

Effects of a short-term fine motor skill proficiency training on hand functions

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Introduction

Children inherently have the skills of speech, writing and the basis for counting and verbal thinking. These human-specific skills also determine the motion development in the age of six to eight, child's hands are characterized by agility and skill, which is slowly becoming aware of this. As a result, they start to use them in a distinctive way and become capable of differentiating the right/left direction. This is the optimal time for writing teaching. The drawing hand then becomes a writing hand. It was found in the literature that hand movements are environmentally-dependent, learned modes of motion, as defined by the harmonious co-operation of several cortical areas. Nowadays, children grow in environments where they spend much more time using digital devices than before. It is assumed that a significant portion of the children starting the first class is not perfectly prepared from locomotor aspect to learn regular writing.

Aim of the study

The aims of the study was to improve the manual skills to the average published in the literature and to improve fine motor skill proficiency by using physiotherapeutic methods expecting an improvement in the hand writing style. Further aim was to elaborate a methodological recommendation for teachers teaching in first or second classes based on our results.

Material and methods

Children (n=34) from 2nd class in the elementary school were selected and divided into target group with physiotherapeutic training (n=14), and to control group without any intervention (n=20). Physical examinations were processed directed to special skills of static balance, spatial coordination as well as fine motor skills of the upper limbs before and after the intervention. The fine motor skills were tested by using the Nine Hole Peg Test (NHPT). The analysis of the hand writing was done by an independent teacher.

Results

On the first physical examination we found that the NHPT average results were over the average in literature (dominant hand: 20.3s; non-dominant hand: 22.3s) in both groups. In our study, the mean value for dominant hand was 23.8s in the control group, and it was 24.1s in the target group. For the non-dominant hand in the control group the time was 25.93s, in the target group 27.06s. After the intervention, we found significant improvement in the NHPT time for the dominant hand in both groups (p<0.05). In the control group there was not a significant change during this period, while there was a significant improvement in the target group (p<0.02). The non-dominant hand also showed significant change in positive direction (p<0.05). According to the evaluation by a teacher, the handwriting style became also better.

Conclusion

It is concluded that since a short-term fine motor skill proficiency training has a positive effect on the hand functions it can be assumed that a long-term training would have more considerable effect on the handwriting style.

Needs of the public health sector due to Parkinson's Disease

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Introduction

Parkinson's Disease (PD) is one of the most common neurological disease of the elderly. The classic symptoms of PD are motor slowdown, muscle stiffness, resting tremor and postural reflex. With disease progression additionally occurs: apathy, depression and dementia. The annual incidence in Europe is estimated at 11-19 per 100,000 persons.

Aim of the study

Carrying out epidemiological descriptive study of deaths and mortality due to PD in order to improve the knowledge about the profile of the Polish population of patients with the disease.

Material and methods

We used public demographic database for Poland published by Polish Central Statistical Office including years 2002-2013 - data on population status and deaths due to PD are encoded according to ICD10 as G20. In analysis we used descriptive statistics and epidemiological indicators as: calculated per 100,000 mortality rate (MR), female/male mortality rate (F/Mm) and female/male death rate (F/Md). Indicators were calculated for the population during the analysed period, also for the 5-year age group, then by sex and residence. In paper we used graphs to illustrate findings.

Results

From 2002 to 2013 number of deaths and MR due to PD increased 2.5 times (min - 377 deaths in 2002, max - 953 deaths in 2013). Increase in MR and death predominate in the oldest age groups. F/Md-1.04 does not show the prevalence of deaths among genders, despite twice higher MR of men in particular age groups. Before 55 years, deaths are sporadic. In older age group occurs gradual growth in the number of deaths, which has been highly accelerated since the 70 years old to reach max in the 80-84 age group. After that, number of deaths decreases in the older age groups. MR, on the other hand, tends to grow steadily to the oldest age groups. There is a predominance in number of deaths in cities which is not reflected in MR indicator.

Conclusions

Trend of deaths and MR are typical for old age diseases. The shorter life expectancy of men partly explains greater MR in older men, despite the similar deaths number of both sexes. Growth of MR from 2003 to 2013 may be due to increase in population morbidity or more accurate collection of statistics. Aging of population from demographic boom does not explain the changes in MR in 5-year age groups which can be explain by prolonged life of patients with PD or shifting upward the average age of disease incidence. Obtained data of much lower MR than mortality given in the review of literature can be explain by: poor diagnosis, inadequate judgment about the cause of death, death of patients due to other causes such as cardiovascular disease, cancer, arthritis, etc. or simply a different incidence for Poland.