

PHYSICAL DEVELOPMENT OF THE DANZIG QUINTUPLETS IN THEIR FIRST YEAR OF LIFE

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The physical development of the quintuplets in their first year of age is described, including anthropological measurements, psychological, hematological, immunological, and other examinations.

Piotr appeared to show the highest rate of height and weight growth; Ewa, the lowest one. In the 7th month of age, head and chest circumference values achieved the standards of singletons born at term. Psychomotor development of the quintuplets was not only proper but even exceeding. Teething occurred in the 8th-10th month. Hematological examinations in the first 6 months showed some anemia, which disappeared in the 7th month. Other laboratory examinations did not show any deviations, except for slightly lowered serum level of gamma-globulins. In their first year of age the children suffered from nearly any diseases. The infections of the upper respiratory tract showed a mild course.

The Danzig quintuplets have been discharged for staying at home at the age of 2½ months in a good general state of health, after attaining a complete state of adjustment. At that time they had more than doubled their birth weight and considerably increased their body length (5-8 cm).

The examinations of their development carried out every month included weight control, anthropometric measurements, physical and psychological examinations. The laboratory analyses involved hematological and immunological indices, and protein and lipid metabolism. Electrocardiographic, cytogenetic, and dactyloscopic examinations were carried out systematically. Apart from that, a surgeon, a radiologist (bone age), a neurologist and an ophthalmologist, were consulted.

1. Body Weight (see Fig. 1)

At the time of discharging the infants for staying at home, Adam and Roman exhibited the highest body weight (3910 and 3990 g). Piotr continued to display the lightest (3480 g). He was the one to exhibit the greatest number of prematurity traits.

Adam and Roman had the greatest weight increase during the first 6 months life; after concluding 6 months of life they weighed 6810 and 6820 g, respectively. Ewa exhibited the lowest weight increment. The insufficient weight increment of Ewa was explained by vomiting, noted in the first months of life; it was a symptom of the constriction of the pylorus confirmed by radiography. In the second half-year Piotr gained weight head-long, achieving the highest body weight of all quintuplets (9450 g) at the end of the first year of life. Adam and Roman had also a good rate of weight increment. As

