

EXPLORATION OF THE IMPACT OF NOISE ON STUDENTS WITH IMPROVED DIFFICULTIES AND THE EFFECT OF A KINESITHEPETPETICAL PROGRAM FOR OVERCOMING OF THEIR SIDE EFFECTS

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Abstract: Visually impaired students to cope with their life problems are forced to compensate for the effects of reduced or lost functions of the visual analyzer by perceiving learning information through sensory organs (hearing, tongue, smell, tactility)

The purpose of this study was to investigate the impact of a kinesitherapeutic program to improve the psycho-emotional state of students with visual difficulties to reduce the side effects of noise in the learning process.

The subject of the study was the students from the first, second and third courses of Medical College "J. Filaretova" - Sofia. The kinesitherapeutic program included three consecutive stages: 1. Breathing exercises from yoga. 2. Apply Chinese cigun gymnastics. 3. Concentration and coordination exercises.

The sensor profile was studied with the Dunn test questionnaire (1997).

The analysis of the results showed that the systemic application of the kinesitherapeutic program improves the concentration and improves the psychological resistance of visually impaired students.

In conclusion, we could recommend a systematic application of the kinesitherapeutic program to improve the physical and mental state of students with visual impairments.

Keywords: visually impaired students, noise, cigun

INTRODUCTION

Damage to the visual system leads to one of the most severe human disabilities - blindness. By the end of the 19th century, the most common causes of blindness were: trachoma, lucius, gonorrhoea, smallpox and tuberculosis. In recent years, in the economically developed countries, vascular diseases have been the most common cause of blindness, mostly at the expense of diabetic retinopathy, whose relative share is constantly growing (4). The rate of blindness in 1900. was 134, in 1910 - 124, in 1926 - 84, in 1946 - 79, in 1969 - 39 per 100 000 inhabitants. Recently there has been a tendency to increase this ratio to 67 per 100 000 inhabitants (3). Problems in vision are inextricably linked to the nervous system. Thanks to the development of information technology, a very serious tendency for systemic overloading of eyes in all ages has been observed in recent years. Eyes are connected to the brain and consume up to 30% of its energy. Upon observation, about two-thirds of the brain is actively involved in this process. Eyes need enough energy to function well (1,5). The improvement of telephones and the penetration of computers in all professional spheres certainly lead to serious health problems with the eyes of a very large circle of people, not only in students with visual disturbances (2). Qigong healing gymnastics offers an alternative for eliminating the effects of fatigue and eye strain.

MATERIALS AND METHODS

This study was conducted between 2002 and 2014 with students from “Yordanka Filaretova” Medical College, Sofia. The subject of study is 105 students from 1st to 3rd course. with visual disturbances of both sexes, divided into two groups: Group I - Experimental Group (EG) - 75 students (35 women and 40 men) Group II - control group (CG) - 30 students (15women and 15 men) The EG is composed of students who systematically engage in sports in the form of a kinesitherapeutic program combined with elements of yoga and cigun, modified and supplemented by us. All students have presented medical documentation and permission from the doctors to participate in the experiment because they have groups I and II from TEMC (Table 1)

Table 1. Characteristics of the contingent by group of TEMC - EG, CG

Group of TEMC	EG			CG		
	Women	Men	Number	Women	Men	Number
First group	13 (17.3%)	8 (10.6%)	21 28.%	5 (16.6%)	3 (10%)	8 26.6%

Second group	22 (29.3%)	32 (42.6%)	54 72%	10 (33.3%)	12 (40%)	22 73.3%
Total	35	40	75	15	15	30

The aim of this study is to investigate the impact of the kinesitherapeutic program to overcome the side effects of noise in visually impaired students. From the beginning of the experiment, the students studied at the EG and CG were placed on equal terms. In this way their social inclusion was monitored and to what extent it affected the effective education of visually impaired students.

RESULTS AND DISCUSSION

Selected questions help us to identify the sensory status of the surveyed respondents and give us information about their attitude to noise and how it changes under the impact of our KT program. The statistical processing of the data was performed with Wilcoxon's nonparametric t-criteria for comparing two dependent samples in ordinarily-scaled variables. In both groups the differences between the first and second studies conducted in the first and fifth semesters were statistically significant (Table 2,3). The baseline data shows that people with visual impairments generally have a negative impact on noise. The average values of both groups are similar. In EG, they are always irritated by 40% noise; 28% "often"; 20% "sometimes" and only 5.3% note that the noise does not irritate them. On the same questions, the CG responds that 30% are always annoyed by noise, 50% "often", 13.3% "sometimes"; 6.7% "Seldom". There is no student in the control group who is not annoyed by the noise. In the second study, the EG's responses show that adaptation processes under the influence of specific physical exercises have led to greater tolerance. Only 21.3% are always annoyed by the noise, 32% - "often", 18.7% - "sometimes", 17.3% "seldom" and 10.7% - "never". The coefficient of variation is $V = 1.67$.

