

# PSYCHOMOTOR DEVELOPMENT OF TWINS IN THE FIRST SIX MONTHS OF LIFE

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*Preliminary investigations on the psychomotor development of infants from multiple pregnancies have been carried out.*

*The psychomotor development in the first six months of life appears to be more similar in MZ than DZ twin partners. It further appears to be rather connected with birth weight than with birth order. The psychomotor development of twins with a birth weight exceeding 2300 g attains, as early as in the first six months of life, a level concordant with the standards established for singletons.*

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Investigations into the psychomotor development of small children have shown that a diverse pace and rhythm of their development may be noted in infancy (Spionek 1963). The authors were interested in finding out to what extent these differences are already visible in twins, that is, comparatively in MZ and DZ twins living under similar environmental and educational conditions, in the first six months of their life.

The problem of the differences between the development of MZ and DZ twins has a comprehensive literature. The literature available to the authors, however, both American (Newman et al. 1937) and French (Zazzo 1960), supplies the results of studies on already older twins, judging by the methods used by the scientific workers in the investigation of this problem.

## METHOD AND MATERIAL

The authors used in their investigations a method specially adapted to studying the youngest children, i.e., Brunet-Lézine Scale (Brunet and Lézine 1951); its results — like the results of the measurements of intelligence in older children — can be formulated in figures by means of so-called development quotients, beginning with the second quarter of the child's life. Thus, this is a method to some extent comparable with the one applied at calculating intelligence quotients, and at the same time it permits to carry out comparative psychological investigations starting from infancy.

The observation material included 5 MZ and 5 DZ twin pairs of infants. They were under care of the Consultation Office for Children with Low Birth-Weight of the National Research Institute for Mother and Child in Warsaw. The authors are aware that this material is not sufficient for drawing generalized conclusions, but, once worked out, it may be a starting point for further investigations into development and behavior of MZ and DZ twins in infancy. The material is not entirely homogeneous either; among the infants observed, only 6 pairs were twins of a full-term pregnancy, 2 pairs were from triplet sets, and 2 pairs from premature delivery (eighth month). When working out this material, the authors, of course, took this into account.

Table 1. *Development Quotients in Twins in the Second Quarter of Life*

MZ twins				DZ twins			
No.	Initials	DQ	Difference	No.	Initials	DQ	Difference
1	<i>G.M.</i>	100	0	1	<i>K.A.</i>	97	15
	<i>G.I.</i>	100			<i>K.M.</i>	82	
2	<i>K.R.</i>	61	4	2	<i>S.A.</i>	96	10
	<i>K.W.</i>	65			<i>S.J.</i>	106	
3	<i>C.A.</i>	62	6	3	<i>O.S.</i>	80	12
	<i>C.E.</i>	68			<i>O.A.</i>	68	
4	<i>G.A.</i>	106	2	4	<i>Z.N.</i>	82	13
	<i>G.D.</i>	104			<i>Z.K.</i>	95	
5	<i>K.J.</i>	78	1	5	<i>K.G.</i>	56	9
	<i>K.M.</i>	77			<i>K.M.</i>	47	

## RESULTS AND DISCUSSION

As in the first quarter of a child's life psychological examination is only of tentative nature, the authors supply (only in terms of development quotients) the results of their examinations from the second quarter of life of the infants observed, separately for MZ and DZ twins (Table 1).

The within-pair differences in psychomotor development are much smaller in MZ than DZ twins of the same age, the mean difference between development quotients amounting to some 3 points in the former and about 12 points in the latter.

Comparatively similar results were obtained by Page (1941), when he applied the intelligence test for examining older MZ and DZ twins. In his examinations the mean differences of intelligence quotients amounted to some 6 points in MZ and 13 points in DZ twins.

The correlation coefficient between quotients within the individual pairs of twins amounted to 0.99 for MZ and 0.91 for DZ twins. That is, they are both high, but at the same time they differ, although only a larger material could say if these differences are statistically significant.

In American and French investigations on the similarity of intelligence quotients in older twins, this quotient amounted to approximately 0.90 for MZ and 0.60 for DZ twins. In comparison with our own data this seems to testify that the paths of psychological development in DZ twins diverge with age more than in MZ twins.

It was further investigated whether there is a connection between psychomotor development and order of birth. Statistical analysis failed to show any such correlation, whereas a correlation was found between the standardized birth-weight of the infants examined and their psychomotor development. The correlation coefficient amounted here to 0.79 and it proved positive at a significance level of 0.05<sup>1</sup>.

<sup>1</sup> The material was statistically worked out by the statistical laboratory of the National Research Institute of Mother and Child headed by A. Janicki, M.A.

Table 2. *Birth Weight and Development Quotients of 6-Month-Old Full-Term Twins*

No.	Twin	Birth weight	DQ
1	<i>M.G.</i>	2490	100
2	<i>I.G.</i>	2370	100
3	<i>A.G.</i>	3000	106
4	<i>D.G.</i>	2450	104
5	<i>J.S.</i>	2690	106
6	<i>A.S.</i>	2510	96

Development mean 102

Birth weight, rather than the order of birth, thus seems to be of importance for the psychomotor development of twins in the first six months of their life.

The birth weight of full-term twins was comprised within 1800 to 3000 g, with a mean value of 2300 g. Twins with a higher birth weight attained a level of psychomotor development in concordance with age when they were 6 months old, i.e., their development quotients at the age of 6 months amounted to approximately 100 points (Table 2). Although no definite conclusions may be drawn from these data, it is remarkable that, as early as at the age of 6 months, there are twins with a psychomotor development entirely in concordance with their chronological age, although in any case their start in life, as compared to singletons, is worse.