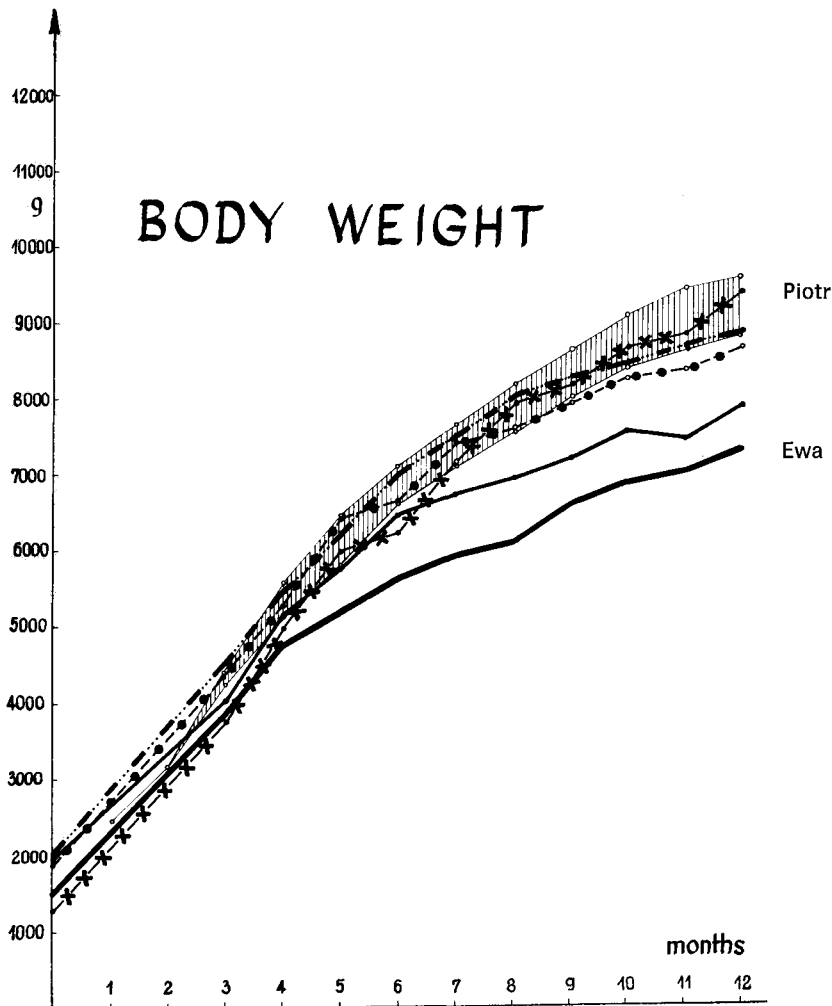


Fig. 1

early as the 9th month of life, all children, besides Ewa, attained the upper limit of weight indicated for premature infants by Kiepuska-Zdzienicka. The lower weight increments of Ewa were probably caused by genetic conditioning (small and slight mother), but these increments, too, develop rhythmically in their own, continuous development channel.

2. Body Length (see Fig. 2)

When coming home, Roman was the longest (54 cm), Ewa the smallest infant (51 cm). Until the age of 5 months the infants grew, in the mean, 4 to 6 cm a month. After the

