0
13	78.09	3.99	67.3—86.8	81.21	3.88	74.3—88.7	82.90	3.75	69.5—90.4
14	81.09	3.78	71.8—88.9	82.26	2.92	75.5—89.6	83.58	2.92	71.7—88.7
15	81.17	2.94	75.5—88.7	83.31	2.96	74.8—91.8	83.95	3.61	73.1—91.6
16	82.74	3.30	78.4—88.7	84.13	3.16	78.6—89.5	84.11	2.74	75.4—93.4
17	84.93	2.31	79.6—90.5	84.12	3.03	78.4—89.5	84.83	3.25	76.0—90.8
18	84.24	3.84	78.3—90.2	84.47	2.75	79.6—91.7	84.80	2.98	70.8—91.4

Table 8

Length of the upper extremities in Körmend boys (cm)

Age (years)	K-58			K-68			K-78		
	\bar{x}	s	W	\bar{x}	s	W	\bar{x}	s	W
3	38.06	1.80	34.9—40.9	39.00	1.81	36.6—41.0	39.26	2.09	35.1—44.8
4	40.62	3.45	32.7—47.3	41.18	3.61	30.3—47.3	41.48	2.34	35.2—46.5
5	44.45	4.88	39.2—50.8	45.89	3.04	40.9—53.8	44.71	2.25	37.8—48.8
6	47.92	3.93	41.2—54.0	48.05	3.20	40.8—55.7	48.27	3.72	42.2—53.8
7	50.21	3.06	44.4—56.6	51.13	3.29	45.0—60.5	51.22	2.89	45.4—57.5
8	52.98	3.12	46.0—61.1	54.07	3.29	43.3—60.5	54.08	3.52	42.8—64.0
9	56.12	2.88	49.0—64.4	56.60	3.38	47.3—63.8	57.01	3.73	47.5—66.8
10	59.31	3.54	51.5—68.7	59.47	4.09	49.7—70.0	60.70	3.63	63.2—67.1
11	59.87	3.30	48.0—67.3	61.69	4.61	52.0—72.0	61.85	3.58	49.3—73.4
12	63.29	3.72	56.9—71.6	63.42	4.40	56.0—77.7	64.61	3.43	56.1—74.0
13	66.03	3.45	58.6—75.1	67.28	4.70	52.9—77.7	67.50	4.53	52.6—77.9
14	57.39	4.65	58.8—75.5	69.83	4.88	57.1—80.5	71.17	4.57	61.7—82.6
15	72.00	3.54	61.2—80.6	73.31	4.70	61.5—84.3	73.43	5.55	63.3—95.9
16	73.68	3.60	63.3—80.8	75.25	4.02	63.8—90.3	74.78	3.95	62.9—85.9
17	73.75	3.84	64.3—80.8	77.28	3.50	69.3—86.0	75.66	3.14	68.9—87.5
18	76.16	3.78	70.0—83.8	76.44	4.17	68.3—85.5	75.97	3.39	68.0—83.5

Table 9

Length of the upper extremities in Körmend girls (cm)

Age (years)	K-58			K-68			K-78		
	\bar{x}	s	W	\bar{x}	s	W	\bar{x}	s	W
3	32.19	3.57	32.8—46.5	38.12	2.60	33.0—42.8	38.95	1.50	36.2—42.9
4	40.62	2.97	35.8—46.8	42.36	3.07	36.5—49.5	41.10	2.79	34.3—49.1
5	43.77	2.16	39.7—48.3	44.90	3.10	40.8—50.3	44.53	2.54	36.1—50.8
6	47.94	2.49	42.8—54.2	49.50	2.60	44.5—53.7	47.39	2.79	41.3—54.4
7	50.01	2.94	42.8—56.3	51.91	3.11	43.3—58.8	51.63	3.08	44.9—54.0
8	51.18	2.58	45.7—57.2	53.46	3.32	45.7—63.3	53.59	3.67	43.4—61.3
9	53.65	3.39	47.0—61.9	54.98	2.84	44.1—60.5	56.78	4.60	33.3—67.3
10	57.21	3.60	46.8—66.1	58.70	3.96	50.7—68.2	59.64	3.98	44.6—68.7
11	59.91	4.14	50.4—71.3	61.00	4.39	51.0—75.0	62.34	3.15	54.3—68.5
12	62.88	4.23	49.5—72.0	64.95	3.99	58.1—75.8	64.45	3.43	58.1—77.7
13	65.55	3.60	53.2—73.9	67.29	3.98	59.0—77.5	67.33	3.64	56.4—75.5
14	67.89	3.21	56.8—76.5	68.15	3.18	61.0—76.5	68.66	3.40	57.3—75.5
15	68.31	3.54	59.1—78.4	69.72	3.01	63.3—79.7	69.75	4.62	60.5—89.7
16	69.18	3.42	62.9—76.9	70.27	3.42	57.2—77.8	69.18	3.46	59.9—79.0
17	71.04	2.91	65.9—78.4	70.17	3.67	60.2—81.1	69.32	3.03	61.7—76.0
18	69.48	3.84	63.0—78.8	69.41	3.64	63.1—77.5	68.52	3.25	61.4—75.9

Table 10

Length of the lower extremities (height of anterior superior iliac spine) in Körmend boys (cm)

Age (years)	K-58			K-68			K-78		
	\bar{x}	s	W	\bar{x}	s	W	\bar{x}	s	W
3	46.92	3.12	39.4—49.7	48.00	1.81	45.8—51.0	48.57	2.91	44.0—55.0
4	51.71	3.80	45.8—59.1	51.00	2.93	45.3—58.5	51.79	2.67	44.3—56.8
5	56.05	3.66	49.7—65.1	56.41	4.05	50.5—64.0	56.46	3.03	49.8—61.6
6	59.47	3.17	51.3—63.7	60.56	3.89	54.8—76.4	60.92	3.30	53.8—69.8
7	62.37	3.54	52.7—73.4	64.13	3.85	53.8—72.3	65.00	3.57	58.7—76.5
8	66.47	3.73	58.5—74.0	68.05	3.65	61.5—75.5	68.58	4.13	58.3—77.5
9	70.49	4.49	62.8—84.8	71.52	4.23	60.8—79.1	72.68	4.55	62.3—83.3
10	74.59	4.79	63.8—87.0	74.59	4.59	60.0—90.8	77.33	4.20	68.4—86.5
11	75.58	4.49	62.2—85.2	78.40	5.33	67.9—97.8	79.81	4.24	70.7—89.9
12	80.56	4.95	71.2—93.2	80.26	4.63	69.2—90.1	83.67	4.70	73.3—93.3
13	84.64	5.01	71.0—96.9	84.36	4.78	74.0—94.4	88.13	5.33	75.1—98.5
14	86.36	5.77	72.8—98.0	86.27	5.23	73.3—97.0	91.69	5.07	78.8—108.5
15	91.72	4.90	81.0—102.4	90.09	4.96	78.0—113.0	94.72	4.93	83.0—112.5
16	93.11	4.23	79.9—101.0	91.37	4.43	81.2—102.8	95.57	4.22	81.0—105.6
17	93.59	5.31	80.1—115.1	92.72	3.92	84.2—106.1	96.65	3.99	87.8—108.8
18	95.52	4.76	86.4—103.1	91.84	4.26	84.3—103.4	96.81	4.44	87.0—104.8