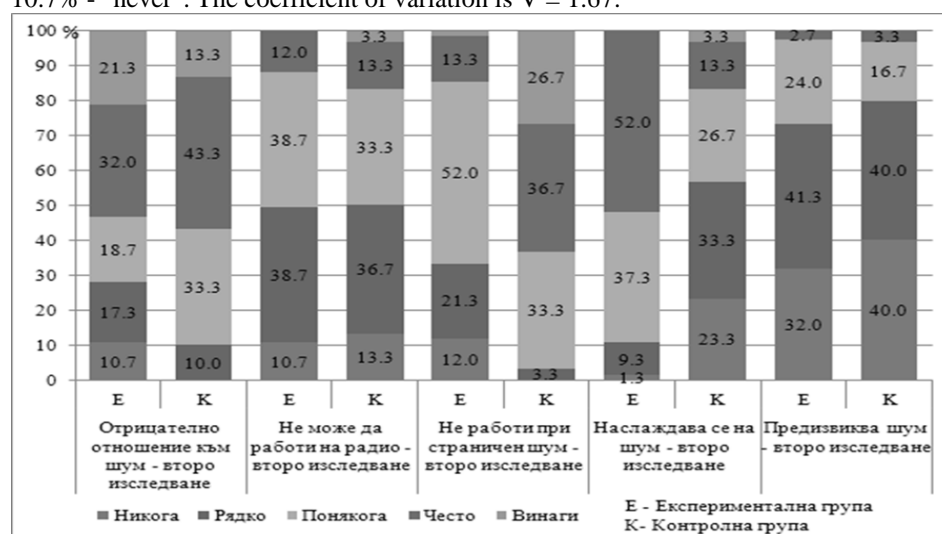


Diagram 1. Results of the second study of the Dunn test

There is no student in the control group who is not annoyed by the noise. In the second study, the EG's responses show that adaptation processes under the influence of specific physical exercises have led to greater tolerance. Only 21.3% are always annoyed by the noise, 32% - "often", 18.7% - "sometimes", 17.3% "seldom" and 10.7% - "never". The coefficient of variation is $V = 1.67$. CG results show that 13.3% do not tolerate noise, 43.3% - often 33.3% sometimes and 10% - rarely. No KG student has ever responded - never in contrast to EG, where 10.7% have overcome this serious obstacle for visually impaired people. In the control group under the influence of the learning process there is also adaptation, but in smaller limits (Diagrams 1). For the third question, to what extent the side noise hinders their work, 29% of the EW do not work on noise; 32% "often" can not work; 24% "sometimes"; 9.3% "seldom" and 5.3% "never". In the case of 40%, they correspond with "always"; 50% "often"; 6.7% "sometimes" and "never" 3.3%, no one answered "seldom". In the second test, the EG results change in the direction of greater tolerance, with a "often" response already 13.3%; "Sometimes" 52% "seldom" 21.3% and "never" 12% (Diagram 1). For the first time in the group there was a greater homogeneity of responses that reflected on the coefficient of variation for the first test $V = 1.32$, and for the second coefficient of variation of EG $V = 0.80$,

which indicates the homogeneity of the group and a statistically significant difference in both tests (Table 2). At CG the coefficient of variation for the first test is $V = 0.737$ and $V = 0.740$ for the second test (Table 3). The data obtained show that this group is generally homogeneous with equal treatment of noise problems and the responses to the two tests are very similar and develop over time. At the start of the experimental period, CG responses showed better psychological resistance than the experimental group. This is proof of correctness at the start of the experiment. The change in the responses of both groups also contributes to the fact that for three years of training, students with visual impairments have developed their communicative abilities. KT complex is contributed to overcoming problems in communicating with larger groups of people and taking full part in the learning process together with other colleagues from other majors during joint lectures.

The fourth question gives us an idea of the psycho-emotional state of the investigated subjects. The control group is in a better psycho-emotional state than EG at the beginning of the experiment. As we have already noted, the groups are formed at random. At the beginning of the studies at EG 48% responded with "always", 37.3% with "often", 12% "sometimes", 2% "rarely" and "never" After the experiment, 52%, 37.3% "sometimes", 9.3% "rare," 1.3% "never", no response "always". In the KG the answers "always" 3.3% and "rarely" 33.3% in both studies do not change, "often" from 16.7% to 13.3% and "sometimes" from 30% to 26.7% and "never" rises to 23.3%. The follow-up of the development dynamics of the indicators we investigated makes it possible to verify the effectiveness of the specific kinesitherapeutic agents applied during the experiment. The coefficient of variation at EGF at baseline is $V = 0.70$ and changes to $V = 0.51$, whereas in the control group there is almost no change $V = 1.15$ in the first test and $V = 1.21$ in the second. The comparative analysis of the results using the Man-Whitney test and the Wilcoxon t-criterion shows that there is a statistically significant difference in EG and there is no CG (Table 2). The answers we get show that under the influence of the specific exercises of cyginus and yoga, the behavior of the players changes.