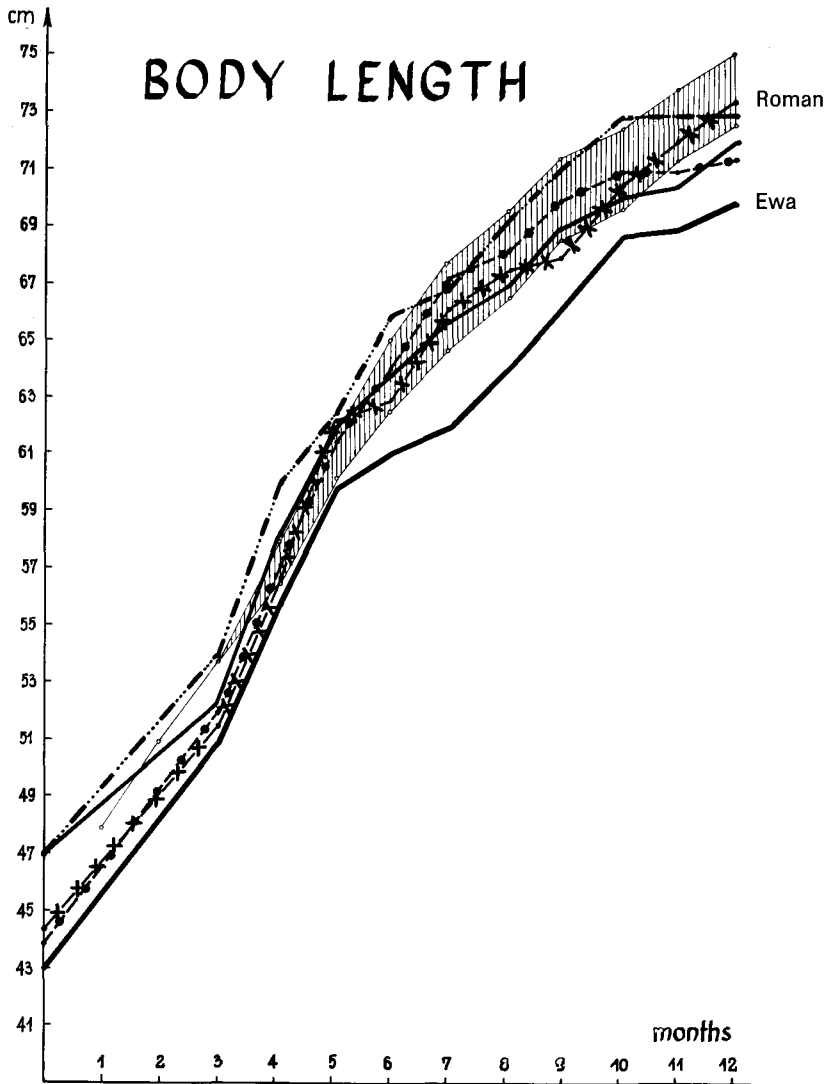


Fig. 2

conclusion of the first half-year, Roman was the longest (66 cm) and Ewa the smallest (61 cm). From the second half-year on, the pace of growth slowed down to some 1-3 cm a month, and it was the highest in Piotr. After concluding the first year of life, Piotr proved to be the longest (73.5 cm), followed by Roman (73.2 cm), Ewa being the shortest (70 cm).

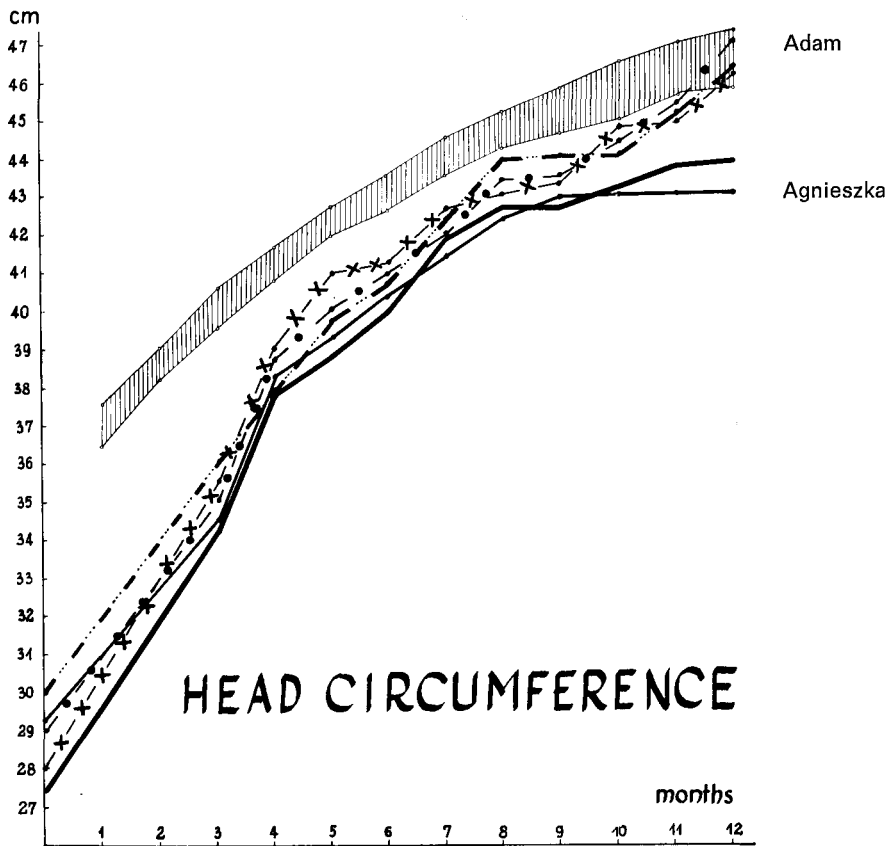


Fig. 3

3. Head Circumference (see Fig. 3)

When the infants came home, the head circumferences of the boys were greater than those of the girls (Adam 35 cm, Piotr 35.5 cm, Roman 36 cm). The head circumference of the two girls was the same and amounted to 34.5 cm. As early as in the 7th month of life, all infants had a normal head size indicated for premature infants by T. Mazurczak. In the first months of life, a deformation of the skull was noted in Piotr, consisting in a clear-cut flattening to the side. This deformation was compensated after 6 months of life.