Table 11

Length of the lower extremities (height of anterior superior iliac spine)
in Körmend girls (cm)

Age (years)	K-58			K-68			K-78		
	\bar{x}	s	W	\bar{x}	s	W	\bar{x}	s	W
3	47.56	4.42	41.7—56.8	46.59	2.59	42.0—52.8	49.52	3.48	42.2—61.0
4	52.33	3.04	45.3—59.0	53.27	3.54	45.4—60.7	52.21	3.81	41.5—63.1
5	54.91	2.39	50.8—58.0	56.90	4.47	50.0—65.3	57.32	3.48	49.4—66.1
6	61.17	3.14	56.1—68.1	61.38	2.98	53.4—65.0	61.54	3.31	54.9—70.4
7	63.80	3.57	56.2—73.0	65.37	3.86	56.2—72.6	65.01	3.70	56.3—72.8
8	65.95	3.54	58.8—74.0	67.99	3.34	58.8—73.0	69.11	4.33	59.5—80.3
9	69.58	4.75	60.2—79.8	71.02	3.14	63.3—76.4	73.08	5.35	56.2—88.5
10	74.18	4.54	64.8—85.1	75.28	4.54	68.3—83.3	76.61	6.03	52.0—90.5
11	77.84	5.55	64.9—90.6	78.50	3.97	68.9—86.4	81.00	4.05	72.2—89.0
12	81.33	5.52	65.7—92.9	82.60	4.12	73.5—91.3	83.64	4.02	75.1—93.4
13	84.77	4.44	75.2—94.8	84.33	4.70	74.0—94.1	87.43	4.24	74.8—97.5
14	86.71	5.77	75.2—98.5	85.33	3.65	76.0—94.3	88.14	5.96	54.8—98.7
15	88.38	4.21	79.8—98.7	86.95	3.39	80.5—92.5	89.81	4.62	80.6—104.8
16	87.71	4.23	80.8—100.9	87.07	3.74	79.0—95.1	88.97	3.98	78.5—98.0
17	90.55	3.49	85.1—99.4	86.26	3.83	77.0—96.8	89.58	3.85	78.4—99.3
18	89.21	4.92	77.0—100.2	86.17	4.11	80.5—92.5	89.00	3.98	78.8—97.5

Table 12

Biacromial diameter of Körmend boys (cm)

Age (years)	K-58			K-68			K-78		
	\bar{x}	s	W	\bar{x}	s	W	\bar{x}	s	W
3	22.46	1.08	21.3—24.0	22.25	0.61	20.0—23.2	23.04	0.93	21.0—24.7
4	23.67	1.84	20.4—28.4	23.00	1.25	20.5—24.7	23.52	1.07	21.3—26.0
5	24.82	1.21	22.2—29.0	24.49	1.34	21.8—26.7	24.75	1.32	21.0—27.0
6	25.43	1.27	22.0—27.9	24.93	1.59	18.8—28.4	25.80	1.50	17.5—28.2
7	26.47	1.28	23.0—29.3	26.11	1.31	22.6—29.2	27.55	1.70	25.1—31.5
8	27.62	1.41	25.1—31.0	27.11	1.86	19.2—30.3	28.26	1.41	22.0—32.3
9	29.13	1.39	26.1—31.5	28.28	2.03	23.0—32.2	29.68	1.63	26.4—35.7
10	30.05	1.63	26.8—33.8	29.45	1.75	26.0—34.8	31.08	1.97	27.4—36.1
11	30.43	1.73	23.7—34.4	30.25	2.04	26.4—34.7	31.55	1.55	27.6—37.9
12	31.72	2.06	26.2—36.4	31.21	1.88	27.8—36.3	32.98	1.77	28.4—37.8
13	33.10	1.65	30.1—39.2	32.71	2.12	23.4—38.5	34.10	2.42	23.5—39.3
14	34.09	2.49	28.9—39.6	34.23	2.37	29.6—39.4	36.41	2.46	30.8—41.7
15	36.34	2.80	31.9—41.7	36.05	2.61	30.7—47.5	37.30	2.19	32.6—41.6
16	37.74	1.91	33.2—42.2	36.85	2.23	32.2—42.3	38.02	2.20	32.9—45.2
17	37.91	2.06	33.5—43.4	38.08	2.07	30.0—42.1	39.24	2.24	32.0—47.1
18	38.86	1.89	33.1—42.8	38.64	2.01	34.4—42.0	39.96	1.77	36.1—43.6

Table 13

Biacromial diameter of Körmend girls (cm)

Age (years)	K-58			K-68			K-78		
	\bar{x}	s	W	\bar{x}	s	W	\bar{x}	s	W
3	23.27	1.80	19.5—25.8	21.82	1.24	19.5—24.5	23.05	1.83	20.3—29.0
4	23.76	1.26	20.9—26.4	23.27	2.23	21.1—26.2	23.41	1.33	19.9—26.7
5	24.04	1.18	22.7—26.1	23.75	1.18	21.2—25.4	24.01	1.31	21.4—26.5
6	25.93	1.18	23.1—28.3	25.42	0.99	24.1—28.2	25.68	1.56	21.0—29.5
7	26.48	1.51	21.1—29.9	26.30	1.04	23.8—28.5	27.17	1.16	24.1—29.8
8	27.20	1.44	24.7—33.6	26.80	1.35	24.0—29.2	27.99	1.92	19.1—31.9
9	28.28	1.73	24.5—34.7	27.90	1.31	24.5—30.3	29.29	1.74	24.7—33.1
10	29.70	1.46	27.1—34.5	29.48	1.53	26.8—32.9	30.26	1.52	27.6—36.3
11	30.38	1.75	26.5—36.6	30.10	1.70	26.5—32.9	31.68	1.89	23.3—34.8
12	31.92	2.18	24.6—37.3	31.67	2.31	23.1—36.3	32.96	1.70	29.5—37.4
13	33.09	1.91	28.4—39.0	33.28	1.89	29.0—38.0	34.39	1.96	28.8—39.1
14	34.70	1.65	30.9—39.2	34.00	1.54	29.4—39.5	35.26	1.66	31.0—39.4
15	35.48	1.64	31.9—39.3	34.88	1.66	31.6—38.4	35.12	1.69	30.1—38.8
16	35.70	1.52	31.9—38.0	34.60	1.38	31.4—37.5	35.58	1.84	31.5—40.2
17	36.45	1.72	33.8—40.8	35.11	1.84	31.8—40.5	36.13	1.81	31.3—30.9
18	36.84	1.72	34.5—40.4	34.94	1.65	31.3—38.8	35.83	1.36	32.0—38.4

Table 14

Bi-iliocrystal diameter of Körmend boys (cm)