Table 2. . Statistikal processing of the data from the Dunn test of the EG in first and fifth semesters

EG question	N	Range	Min.	Max	Mean	Std. Dev.	Var	Sk	Kurtosis
Negative attitude to noise	75	4	1	5	3,91	1,16	1,36	-,92	,28
Negative attitude to noise 2	75	4	1	5	3,36	1,29	1,67	-,40	,28
It can not work on the radio	75	4	1	5	3,61	1,06	1,13	-,69	,28
It can not work on the radio 2	75	3	1	4	2,52	,84	,71	,00	,28
Does not work with side noise	75	4	1	5	3,71	1,15	1,32	-,66	,28
Does not work with side noise2	75	4	1	5	2,71	,90	,80	-,30	,28
Enjoy the noise	75	4	1	5	4,29	,83	,70	- 1,32	,28
Enjoy the noise 2	75	3	1	4	3,40	,72	,51	- 1,00	,28
It causes noise	75	4	1	5	2,79	1,04	1,09	-,14	,28
It causes noise 2	75	3	1	4	1,97	,82	,67	,35	,28

The last question that deals with noise as a factor in visually impaired people is whether they like to make noise. . The EG 2.7% admit that they cause "always", 24% "often", 36% "sometimes", 24% "rare" and 13.3% "never". At KG, nobody has said that it always causes noise. The answer is "often" 6.7%, "sometimes" 23.3%, "rarely" 33.3% and "never" 36.7%.

The analysis of the results of the second study shows significant changes in the mental growth of students from both groups, but more significant in EG. Only 2.7% say that "often" cause noise, 24% sometimes, "41.3%," rarely "32%" never ". KP data also show a positive change, but to a lesser extent 33% say "often", 16.7% sometimes, "40%," rarely "40%" never. The coefficient of variation in EG at the beginning is high, this means that the group is very heterogeneous and inhomogeneous $V = 1.09$ and changes to $V = 0.67$, which shows improvement of the psycho-emotional state of the subjects under examination (Table 3).

Table 3. Statistikal processing of the data from the Dunn test of the CG in first and fifth semesters

CG question	N	Range	Min.	Max	Mean	Std. Dev.	Var	Sk		Kurtosis	
Negative attitude to noise	30	3	2	5	4,03	,850	,723	-,787	,427	,445	,833
Negative attitude to noise 2	30	3	2	5	3,60	,855	,731	-,156	,427	-,428	,833
It can not work on the radio	30	4	1	5	2,83	1,177	1,385	,209	,427	-,586	,833
It can not work on the radio 2	30	4	1	5	2,57	1,006	1,013	,349	,427	-,130	,833
Does not work with side noise	30	4	1	5	4,23	,858	,737	-1,889	,427	5,892	,833
Does not work with side noise2	30	3	2	5	3,87	,860	,740	-,078	,427	-,939	,833
Enjoy the noise	30	4	1	5	2,57	1,073	1,151	,264	,427	-,529	,833
Enjoy the noise 2	30	4	1	5	2,40	1,102	1,214	,438	,427	-,455	,833
It causes noise	30	3	1	4	2,00	,947	,897	,522	,427	-,699	,833
It causes noise 2	30	3	1	4	1,83	,834	,695	,715	,427	-1,131	,833

The comparative analysis of the results shows that there is a statistically significant difference in EG in both studies. At KG also change $V = 0.89$ on the first test and $V = 0.69$ on the second test. Changes in the two groups indicate that students' behavior is maturing during the two-and-a-half year period in which the experiment is being carried out, and the academic environment in which they are trained contributes. Their social growth is confirmed by the comparative analysis of the results using the Man-Whitney test and the Wilcoxon T-criterion shows that for all sensory-specific indicators of noise impact in students with visual disturbances of high probability ($P \geq 95\%$), the null hypothesis can be rejected and the alternative assumed to be true (Tables 2 and 3).

CONCLUSIONS

The change in the responses of both groups contributes to the fact that for three years of training, students with visual impairments have developed their communicative abilities. KT complex has contributed to overcoming problems in communicating with larger groups of people and participating fully in the learning process together with other colleagues from other specialties during joint lectures.

The positive change in EG is due to systemic sports activities that contribute to the regulation of the excitement processes and generally favorably affect the nervous system.

The results unambiguously show that the exercises of qigong and yoga included in the KT program improve the psycho-emotional status of the students. . We believe that if those surveyed continue to work systematically with the KT program, they would achieve even better results.

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