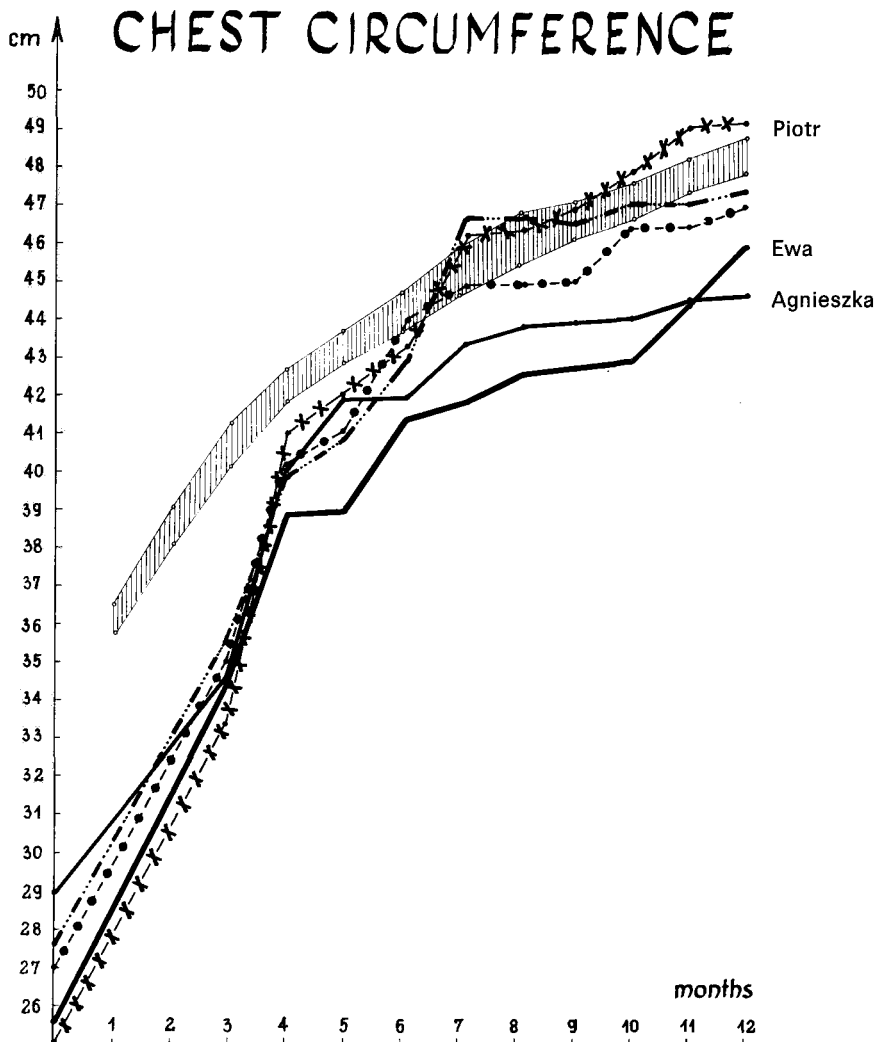


Fig. 4

4. Chest Circumference (see Fig. 4)

The dimensions came up to standard earlier than the other parameters. As early as in the 4th month of life, chest circumference exceeded the limit of the normal value indicated for premature infants by T. Mazurczak, and in the 7th month of life it attained the average values indicated for infants with normal weight at birth. The greatest chest circumference increment was noted between the age of 3 and 4 months.






















months	2	3	4	5	6	7	8	9	10	11	12	13
ADAM												
PIOTR												
ROMAN												
AGNIESZKA												
EWA												

Fig. 5. Motor development in the quintuplets in their first 13 months of life

5. Motor Development (see Fig. 5)

It did not differ from that of normally developed children from single pregnancies. Head raising was noted in all quintuplets in the second month of life. Ewa (in the 6th month of life) and Adam (in the 7th month) were the first to be able to sit, followed by Agnieszka and Roman towards the end of their 8th month, and by Piotr towards the middle of the 9th month. It was also Ewa who was able to stand up by herself at the age of 7½ months, followed by Agnieszka, Adam, and Roman (in their 9th month) and then Piotr (in his 10th month).

6. Teeth

Teething occurred between the 8th and 10th month of life. After having concluded the first year of life, all of the quintuplets had 5 teeth each, and two of them had even as many as 6 teeth each.