Age (years)	K-58			K-68			K-78		
	\bar{x}	s	W	\bar{x}	s	W	\bar{x}	s	W
3	17.54	0.84	16.0—19.0	16.17	0.94	15.3—18.3	16.65	0.89	14.5—18.4
4	18.67	1.31	16.8—20.4	17.14	1.08	15.5—18.8	17.42	1.18	15.9—24.1
5	19.45	1.04	17.2—21.8	18.03	1.01	16.3—20.5	18.15	0.93	15.5—19.9
6	19.80	0.92	17.9—21.7	18.68	1.01	17.2—21.2	18.80	1.09	15.9—22.3
7	20.48	1.15	18.2—24.7	19.15	1.15	16.5—21.5	19.74	1.23	17.4—22.8
8	21.51	1.51	19.9—26.4	20.08	1.17	18.1—22.8	20.48	1.54	18.0—24.9
9	22.20	1.51	19.3—26.1	20.93	1.32	17.6—24.8	21.45	1.81	19.2—30.0
10	23.66	1.86	20.2—28.8	21.76	2.02	18.5—29.0	22.43	1.79	18.7—27.5
11	23.72	1.62	18.7—27.0	22.60	1.96	19.5—27.5	22.84	1.73	19.6—28.6
12	24.76	1.70	21.8—30.6	23.11	1.61	19.7—27.8	23.91	1.84	21.2—30.5
13	26.29	1.86	21.9—30.4	24.07	1.62	21.1—30.3	24.98	2.24	21.4—33.0
14	27.23	2.53	22.6—29.9	24.93	1.83	20.1—29.8	26.22	2.31	21.0—33.7
15	29.26	2.00	24.6—35.1	26.26	2.10	21.0—34.0	26.84	1.79	21.3—31.7
16	29.62	1.72	25.8—33.3	27.24	2.04	22.1—31.7	27.85	1.95	23.9—34.8
17	30.72	2.03	25.7—35.8	27.77	1.55	23.7—31.9	28.21	2.20	24.1—39.5
18	31.64	2.15	27.3—36.4	28.24	1.74	25.4—32.2	28.60	1.57	24.8—32.3

Table 15

Bi-iliocrystal diameter of Körmend girls (cm)

Age (years)	K-58			K-68			K-78		
	\bar{x}	s	W	\bar{x}	s	W	\bar{x}	s	W
3	18.27	1.24	16.0—20.2	16.06	0.97	14.5—17.7	16.67	1.11	13.5—18.7
4	18.91	1.11	18.8—21.3	17.48	0.76	15.6—19.7	16.99	1.06	14.6—20.4
5	19.75	1.31	18.2—22.8	17.70	0.85	16.4—19.3	17.93	1.41	15.5—26.0
6	20.51	1.25	18.4—23.6	18.73	1.35	15.4—21.6	18.56	1.37	15.3—21.5
7	20.55	1.26	18.1—26.1	19.47	1.22	17.1—21.9	19.99	1.35	17.2—24.1
8	21.09	1.47	19.0—27.3	20.08	1.33	18.2—25.3	20.13	1.67	13.8—28.2
9	21.80	1.30	19.4—24.8	20.81	1.67	18.4—26.6	21.31	1.68	18.2—27.9
10	23.32	1.67	20.0—28.8	21.85	1.54	18.8—25.5	22.06	1.52	18.5—27.4
11	24.47	1.97	20.8—28.9	22.54	1.55	19.7—27.5	23.26	1.88	19.0—29.5
12	25.84	2.72	19.3—27.0	24.21	1.71	21.5—28.1	24.34	2.00	20.9—31.7
13	27.35	1.81	22.7—31.0	25.44	1.67	21.5—28.8	25.75	1.93	21.2—30.7
14	29.64	1.92	25.0—34.8	26.33	1.68	22.9—31.9	26.51	2.06	21.3—33.4
15	30.48	1.82	26.1—32.3	27.42	1.61	23.0—31.5	27.25	1.69	23.8—33.3
16	30.48	1.74	26.2—33.5	27.33	1.55	24.2—30.3	27.26	2.12	21.6—34.5
17	31.13	1.96	27.4—35.0	27.75	1.41	24.5—30.4	28.13	1.89	23.0—33.7
18	31.45	1.91	27.3—36.3	28.06	1.57	24.9—32.1	27.48	2.27	23.5—38.3

Table 16

Transverse chest diameter of Körmend boys (cm)

Age (years)	K-58			K-68			K-78		
	\bar{x}	s	W	\bar{x}	s	W	\bar{x}	s	W
3	16.67	0.66	15.9—17.4	17.25	0.87	16.0—18.7	16.91	0.90	15.4—18.5
4	17.21	1.03	15.3—19.8	17.68	0.57	16.6—18.6	17.30	0.96	14.1—19.7
5	17.92	0.27	15.6—20.1	18.03	0.82	16.7—20.2	17.63	0.80	16.1—19.7
6	18.10	0.99	16.7—20.4	18.37	0.89	16.9—20.1	18.20	0.89	16.1—21.3
7	18.49	1.11	17.0—20.2	18.58	0.99	17.4—20.5	19.15	1.08	17.0—21.3
8	19.80	1.41	17.4—22.3	19.19	1.11	16.9—22.8	19.70	1.37	15.2—24.3
9	20.21	1.32	17.5—22.3	19.98	2.05	16.8—28.3	20.50	1.43	17.5—27.7
10	20.86	1.59	18.7—28.0	20.47	1.79	18.2—29.6	21.40	1.68	17.8—26.7
11	21.18	1.71	18.1—29.4	21.05	1.41	19.2—25.2	21.83	1.91	15.8—27.5
12	22.03	1.62	19.8—28.1	21.68	1.80	18.6—24.6	22.77	1.62	18.7—29.1
13	22.88	2.74	20.3—26.3	23.25	1.97	19.6—28.2	23.54	1.90	20.5—31.7
14	23.68	2.49	20.3—31.8	23.89	1.67	20.0—27.6	25.16	2.14	21.3—31.3
15	25.14	2.25	21.2—29.6	25.21	2.02	20.8—32.8	25.69	1.79	21.3—30.3
16	25.91	1.71	22.2—30.2	26.42	2.37	21.9—33.5	28.86	1.88	22.8—34.1
17	26.78	2.16	21.4—32.5	27.40	1.59	23.9—31.0	27.02	1.74	22.9—33.5
18	27.41	2.19	23.3—32.9	27.36	1.32	24.5—31.5	28.00	1.83	24.4—31.7

Table 17

Transverse chest diameter of Körmend girls (cm)

Age (years)	K-58			K-68			K-78		
	\bar{x}	s	W	\bar{x}	s	W	\bar{x}	s	W
3	17.21	0.77	15.8—18.7	16.65	1.23	15.0—18.8	16.48	0.99	12.2—28.6
4	17.12	0.85	15.5—28.9	17.06	0.99	15.5—19.4	16.84	0.83	15.4—19.3
5	17.84	0.84	16.5—19.0	17.15	0.93	15.5—18.8	17.43	0.96	15.5—19.9
6	18.31	0.89	16.4—20.5	18.08	1.23	15.9—22.4	17.92	0.99	15.4—20.2
7	18.49	0.97	16.3—21.0	18.23	0.72	16.8—20.4	18.76	1.29	14.3—24.2
8	18.74	1.27	16.5—24.6	18.44	0.94	16.8—20.8	19.29	1.26	16.9—28.4
9	19.51	1.15	14.4—22.6	19.25	1.36	16.7—23.5	20.07	1.45	17.3—26.9
10	20.22	1.32	18.3—24.1	20.39	1.89	16.8—28.3	20.55	1.36	18.3—24.0
11	30.93	1.26	18.6—25.1	20.75	1.78	18.3—26.5	24.43	1.60	18.8—26.6
12	22.13	1.59	18.9—27.9	22.19	2.29	18.9—27.7	22.67	2.13	18.4—29.0
13	22.68	1.41	19.9—26.4	23.39	2.08	19.0—29.1	23.55	1.76	19.1—27.7
14	24.12	1.58	21.6—28.0	24.21	2.02	21.0—30.6	24.52	1.73	19.5—30.9
15	24.64	1.51	21.7—27.6	25.19	1.83	22.6—32.4	24.58	1.61	22.1—28.7
16	24.48	1.48	21.7—27.7	25.02	1.95	20.9—28.8	25.02	1.54	21.5—31.3
17	25.69	1.61	22.8—29.7	25.35	1.57	22.4—28.3	25.55	1.95	20.7—32.2
18	25.58	1.41	23.5—28.5	29.94	1.61	23.0—30.2	25.05	1.36	22.6—28.7

