STUTTERING AND DISORDERS OF MOVEMENT

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S u m m a r y. The article discusses the analysis of drawing activities of preschool children suffering from alalia and assesses the value and authenticity of drawing projective techniques. The author analyses drawing techniques applied by psychologists in psychocorrective therapy for children suffering from alalia and proves that projective pictures drawn by preschool children are of low validity and authenticity, so that due to the lack of adequacy projective pictures of preschool children cannot be applied in psychotherapy and psychocorrective therapy for seven-year-old children suffering from alalia.

K e y w o r d s: anxiety, speech disorders, stuttering, dysarthria, speech delay, preschool pictures.

A review of studies on motor skills of stutterers indicates that so far there has been no univocal answer to any of the questions concerning typical features of the motor program of stutterers. The Russian practice goes back to the monograph of I. A. Sikorsoky (1889), who presented the stuttering concept as a result of muscle cramps. The fundamental guide by O. Bloodstein and N. R. Bernstein (Bloodstein O., Ratner N.B., 2007) has a section on the motor program of stutterers, which instantly states that since the earliest works done in the thirties and forties of the last century, the researchers have paid a special attention to the coordination of movement of stutterers, but as the section goes further, the majority of studies are proved to be controversial. In order to assess speech movement as such the researchers studied an objective state of muscles involved in speech (Sinitcina N.T., 1983; Andronova L.Z., Arutyunyan M.A., 1984; Belyakova L.I., Kumalya I., 1985; Zimmermann G.N., 1980; De Nil L.F., Abbs J.H., 1991) and articulation (Kuzmin Y.I., 2014). The data obtained does not allow to include stuttering into any category of pathologic movements, neither any correspondence between general and speech movement of stutterers was established (Oganesyan E.V., 1983; Ovchinnikova T.S., 1994).

This study attempts to clarify speci□c features of hand movements in preschool stuttering children aged 5-6 years, by comparing them with apparently healthy children and those with defaced dysarthria. The investigation involved 10 children in each of the designated categories. To examine the problem two techniques were used: tapping test and maze test that allowed to assess elementary motor acts and complex coordinated movements. The tapping test instructed the children to put dots with pencil sequentially in each of six squares 10x10 cm at the maximum rate within □ve seconds. The test results were evaluated by counting the number of dots in each square. The maze test is known to be

included in the Wechsler intelligence scale test, and allows to assess the level of visual-motor coordination. In this case, the test used three out of ten mazes, previously created by the author (Kaliagin V.A., 2014). The initial attempt to use the Wechsler test mazes to assess complex coordinated motor activity of stuttering schoolchildren and adults failed, since it did not allow to find out any specific features of stutterers. The study used more complex mazes in order to support the assumption that they work better with complexity of speech motor coordination. This assumption proved to be correct. Further experiments showed that in order to assess coordination deficit it is enough to pass three mazes that differ in the path length and the number of turns. The three mazes used in the study had paths of 322, 664, and 1,000 millimeters with the number of turns 8, 40, and 148 respectively.

It was found out that against the standard the number of dots put by the children with a defaced dysarthria was 1.24 times bigger, while the number of dots put by the stammering children was 1.19 times bigger; this difference was significant ($p < 0.01$). There was no significant difference between the children with general speech underdevelopment and the stammering children. Coefficient of tapping variation under normal conditions was 22.0%, while for groups with defaced dysarthria and stammering it made 26.0 and 27.2% respectively. In general, all groups relatively stably performed all tasks in all six squares. Better results of the children with speech disorders against the standard can be explained by the fact that the former had better concentration and more intensive development of hand-carried motor movement. Since this test is closest to diadocho-kinesia tasks, we can say that its findings are consistent with results reported in other publications, including those with respect to speech movements.

The maze test found that in all groups the time to pass mazes, the number of touches of its walls and the number of returns was higher as the complexity of the maze increased. If we assume that each of these parameters equals one in the first maze, then, for instance, the time to pass the second and third maze increased, respectively in the children without speech disorders by 3.47 and 5.13 times, in the children with defaced dysarthria by 3.36 and 8.54 times, and in the children with stuttering by 3.07 and 4.97 times. That is, in the children with dysarthria the complexity of the maze was more difficult than for the other two groups.

Comparing the time to pass the mazes in different groups of children, and assuming the time it took the children without speech disorders as one, we can see that the children with defaced dysarthria and stuttering made it slower, respectively for the first maze by 1.29 and 3.38 times, for the second by 1.21 and 3.25 times, and for the third by 2.14 and 3.57 times. That is, this indicator shows that all mazes were most difficult for shuttering children. All differences between the groups were significant ($p < 0.01$), except the case of passing the first and second maze by the children without speech disorders and those with defaced dysarthria. Noteworthy is the difficulty growth dynamics in groups without and with speech disorders. Indicators for the first two mazes in both groups differ slightly, while the third task difficulty for the children with defaced dysarthria increases significantly. For the stuttering children this pattern is even more pronounced, which was also confirmed by my previous study carried out among stuttering students and adults (Kaliagin V. A., 2014).

CONCLUSIONS

Thus, the data indicate that nonverbal movements of such different disorders as stuttering and dysarthria have something in common, i.e. no deficit of elementary although highly differentiated movements required for tapping. However, activities that require complex hand-eye coordination when passing the maze are impaired. It turns out that the difficulties are most clearly seen upon a significant complication of tasks, and to a greater extent, in the stuttering children. It may favor the theory that coordination disorders form the basis of stuttering. In further research I expect to increase the coverage of children, and to clarify the nature of coordination disorders, in particular backed by the analysis of current correction methods applying different technologies of speech process modification aimed at speech fluency.

ЗАИКАНИЕ И РАССТРОЙСТВА ДВИЖЕНИЙ

Виктор Калягин

Р е з ю м е. В статье представлен анализ литературных и собственных данных об организации неречевых движений у заикающихся детей и взрослых в сравнении с незаикающимися сверстниками. Также проведено сравнение моторных навыков заикающихся детей и детей, имеющих другие расстройства речи. Рассмотрены и обсуждены выявляемые особенности движений заикающихся. Показано, что чаще всего у заикающихся

наблюдается только тенденция к нарушению движений. Установлено, что дети с заиканием и дизартрией успешно справляются с теппингом и простыми лабиринтами, но обнаруживают отставание от сверстников без нарушений речи при прохождении сложных лабиринтов. Полученные данные не подтверждают представление о том, что у заикающихся имеется выраженное нарушение асимметрии различных функций по сравнению с незаикающимися. Поскольку существуют различные приемы, способствующие достижению плавности речи заикающихся, был предпринят анализ влияния этих приемов на темп и количество запинок. Выявлено, что во всех случаях (задержки обратного акустического сигнала, синхронизации речи с неречевыми движениями, произнесение семантически трудных текстов) происходит замедление речи и уменьшение количества запинок. Таким образом, были получены дополнительные факты, подтверждающие наличие у заикающихся трудностей координации не только речевых движений, а также замедления их речи как основного фактора достижения плавности.

К л ю ч е в ы е с л о в а: нарушения речи, дети с заиканием, речевые движения, нарушения движений, моторные навыки.

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