7. Laboratory Analyses

Hematological analyses were carried out every two weeks until the age of 4 months, and every month later on. In the first months of life, blood analysis showed low hemoglobin levels and low blood-cell counts, their index varying around the unit. During the yearly observation a low reticulocyte count (1 to 3%) was also noted. These results testified of a hyporegenerative bone-marrow reaction, when the erythropoiesis did not keep pace with the rapidly growing body. The normal color index was an evidence of the erythrocytes being saturated with iron and also of the fact that the anemia of the quintuplets was not caused by iron deficiency, but by a failure of the marrow. During

the entire first year of life the infants were supplied iron perorally (Ferro-66). From the 8th month on, these values became normal and they have been keeping within the limits of normalcy.

Proteinograms showed a normal amount of total protein, the albumin fraction having been lowered in the first months of life. Its level was compensated towards the end of the first year of life. The still immature liver was presumably responsible for the low albumin level. During the entire first year low levels of gamma-globulins were also noted, fluctuating in all children between 13 and 15%.

The *immunophoretic analyses*, carried out at the age of 5, 6, and 12 month of life, are the subject of a separate report.

Urine analyses for phenylketonuria were negative in all infants.

Electrocardiograms, carried out thrice in all children, showed no deviations from the normal condition.

X-rays of bones showed no dysplasia in any hip joint, and ossification centers of the head of the femoral bone were present only in Adam and Roman in the 5th month of life.

Ophthalmological examinations showed no changes in the bottoms of the eyes. A convergent strabismus of the left eye was diagnosed in Ewa; it did not disappear until the end of the first year of life.

Neurological examinations showed no deviations from the normal condition.

8. Nutrition

The nutrition of the infants did not deviate from the recommendations supplied in the regulations of nutrition published by the National Research Institute for Mother and Child. In the first five months Similac was added to the nutritional formulae, but it was completely withdrawn at the beginning of the 6th month.

Towards the end of the 4th month it was noted that the infants drank the milk formulae reluctantly, but they consumed the whole of the vegetable soups and juices supplied. When this event was analysed, it was found that, included the addition of Similac, the children were administered 6 g of protein per kg of body weight. This high supply of protein, necessary in the first months of life when children grow headlong, proved to be superfluous in their second half-year of life. A diminution of the protein supply to 3.5 g per kg of body weight induced a renewed increase in appetite and weight.

Egg yolk was introduced in the 5th month of life, and meat and cottage cheese in the 7th month. The infants tolerated well the changes and supplement of the diet and no disturbances of digestion were ever noted.

The doses of vitamins did not deviate from commonly accepted norms, apart from vitamin D which was supplied four times in the first six months of life in a large initial dose, and from the 6th month on every day, in a dose of 2500 units. In spite of these high doses, slight rachitis was noted in one child.

9. Sleep

It was observed that all infants slept comparatively little in the second half-year of their life (ca. 11-13 hours a day). The shortage of sleep caused no fatigue nor did it exert an adverse effect on the well-being of the infants.

Table. *Diseases Suffered by the Quintuplets in Their First Year of Life*

	Naso-pharyngitis	Pneumonia	Dyspepsia	Otitis	Stomatitis	Number of diseases
Adam	6	1	1	2	1	11
Piotr	3		2	1	1	7
Roman	3	1	2			6
Agnieszka	4		1	1	1	7
Ewa	4		2	1	1	8

10. Diseases Incurred (see Table)

Adam suffered comparatively numerous infections of the nasopharynx. In the other infants infections were of short duration and caused no complications. Apart from a few incidents of temperature increase lasting one day, an easily got over pneumonia in Adam and Roman, and otitis suffered by Ewa, Agnieszka, Piotr, and Adam, the infants suffered no serious illnesses. They got over very well three times undertaken vaccinations: Di-Te-Per and those against smallpox and measles.

Summing up, it should be said that the development of the quintuplets in the first year of their life was satisfactory. Their immunity to infections with so frequent and numerous contacts with foreign people and their elder, often rheumy siblings, is astonishing.