Table 18

Antero-posterior chest diameter of Kőrmenđ boys (cm)

Age (years)	K-58			K-68			K-78		
	\bar{x}	s	W	\bar{x}	s	W	\bar{x}	s	W
3	12.00	0.57	11.4—12.8	12.00	0.85	10.8—13.5	12.30	1.58	10.0—17.4
4	12.67	1.07	10.3—14.7	12.32	0.72	10.9—13.5	12.34	0.88	10.4—14.1
5	13.18	0.69	12.0—15.2	12.77	0.74	11.3—14.2	12.71	0.91	10.2—14.5
6	13.41	0.81	12.0—15.3	13.02	0.72	11.6—15.4	13.24	0.87	11.5—15.1
7	13.56	0.73	11.8—15.3	13.36	0.79	12.0—14.9	13.45	0.99	11.8—16.5
8	13.61	0.85	10.3—16.0	13.81	0.99	11.9—15.8	13.98	1.25	11.2—17.8
9	13.94	0.85	12.4—15.8	14.42	1.37	12.4—21.5	14.37	1.16	11.7—18.3
10	14.17	1.01	12.2—16.6	14.71	1.55	12.2—29.6	14.78	1.43	11.4—18.3
11	14.27	0.49	12.3—16.6	15.13	1.51	12.7—18.8	15.05	1.25	12.7—20.1
12	14.64	1.14	13.1—17.9	15.49	1.10	13.5—18.0	15.63	1.47	13.1—21.2
13	15.54	1.29	12.4—18.6	16.01	1.53	13.3—21.3	16.40	1.65	13.0—22.6
14	15.96	1.60	13.3—20.1	16.88	1.49	13.9—20.0	17.19	1.57	13.7—22.8
15	17.22	1.52	14.2—20.5	17.62	1.57	14.2—24.2	17.74	1.42	14.0—21.9
16	17.71	1.22	15.1—21.2	18.10	1.41	15.6—21.5	18.12	1.71	14.9—22.2
17	17.91	1.36	15.9—21.4	18.76	1.39	14.7—21.8	18.46	1.66	14.8—22.2
18	17.61	1.17	15.7—21.3	18.72	1.15	16.1—21.2	19.00	1.42	16.1—23.1

Table 19

Antero-posterior chest diameter of Kőrmenđ girls (cm)

Age (years)	K-58			K-68			K-78		
	\bar{x}	s	W	\bar{x}	s	W	\bar{x}	s	W
3	13.14	0.58	12.6—14.6	11.82	0.88	10.9—14.1	11.95	0.92	10.0—13.9
4	13.00	0.95	10.7—14.3	11.70	0.83	10.1—13.1	12.19	0.82	10.0—14.1
5	13.27	1.01	12.2—15.8	12.05	0.69	11.2—13.3	12.52	0.83	10.5—14.3
6	13.39	0.94	11.8—16.4	12.85	1.16	11.5—16.7	12.91	0.82	11.2—15.4
7	13.34	0.34	11.5—15.4	12.98	0.84	11.2—14.2	13.32	1.18	11.2—18.0
8	13.58	1.02	12.2—16.2	13.41	1.07	11.8—15.6	13.44	1.08	11.3—16.9
9	13.72	1.00	12.2—16.2	13.90	1.17	10.8—16.7	14.05	1.32	11.0—19.4
10	14.25	1.30	11.8—18.7	14.41	1.53	12.6—19.8	14.46	1.15	12.0—18.3
11	14.13	1.08	11.4—17.2	14.96	1.71	11.7—19.6	14.75	1.43	11.0—19.5
12	14.96	1.26	12.8—18.7	15.74	1.45	12.7—18.9	15.58	1.45	13.0—18.5
13	15.33	1.14	12.6—18.1	16.32	1.43	13.4—20.7	16.24	1.74	13.3—23.3
14	16.53	1.11	13.8—19.4	16.78	1.38	14.2—21.1	16.80	1.41	13.0—20.6
15	16.60	1.26	13.8—19.4	17.32	1.45	15.1—21.7	17.08	1.64	14.5—23.8
16	16.32	0.82	14.8—18.2	17.33	1.11	14.7—19.9	17.05	1.55	13.4—21.2
17	16.82	1.19	14.6—19.5	17.28	1.43	13.1—19.8	17.51	1.82	14.0—27.2
18	19.96	1.37	14.2—20.0	17.53	1.38	13.8—21.3	16.83	1.53	13.4—21.3

Table 20
Chest circumference of Körmend boys (cm)

Age (years)	K-58			K-68			K-78		
	\bar{x}	s	W	\bar{x}	s	W	\bar{x}	s	W
3	52.08	2.43	48.0—54.8	52.50	2.07	48.5—56.5	51.17	2.08	46.3—54.6
4	54.62	2.85	49.0—61.0	53.55	2.14	50.0—58.1	52.44	2.47	45.0—60.3
5	56.00	2.37	50.8—60.1	55.86	2.88	50.3—61.2	53.74	2.36	48.5—61.0
6	56.61	2.88	50.0—62.0	56.68	2.78	51.3—64.7	56.20	3.37	50.5—74.2
7	57.86	2.58	51.0—63.2	57.68	3.61	53.5—65.5	58.18	3.47	51.5—68.0
8	60.06	3.34	54.3—74.6	59.92	3.50	55.0—70.2	61.01	4.13	50.2—77.4
9	62.15	3.00	55.8—70.0	62.52	6.12	53.8—92.0	62.57	4.23	54.8—90.0
10	64.68	3.90	57.2—76.0	63.99	5.81	56.2—93.0	65.58	5.49	53.5—85.7
11	65.71	3.69	57.8—73.5	66.00	4.52	59.6—85.0	67.04	5.46	58.3—88.3
12	69.02	4.35	61.8—80.5	67.79	5.06	52.8—80.8	69.79	5.86	60.7—90.5
13	72.27	4.17	61.8—83.1	71.43	5.87	57.3—94.0	72.22	6.27	63.3—100.0
14	74.64	6.06	63.5—96.5	75.05	5.86	61.8—92.2	77.88	7.75	56.0—102.5
15	80.32	5.82	67.4—95.3	78.92	7.07	53.8—100.1	79.56	5.85	66.8—95.0
16	83.03	4.53	71.3—93.3	82.93	7.45	56.7—98.1	83.39	6.28	64.0—105.0
17	84.76	5.73	75.3—102.8	85.43	5.39	59.0—95.3	84.16	5.43	68.0—103.8
18	88.32	4.38	78.8—101.0	86.00	3.35	78.1—93.0	87.83	6.45	76.2—102.8

