

## **IX. SUMMARY**

The aim of the research was to analyse the psychomotor development of children with Down Syndrome, who were systematically stimulated using the Vojta Method both at home and by a therapist at the Physical Therapy Clinic of the Białystok Teaching Hospital, as well as to compare the results to a group of children with Down syndrome, who were only sporadically stimulated using the Vojta method.

The research was conducted on a group of 45 children with Down syndrome, aged 18 through 24 months. Their psychomotor development was evaluated using the Psycho-educational Profile – Revised, which provides information on the development of imitation skills, perception, gross and fine motor skills, visual-motor coordination, cognitive function, communication, and behaviour.

The Gunzburg (P.A.C.) scale of measurement of social development was used for a more detailed analysis of the psychomotor development of the children, using the following criteria: self-service, socialisation, agility (manual skill and motor control), and communication.

In the second stage of research, the research group was divided into two sub-groups: children systematically stimulated using the Vojta method (at least three times a day at home and at least twice a week in clinic by a therapist) and children only sporadically stimulated using the Vojta method. A comparative analysis of psychomotor development was performed on the two groups.

The next stage of research included an analysis of the relationship between coexisting congenital defects in the research group: the children's gender, parents' age, parents' education, number of siblings, place of residence, support from the family and friends, and the regularity of rehabilitation (using the Vojta method).

The research group (N=45) consisted of 22 boys and 23 girls. Five of the girls (21.7%) and two of the boys (9.1%) had surgically treatable congenital heart defects. Additional congenital defects included: two boys with imperforate anus, two girls with pyloric stenosis, two girls and one boy with hearing impairment, and one boy with only one kidney.

Twenty of the children were first-born, which formed 44.4% of the group. Seven (15.5%) were born as the second child, and 18 children were born to families with more children.

Thirty-five of the families lived in an urban area and ten in a rural area. The average age of the mothers was 33; the youngest was 17, and the oldest 45. The average age of the fathers was 34.7; the youngest father was 26, and the oldest was 48. Two of the families received no support from their family and friends, and four had problems with health care workers.

Research shows that 28 of the children with Down Syndrome were systematically stimulated with the Vojta method, both at home and in clinic, while 17 were only rarely

stimulated with the Vojta method. The age of the father and mother showed no statistically significant influence on the regularity of stimulation. There was a correlation between the regularity of stimulation with the Vojta method and place of residence, parents' education, gender of the child, the number of children in the family and support from family and friends. Better education, living in an urban area, fewer children in the family and support from family and friends were more common in the group of children, who were regularly stimulated with the Vojta method.

A significant correlation was found between the regularity of stimulation with the Vojta method and the age at which the children started to sit up, crawl, and walk with support. Regularly stimulated children on average attained these skills two months earlier. In the case of independent walking the average difference between the two groups (of two month) was statistical important ( $p=0.021$ ).

Based on the results of the evaluation of social competence on the Gunzburg (P.A.C.) scale, there was a difference between the analysed groups in favour of the children who were systematically stimulated with the Vojta method in all evaluated areas. In the self-service category the difference between the group was on average 6.0% and was statistically significant ( $p=0.04$ ). In the area of communication the difference between the analysed groups was on average 10.0% and was also statistically significant ( $p=0.04$ ). In the socialisation category, the greatest difference was found, 6.0% on average, and was also statistically significant ( $p=0.041$ ). The difference in the area of agility was on average 7.0% and was statistically important ( $p=0.007$ ).

Analysis of the results of tasks evaluating the development of children with pervasive developmental disorders in the PEP-R indicated that there is no statistically significant difference between the analysed groups in the following areas: perception, visual-motor coordination, and cognitive functions. Only in two areas was there a statistically significant difference in favour of the children systematically stimulated with the Vojta method: establishing contacts ( $p=0.003$ ) and interest in objects ( $p=0.005$ ). Fine and gross motor skills was statistically important; fine motor ( $p=0.025$ ), gross motor ( $p<0.05$ ).

In the group of children with Down syndrome who were systematically stimulated with the Vojta method, the difference between actual age and developmental age was on average  $3.3\pm 1.8$  months, while in the group of children who were only rarely stimulated with the Vojta method, the difference was on average  $6.0\pm 3.7$  months. The differences were statistically significant ( $p=0.007$ ).

1. Children with Down Syndrome systematically stimulated with the Vojta method reached the age of sitting, crawling, and walking about two months earlier.
2. The differences in the execution of the tasks of self-care, communication, socialization skills were statistically significant in favor of children with Down Syndrome with systematically stimulated with the Vojta method.

3. Differences in the implementation of tasks between the two groups in the field of perception, eye-hand coordination and cognitive function were not statistically significant.
4. Children systematically rehabilitated with the Vojta method achieved significantly better results for the task in the field of small and large motor skills.
5. Significant differences between the groups in the social contacts and proper objects of interest for the benefit of children with Down Syndrome systematically stimulated with the Vojta method.
6. Regularity stimulation children with Down Syndrome with the Vojta method depend on the place of residence, parents' education, and number of siblings.
7. No relationship between age of father and mother, additional congenital disease in a child with Down Syndrome, received support from family and regularity of stimulation with the Vojta method .