Table 21
Chest circumference of Körmend girls (cm)

Age (years)	K-58			K-68			K-78		
	\bar{x}	s	W	\bar{x}	s	W	\bar{x}	s	W
3	53.17	2.79	47.0—56.3	51.47	2.86	48.2—58.2	50.67	3.28	43.8—60.5
4	53.82	2.55	49.0—59.0	53.18	2.94	48.2—59.6	51.43	2.40	47.0—57.3
5	55.64	2.16	52.8—61.8	53.50	2.86	49.5—58.2	53.68	2.70	46.8—61.3
6	57.59	3.06	52.4—63.4	56.54	2.63	50.7—76.2	55.19	3.46	48.4—69.0
7	58.08	2.79	51.5—66.6	56.84	2.22	51.8—62.0	57.59	3.70	51.0—77.3
8	59.51	4.11	51.5—79.0	57.92	2.87	53.8—64.5	59.19	3.88	51.5—73.5
9	60.60	3.27	55.0—72.7	59.73	3.74	53.0—69.2	62.17	5.14	52.5—85.0
10	63.00	4.02	56.3—76.7	64.72	6.36	55.0—91.2	63.80	4.56	55.3—77.3
11	64.89	4.77	57.3—79.0	66.94	7.51	57.1—90.6	67.23	6.05	58.5—89.0
12	69.71	5.46	60.0—88.0	72.35	7.61	59.0—87.5	70.96	6.79	59.5—91.0
13	72.05	4.47	61.5—82.5	76.96	7.30	57.3—92.8	74.68	6.43	62.2—96.5
14	76.66	5.22	69.0—92.5	80.55	7.17	66.6—102.2	77.90	6.50	59.5—100.5
15	77.95	5.01	64.0—92.7	83.88	6.92	75.0—115.5	78.73	5.42	69.0—94.0
16	78.87	3.33	73.0—86.6	83.33	6.49	73.1—101.8	80.19	5.77	68.1—102.8
17	81.54	4.65	72.0—96.0	85.06	5.21	73.8—98.0	81.83	6.64	68.3—108.5
18	81.50	4.86	72.3—93.8	87.00	5.48	76.8—102.8	79.35	4.59	73.0—91.8

Table 22

Upper arm circumference of Körmend boys (cm)

Age (years)	K-68			K-78		
	\bar{x}	s	W	\bar{x}	s	W
3	15.58	1.09	14.2—17.0	15.09	1.60	13.3—18.0
4	15.86	0.94	14.4—18.0	15.30	1.38	11.0—21.5
5	16.14	1.40	13.0—20.3	15.46	0.99	13.4—18.8
6	16.56	1.85	12.0—20.0	15.81	1.23	12.7—19.3
7	16.49	1.17	14.6—19.0	16.35	1.46	13.8—21.0
8	17.10	2.09	14.0—22.2	16.84	1.60	14.3—23.4
9	17.78	2.18	14.2—26.8	17.79	2.03	14.8—25.5
10	18.53	2.45	15.5—30.2	18.63	2.34	15.3—26.9
11	19.40	2.06	16.3—25.4	19.15	2.16	15.3—26.6
12	19.99	2.15	16.8—25.3	19.88	2.35	15.8—27.8
13	21.07	2.54	17.8—31.0	20.74	2.89	16.9—32.8
14	22.40	2.44	17.3—28.5	22.40	3.01	16.3—31.3
15	23.55	2.59	18.1—33.4	22.93	2.03	17.5—29.0
16	24.93	2.70	18.5—32.1	24.02	2.06	19.7—29.8
17	25.71	2.15	20.8—32.3	23.97	2.23	17.8—33.0
18	25.64	1.80	23.0—29.3	25.36	2.13	19.9—31.0

Table 23

Upper arm circumference of Körmend girls (cm)

Age (years)	K-68			K-78		
	\bar{x}	s	W	\bar{x}	s	W
3	15.53	0.88	14.0—17.2	15.29	1.09	12.2—18.0
4	16.03	1.13	14.2—17.2	15.29	0.33	13.0—17.6
5	15.65	1.23	14.0—17.8	15.56	1.18	13.0—18.5
6	16.62	1.86	14.2—22.6	15.99	1.39	13.4—18.8
7	16.63	1.28	14.0—19.5	16.57	1.62	13.7—23.3
8	17.41	1.31	15.6—20.5	17.34	1.71	14.0—21.4
9	18.06	1.90	15.3—23.5	18.10	2.01	14.1—24.8
10	19.41	2.22	15.4—26.8	18.55	1.88	15.3—24.8
11	20.19	3.05	16.6—28.5	19.38	2.72	15.3—29.4
12	21.21	2.48	17.6—27.2	20.16	2.63	16.3—29.5
13	22.17	2.22	17.9—26.8	21.08	2.36	15.8—28.0
14	23.08	2.45	19.3—30.1	22.00	2.65	17.2—31.8
15	24.14	2.37	20.7—30.6	22.54	2.40	17.3—27.0
16	24.18	2.43	20.4—29.0	23.11	1.92	18.4—30.3
17	24.62	2.35	29.2—29.6	23.69	2.44	17.0—31.7
18	25.47	2.19	22.5—32.0	23.00	2.13	19.4—27.9

Table 24

Thigh circumference of Körmend boys (cm)

Age (years)	K-68			K-78		
	\bar{x}	s	W	\bar{x}	s	W
3	29.32	2.21	25.5—33.6	29.33	1.43	24.8—31.9
4	31.05	2.64	27.7—38.8	29.46	2.40	20.3—37.0
5	31.32	3.26	22.5—37.7	30.93	2.28	26.0—36.4
6	32.97	2.75	28.5—39.2	32.55	2.72	24.8—39.4
7	33.38	2.38	29.3—40.2	32.09	3.46	28.0—46.6
8	35.30	3.36	30.9—43.5	36.69	4.10	28.8—48.3
9	36.88	4.37	30.4—53.2	38.57	4.38	31.8—55.8
10	38.71	4.66	31.5—60.0	40.33	5.01	32.5—56.5
11	40.85	4.88	34.0—60.0	41.42	4.59	31.5—54.9
12	41.00	3.80	35.0—63.3	43.16	5.02	34.0—62.0
13	43.36	3.97	36.8—60.0	44.83	4.97	36.3—65.3
14	44.76	4.31	34.9—59.0	47.41	5.05	35.0—62.0
15	47.00	4.84	32.5—65.5	48.14	3.77	39.4—60.3
16	48.81	4.49	35.6—63.0	50.22	4.29	40.4—65.5
17	50.83	3.90	45.0—60.4	49.50	4.71	40.0—59.7
18	49.88	2.80	45.2—54.0	51.23	3.63	43.3—59.2

Table 25

Thigh circumference of Körmend girls (cm)

Age (years)	K-68			K-78		
	\bar{x}	s	W	\bar{x}	s	W
3	30.82	2.11	26.8—34.7	30.19	3.39	24.8—38.5
4	32.36	2.51	28.0—38.5	30.69	2.53	24.9—38.3
5	31.95	3.00	26.8—37.2	32.29	2.70	25.8—41.2
6	31.85	2.93	29.0—41.3	34.08	3.04	28.3—44.0
7	35.12	2.38	30.0—40.9	35.96	3.56	29.5—48.8
8	37.15	3.01	32.0—44.5	37.03	3.89	29.0—46.4
9	38.42	3.73	33.0—49.0	39.49	4.15	31.7—51.8
10	41.50	4.37	33.1—55.8	40.46	3.90	32.4—50.3
11	42.94	5.63	35.2—60.5	43.30	4.88	34.2—57.3
12	45.77	4.77	37.3—56.0	45.39	5.47	29.4—60.4
13	47.66	4.88	37.4—57.8	48.27	5.03	35.5—58.5
14	50.04	4.60	41.0—64.3	50.10	5.27	37.9—73.3
15	51.70	4.65	44.5—69.5	51.34	4.73	41.7—62.1
16	51.80	4.40	45.0—63.0	51.53	4.10	36.8—63.0
17	52.60	3.76	45.3—61.5	53.40	4.82	39.4—68.8
18	54.65	4.16	46.5—66.0	53.45	3.98	43.4—62.0

Table 26

Calf circumference of Körmend boys (cm)

Age (years)	K-68			K-78		
	\bar{x}	s	W	\bar{x}	s	W
3	20.25	1.44	18.8—22.6	20.39	0.99	18.8—21.6
4	20.83	1.03	18.6—23.5	20.65	1.41	18.4—34.8
5	21.40	1.70	16.3—24.4	21.47	1.25	28.1—24.0
6	22.46	1.66	19.7—26.6	22.53	1.62	19.3—26.2
7	22.72	1.46	20.0—26.3	23.69	2.00	20.1—29.3
8	24.06	2.32	20.8—29.7	25.00	1.92	21.3—29.0
9	25.15	2.66	19.5—35.3	26.22	2.54	19.5—36.8
10	25.88	2.48	21.6—36.2	27.15	2.67	22.0—35.2
11	26.75	2.57	20.1—35.3	27.92	2.47	23.0—35.9
12	28.00	2.54	24.0—32.1	29.11	2.69	21.7—40.0
13	28.68	3.00	18.6—36.8	30.72	3.26	22.8—41.3
14	30.61	2.77	25.2—40.0	32.68	3.15	24.5—40.8
15	32.02	2.78	26.8—41.0	33.36	2.41	28.0—40.5
16	33.39	3.03	26.6—43.3	34.48	2.49	29.7—41.8
17	33.88	2.27	27.9—39.4	33.90	2.32	29.1—39.6
18	33.28	1.33	30.9—37.2	34.80	2.24	30.2—40.7

Table 27

Calf circumference of Körmend girls (cm)

Age (years)	K-68			K-78		
	\bar{x}	s	W	\bar{x}	s	W
3	20.06	1.20	18.0—22.2	20.62	1.80	14.5—23.8
4	21.82	1.97	18.8—28.0	21.10	1.39	18.0—25.2
5	21.10	1.25	18.0—23.2	22.00	1.61	18.1—28.3
6	22.96	1.66	19.8—28.3	22.74	1.51	18.3—27.4
7	23.53	1.30	21.2—27.4	24.12	1.85	20.0—31.0
8	24.21	1.63	20.8—27.8	24.96	2.13	20.8—29.3
9	25.13	2.07	21.4—31.0	26.34	2.51	21.1—38.2
10	26.43	2.36	21.1—34.8	27.07	2.68	22.3—35.2
11	27.13	2.60	20.7—33.2	28.52	2.89	23.3—37.5
12	29.24	2.79	23.6—36.2	29.63	3.16	19.8—38.5
13	30.50	2.62	25.2—27.2	30.86	2.82	23.3—37.5
14	31.56	2.52	36.6—38.0	32.16	2.98	26.0—40.8
15	32.56	2.51	28.3—37.7	32.66	2.52	26.8—37.0
16	32.27	2.76	27.3—40.7	33.15	2.13	27.6—37.7
17	32.94	2.47	28.3—39.0	33.44	2.60	26.0—41.3
18	33.79	1.99	29.2—37.8	32.95	1.91	27.9—36.9

Table 28
Bicondylar humerus of Körmend boys (mm)

Age (years)	K-68			K-78		
	\bar{x}	s	W	\bar{x}	s	W
3	44.75	2.00	42-49	43.91	2.92	39-49
4	44.73	1.83	42-49	45.00	2.77	39-54
5	47.08	2.95	42-53	46.47	2.35	41-52
6	48.07	3.18	43-54	48.00	2.82	42-57
7	49.47	4.47	42-72	50.06	3.32	43-59
8	50.28	3.39	38-56	52.63	3.98	46-73
9	53.25	3.74	43-65	54.91	4.00	49-78
10	56.00	4.19	49-69	56.35	3.90	48-69
11	57.50	4.18	52-79	57.96	3.58	50-75
12	58.84	4.13	50-68	60.00	3.78	52-74
13	61.78	4.47	52-74	62.34	4.29	53-74
14	65.23	4.91	54-85	65.58	4.32	54-73
15	67.04	4.07	53-77	67.48	4.24	58-80
16	68.75	4.34	60-84	68.89	3.60	60-77
17	69.79	3.53	62-78	69.48	3.40	51-78
18	70.04	2.73	65-74	69.29	3.53	60-77

Table 29
Bicondylar humerus of Körmend girls (mm)

Age (years)	K-68			K-78		
	\bar{x}	s	W	\bar{x}	s	W
3	41.41	2.17	37-44	42.29	2.40	35-45
4	43.91	2.65	39-50	43.24	2.43	36-49
5	43.50	2.86	35-48	44.97	2.92	38-56
6	45.92	3.38	42-53	46.29	2.89	41-53
7	47.79	2.96	43-54	48.24	3.23	39-57
8	50.00	2.63	44-55	49.30	3.06	44-57
9	51.06	3.17	45-58	52.15	3.70	44-65
10	54.50	4.55	47-74	54.17	3.26	46-64
11	55.75	3.36	49-64	55.80	3.22	48-63
12	57.84	3.95	50-69	57.20	3.61	51-67
13	58.41	3.43	52-68	58.64	3.70	50-76
14	59.89	3.13	53-70	59.65	3.60	52-73
15	61.12	3.59	54-69	58.24	3.25	54-67
16	60.79	3.59	53-68	60.81	3.66	54-76
17	61.00	3.48	54-68	61.29	3.63	52-70
18	62.00	3.30	54-68	60.00	3.18	52-68

Table 30
Bicondylar femur of K6rmend boys (mm)

Age (years)	K-68			K-78		
	\bar{x}	s	W	\bar{x}	s	W
3	66.50	3.35	60-72	66.17	3.61	55-72
4	68.18	3.64	60-75	69.18	3.58	61-80
5	71.97	4.24	63-82	70.95	3.54	61-78
6	73.80	3.80	66-82	73.08	3.55	66-84
7	75.07	2.96	68-81	77.35	4.77	65-90
8	78.55	4.26	70-88	80.13	4.24	71-92
9	81.21	4.90	70-96	83.30	4.97	72-99
10	83.82	5.66	63-104	86.20	5.53	76-104
11	86.70	5.11	79-100	87.23	6.63	62-102
12	89.27	4.95	81-99	90.64	5.59	74-110
13	91.29	5.23	80-103	94.04	6.55	78-118
14	94.91	5.21	84-108	97.27	5.93	85-122
15	96.62	5.56	83-118	96.90	4.64	85-109
16	97.87	5.57	84-123	98.65	5.01	85-110
17	99.11	5.11	88-110	97.80	4.65	88-108
18	97.24	3.96	90-106	98.64	4.41	89-110

Table 31
Bicondylar femur of K6rmend girls (mm)

Age (years)	K-68			K-78		
	\bar{x}	s	W	\bar{x}	s	W
3	64.23	3.21	59-72	65.14	3.27	58-73
4	67.36	3.69	61-74	66.99	3.49	56-74
5	67.50	4.20	61-72	68.73	3.47	58-76
6	71.54	4.22	66-84	70.64	3.92	61-81
7	73.46	3.73	66-82	73.88	4.16	66-92
8	75.77	3.49	68-83	75.55	3.96	68-84
9	77.54	4.26	68-87	79.21	5.09	66-96
10	81.32	5.52	73-93	81.96	5.01	72-95
11	83.88	4.95	74-95	84.51	4.45	75-94
12	86.28	5.66	74-104	86.38	5.89	70-106
13	87.29	4.45	78-97	88.77	4.71	78-101
14	89.11	4.83	78-103	89.94	5.81	77-114
15	90.63	4.37	81-100	90.20	4.87	80-102
16	90.93	6.28	81-108	90.73	5.21	81-103
17	89.89	4.65	78-101	91.34	5.26	80-104
18	91.56	3.84	82-98	89.48	4.41	80-96

Table 32

Skinfold thickness over biceps in Körmend boys (mm)

Age (years)	K-68			K-78		
	\bar{x}	s	W	\bar{x}	s	W
3	5.83	1.47	4—9.5	7.48	2.26	3—14
4	5.66	1.35	3—8.5	6.76	2.33	2—14
5	5.42	1.17	4—8.0	6.86	2.33	2—12
6	5.36	1.53	3—8.0	5.95	3.14	2—12
7	4.91	1.22	3—8.0	5.10	2.71	2—17
8	5.41	1.36	3—9.0	5.35	2.72	2—14
9	5.66	2.21	3—11.5	6.27	2.88	3—18
10	4.43	1.68	3—11.0	6.37	3.57	2—15
11	4.83	1.71	2—9.5	7.01	4.34	2—24
12	4.42	1.75	2—10.0	7.04	4.23	2—30
13	4.76	2.00	2—11.0	7.17	4.08	2—22
14	4.39	1.48	2—10.0	6.26	3.26	2—18
15	3.04	0.96	3—7.5	5.65	2.64	2—13
16	4.26	1.14	3—9.5	5.22	2.60	2—18
17	4.18	2.68	2—7.5	5.15	2.85	3—22
18	3.93	0.71	3—6.0	5.21	2.69	2—14

Table 33

Skinfold thickness over biceps in Körmend girls (mm)

Age (years)	K-68			K-78		
	\bar{x}	s	W	\bar{x}	s	W
3	5.74	1.72	3—10	7.97	2.48	3—14
4	5.61	1.38	3—9	7.41	2.09	3—13
5	5.42	1.17	4—8	7.36	2.22	4—12
6	5.36	1.53	3—8	7.33	2.46	3—12
7	4.91	1.22	3—8	6.89	3.00	2—21
8	5.41	1.36	3—9	5.44	2.66	3—18
9	5.66	2.21	3—11	7.78	2.90	3—17
10	6.45	2.07	3—11	7.70	3.37	2—17
11	6.24	2.48	4—12	8.21	3.66	2—17
12	6.20	1.86	4—10	8.12	3.98	3—27
13	6.86	2.29	4—13	8.61	3.78	2—22
14	7.08	2.17	3—12	8.88	3.66	2—25
15	8.22	2.98	4—16	17.40	4.17	2—25
16	7.99	3.10	5—15	10.58	3.92	4—26
17	7.56	2.37	3—13	10.48	4.04	3—24
18	8.04	1.91	5—11	8.85	3.86	2—22

Table 34

Skinfold thickness over triceps in Körmend boys (mm)

Age (years)	K-68			K-78		
	\bar{x}	s	W	\bar{x}	s	W
3	10.44	1.58	7-15	11.78	2.55	9-18
4	9.19	1.36	6-11	10.72	2.80	5-19
5	8.56	1.48	6-13	9.85	2.21	6-15
6	8.31	1.69	5-13	9.51	2.62	5-18
7	7.34	1.70	4-13	8.90	3.33	4-22
8	7.85	1.85	5-13	9.59	4.02	3-24
9	7.43	1.65	4-12	10.34	4.03	4-24
10	7.78	2.31	4-13	10.30	4.47	3-23
11	8.40	2.65	4-16	10.31	5.37	5-32
12	6.42	2.06	3-14	10.82	5.03	3-28
13	7.96	2.67	4-16	10.21	5.26	3-35
14	7.65	1.94	4-13	9.88	5.34	3-32
15	6.98	1.87	4-12	9.02	3.77	2-19
16	7.13	2.17	4-14	8.73	3.96	3-28
17	7.87	1.83	4-11	8.06	4.08	3-25
18						

Table 35

Skinfold thickness over triceps in Körmend girls (mm)

Age (years)	K-68			K-78		
	\bar{x}	s	W	\bar{x}	s	W
3	10.11	2.30	6-15	11.90	2.76	6-16
4	10.12	1.55	7-14	11.75	2.79	6-18
5	8.50	1.07	6-11	11.17	2.86	6-20
6	8.64	1.93	4-11	10.79	2.86	4-18
7	8.54	2.05	5-12	11.19	4.13	5-28
8	9.37	2.15	6-14	10.65	3.97	6-21
9	9.31	2.58	5-15	11.97	4.20	5-29
10	10.27	3.00	6-17	12.10	4.14	5-27
11	10.74	3.03	7-17	11.72	4.16	4-23
12	10.00	2.43	6-14	12.18	5.50	6-37
13	10.54	2.85	6-16	12.89	5.63	5-35
14	10.34	2.96	7-17	14.22	5.61	6-35
15	14.57	3.67	6-23	14.68	4.92	5-27
16	13.80	4.87	8-24	16.19	5.38	5-39
17	13.65	4.17	8-24	16.99	5.93	2-33
18	14.74	3.30	8-21	15.65	8.08	5-25

Table 36

Subscapular skinfold thickness in Körmend boys (mm)

Age (years)	K-68			K-78		
	\bar{x}	s	W	\bar{x}	s	W
3	6.15	1.21	5-9	6.00	1.62	3-8
4	5.36	1.13	4-8	6.13	2.77	3-17
5	5.03	0.94	3-7	6.03	2.12	3-11
6	5.14	1.21	3-9	5.87	2.40	3-16
7	5.01	1.18	4-8	5.24	2.82	2-18
8	4.44	1.29	3-10	6.79	5.07	2-34
9	5.27	1.28	3-9	6.93	4.33	2-30
10	5.77	1.54	3-10	5.13	5.60	3-31
11	6.47	2.27	4-15	8.38	6.05	3-35
12	6.08	1.96	4-15	8.96	5.89	2-32
13	6.49	2.29	4-15	9.15	6.81	3-48
14	6.53	2.44	3-14	9.21	5.80	3-38
15	6.95	1.52	4-12	8.85	3.71	3-23
16	7.49	1.86	5-15	9.67	4.24	5-31
17	7.97	2.02	5-14	9.48	4.34	4-30
18	8.18	1.56	5-12	11.26	5.39	5-36

Table 37

Subscapular skinfold thickness in Körmend girls (mm)

Age (years)	K-68			K-78		
	\bar{x}	s	W	\bar{x}	s	W
3	6.19	1.26	4-8	6.95	2.62	3-14
4	6.43	1.35	4-10	6.51	2.49	3-17
5	6.06	1.49	4-9	7.13	2.43	4-15
6	5.89	1.28	4-9	7.36	3.05	3-18
7	5.75	1.49	4-10	7.87	4.96	2-33
8	6.83	2.34	4-12	7.89	5.09	3-28
9	6.92	2.63	4-15	9.18	5.52	3-32
10	8.05	2.47	4-15	9.46	5.28	3-25
11	9.16	3.96	6-18	9.89	5.90	2-34
12	8.52	2.11	6-14	11.17	7.61	3-48
13	9.57	2.90	5-15	12.45	6.58	5-37
14	10.93	3.15	6-17	13.63	6.19	4-35
15	13.43	3.61	8-21	13.76	5.90	5-33
16	13.74	4.21	9-23	15.11	7.28	7-47
17	13.33	3.73	8-20	16.47	6.42	5-41
18	13.44	4.02	8-22	15.18	5.27	7-32

Table 38

Supra-iliac skinfold thickness in Körmend boys (mm)

Age (years)	K-68			K-78		
	\bar{x}	s	W	\bar{x}	s	W
3	6.31	2.57	4-12	6.70	1.64	4-11
4	5.49	2.02	3-10	6.69	2.82	2-22
5	4.79	2.10	3-13	6.81	2.52	2-13
6	4.76	1.35	3-8	7.20	3.11	2-20
7	4.70	2.46	3-14	6.65	4.12	2-24
8	5.55	2.68	3-14	8.88	7.56	2-39
9	5.04	2.09	3-13	10.29	7.73	2-45
10	5.49	2.07	3-10	11.92	8.94	2-42
11	6.42	2.80	3-13	12.59	9.99	3-50
12	6.10	2.71	3-14	12.82	8.99	3-46
13	6.67	2.96	3-15	13.29	9.92	3-58
14	6.53	2.44	4-14	13.16	8.86	2-55
15	6.89	2.54	4-18	12.01	6.69	3-35
16	7.19	2.31	4-14	12.52	7.33	4-58
17	8.20	3.14	4-17	12.08	7.25	5-52
18	6.86	2.08	5-13	14.74	7.82	4-46

Table 39

Supra-iliac skinfold thickness in Körmend girls (mm)

Age (years)	K-68			K-78		
	\bar{x}	s	W	\bar{x}	s	W
3	7.33	2.68	4-13	7.61	2.74	3-14
4	7.54	2.21	5-13	8.10	2.98	3-18
5	7.03	2.71	4-13	8.99	3.27	4-19
6	6.65	2.14	4-12	9.40	3.77	3-21
7	6.39	3.11	4-12	10.48	6.18	3-38
8	7.24	2.49	4-14	9.88	4.99	2-31
9	7.67	2.86	4-13	13.11	7.68	3-38
10	9.48	3.15	4-15	13.19	6.59	5-33
11	9.05	3.27	4-14	14.07	7.63	3-35
12	8.84	2.53	5-13	15.29	9.63	3-41
13	10.46	3.61	6-18	16.49	8.43	5-40
14	10.93	3.15	6-17	17.50	7.95	3-47
15	16.10	3.99	9-23	17.81	7.52	6-37
16	17.73	4.80	12-28	19.18	7.33	10-52
17	15.13	4.44	8-23	21.66	8.80	7-50
18	20.60	4.93	14-31	18.18	6.92	7-42

Table 40

Abdomen skinfold thickness in Körmend boys (mm)

Age (years)	K-68			K-78		
	\bar{x}	s	W	\bar{x}	s	W
3	8.45	3.24	4-14	5.88	2.42	3-13
4	6.25	2.24	4-12	5.97	2.89	2-14
5	5.73	1.47	3-9	5.42	2.29	2-13
6	6.11	1.81	3-10	6.33	3.64	1-20
7	5.32	1.79	3-12	5.69	4.10	2-24
8	6.72	3.37	3-16	7.70	6.84	2-38
9	6.10	2.47	3-13	8.81	7.11	2-38
10	6.65	2.78	3-14	10.68	8.58	3-36
11	8.36	4.28	4-21	10.43	8.55	3-45
12	7.88	2.75	4-14	11.20	9.25	2-47
13	9.24	3.88	4-20	11.57	8.80	3-50
14	10.11	3.84	6-19	11.47	8.34	3-50
15	9.19	3.11	4-17	11.57	8.80	3-50
16	10.16	3.14	5-19	12.37	7.10	4-48
17	10.89	4.31	5-21	11.92	8.00	4-54
18	11.00	3.08	6-20	13.89	8.44	5-48

Table 41

Abdomen skinfold thickness in Körmend girls (mm)

Age (years)	K-68			K-78		
	\bar{x}	s	W	\bar{x}	s	W
3	7.31	1.58	4-9	8.38	3.52	5-21
4	7.53	3.39	5-16	7.31	2.52	2-15
5	6.42	2.38	4-12	7.20	3.39	2-18
6	8.05	3.40	4-15	8.01	4.06	2-20
7	6.70	2.11	4-13	8.65	5.77	3-34
8	8.25	3.20	4-15	8.31	5.34	2-27
9	8.77	3.01	4-15	11.21	7.57	2-48
10	10.63	3.61	5-17	11.49	6.21	3-31
11	10.20	3.37	5-15	13.41	7.71	3-36
12	13.34	4.60	7-20	15.41	9.15	3-44
13	15.41	4.52	9-24	16.56	8.01	6-42
14	18.93	6.01	10-30	18.94	8.14	4-53
15	22.08	4.18	16-30	19.93	7.85	8-42
16	22.80	4.99	17-33	21.63	8.84	9-55
17	17.79	4.60	11-27	22.73	8.89	8-44
18	24.28	4.71	14-31	20.00	9.15	8-35

Summary

Changes in body measurements investigated in KGS demonstrate secular changes in Körmend children. All these changes are the consequence of an urbanization process of the settlement, including migration. In this paper the author presented values of body measurements as a complete series of anthropometric data of the KGS.

Special Acknowledgements: It was difficult to speak without any emotion on 28th May, 1981. This day was a splendid landmark in the history of the Körmend Growth Study. After many conferences in Hungary and abroad I had an opportunity to give a presentation on my Körmend Growth Study there, just at Körmend. Many of the participants of our Symposium had known more or less about this study years before, however, very few of them know Körmend itself. We were there, and I was able to report some selected data of my investigations at Körmend. Our Körmend friends were happy to see the participants of our Symposium there. It is a fact that in the 700 years' history of Körmend there had never been organized such scientific conference with the attendance of such an international group of outstanding scientists. Therefore, my first words were those of thanks. I really was and I am extremely happy and grateful for the extensive and permanent help and exceptionally willing co-operation of my Körmend colleagues and friends during the course of this study. Without their help and collaboration I would never have been able to carry out this study. I am convinced that they knew for as certain as I did that with this Körmend Growth Study all of us served the better knowledge of our Körmend youth, and with it we wanted to create better circumstances for their growth and development process.

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