PROFESSIONAL ARTICLE

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IMPACT CORRECTION PROGRAM LORDOSIS AND MOTOR EXERCISES CHILDREN WITH PHISICAL DEFORMITIES

SUMMARY:

The aim of this study was to determine the program for the correction of lordosis and basic motor exercises for children with physical deformities in the experimental group subjects .. The sample was made up of the population of elementary school students with special needs, males aged 10 years of Nis included in the program for the correction of lordosis. a sample of 66 subjects were divided into two groups: experimental and control grupe.Subject of research is to study the program for the correction of lordosis and basic mobility exercises with primary school students aged 10 years at the Clinical Center in Nišu.Problem investigation was to obtain reliable information on three main issues:
The first problem is to investigate whether the applied tools, methods and load in the process of implementation of the program for the correction of lordosis and basic mobility exercises with primary school students aged 10 may be affected by significant adaptive processes of motor skills at the end of the experimental period in the experimental group subjects. The second problem is to examine whether the applied tools, methods and load in the process of implementation of the program for the correction of lordosis and basic mobility exercises with primary school students aged 10 may be affected by significant adaptive processes of motor skills at the end of the experimental period in the control group . The third problem is to get the answer to the question of whether the experimental group was significantly different in the level of motor skills than the control group on the final measurement .

Keywords : discriminant analysis , lordosis ii basic mobility exercises , classroom teaching students with special needs , the experimental and control groups

1.INTRODUCTION

Postural disorders and physical deformities are a problem that is largely determined by the ability and productivity of future generations and has a direct impact on the health status of people . Ignoring the inherent factors that contribute to the emergence

and development of postural disorders , and analyzed only gotten factors conclusion is moving in the direction of physical involvement and poor posture habits . In most cases, the factors that have contributed to the emergence of bad posture are seen through reduced physical activity with certain bad habits of posture .

The results of systematic reviews indicate unsatisfactory situation especially considering deviations from a normal foot and the spine , the incidence of bad posture and an increasing percentage of children are overweight .

Reduced physical activity may be defined as a modern disease , caused as a result scientific and technological achievements in the field of electronics , telecommunications , technology , transport .

Today's children grow and develop to the domain of influence of computers , video games , satellite program . Their physical movement is largely reduced to walking home from school . A small number of students involved in sports clubs and less interested in the children for about practicing sport and recreation. Corrective Gymnastics aims to appropriate program of physical exercise affects the physical status of children and adults as a preventive and corrective tool . The primary means to work in remedial gymnastics movement . To fully understand the movement , or force and effect The result of application of movement in preventive and remedial purposes should be aware of the characteristics of all the elements without which it is impossible to move. Bjeković.G (2004) in his research showed that children engage in organized physical activities and youngs should start even from preschool through elementary and secondary education and education.Pred educational institutions are required to set the task to encourage physical growth and development of children , the preservation of health , development of motor skills and attitude towards physical culture.U educational institutions students encounter the proper incentives for normal growth and development.However prolonged sitting in the class room teaching and learning at home and adversely affect the optimal physical and mental development children.Author this paper highlights the irreplaceable the role of physical education teachers in support to the growth and development of children,especially in the prevention and correction of existing deviations from the normal position . Pržulj D. In 2007, he made research on a sample of 35 patients , primary school students in East Sarajevo,aged 11-12 years included physical training activities to develop skills in preparation kondicional periodu.Aim study was to determine the quantitative differences in motor skills at the end of the experimental subjects, which included 18 of training sati.Exected two measurements in respodents.One at the beginning and another at the end period.Obtained experimental results were analyzed by multivariate analysis of varijance.Author concludes that the applied means of physical exercise in the experimental period increased faster in patients ability and a more complete activation of the motor unit , which contributed to increasing the strength of the whole organism . Pržulj and Cicović (2011) showed the survey on a sample of 54 patients , primary school students in East Sarajevo , males aged 13 to 14 years covered by regular physical education.Aim study was to be based on psychometric tests deep bend (MDPK) and flex bat (MISK) establish their reliability , designed to measure flexibility as latent dimensions in the study of motor ability.Resultats studies showed statistically significant and high koeficijenten sensitivity , validity and reliability of the applied measurement instruments for assessment tests : deep bend on the bench (MDPK) and flex bat (MISK)

The subject of research is the study program for the correction of lordosis and basic mobility exercises with primary school students aged 10 years and their anthropological characteristics of the Clinical Center in Nis (experimental group) . In

addition OBJECT research and study program for the correction of lordosis in primary school students aged 10 years and their anthropological characteristics of the Clinical Centre in Nis (control group) .

The first problem of the research is to examine whether the applied methods and means of the load in the process of implementation of the program for the correction of lordosis and basic mobility exercises with primary school students , aged 10 years . The second problem is to examine whether the applied tools, methods and load in the process of implementation of the program for the correction of lordosis in primary school students aged 10 years can affect significant adaptive processes of motor skills at the end of the experimental period in the control group . The third problem is to get the answer to the question of whether the experimental groups significantly differ in the level of motor skills than the control group on the final measurement . It can be assumed that the program applied for correction of lordosis and basic mobility exercises in experimental exercise in the experimental group subjects in this study contribute to a statistically significant increase in the adaptive processes of anthropological characteristics and the results will contribute to better planning, programming and implementation of the corrective exercise. Based on the set of cases and issues research goal of this research is to determine the program for the correction of lordosis and basic mobility exercises and their impact on the transformation process of anthropological characteristics of children with physical deformities in the experimental group subjects. The aim of the research is establishing the program for the correction of lordosis and its impact on the transformation process of anthropological characteristics of children with physical deformities in the control group . Based on the case, problems and goals of research were the following hypotheses:

H1- There are significant changes in motor skills at the final measurement in relation to the initial state in the experimental and control groups .

H2 - There is a statistically significant difference of motor skills at the final measurement between the experimental and control groups .

2.METHOD OF WORK

2.1The sample respondents

The sample consisted of a population of primary school pupils with physical deformities males aged 10 years in Nis included in the program for the correction of lordosis . A sample of 66 subjects were divided into two groups : experimental and control groups . The first experimental group consisted of 30 patients and one control group consisted of 36 subjects .

2.2The sample measuring instruments

A sample of measuring instruments for the assessment of motor skills made the following dimensions : flexibility , (deep bend bench - MDPK , twine - SMES , shoulder flex bat - MISP) , segmentary speed (foot tapping - MTAN , MTAP - hand tapping , foot tapping on the wall MTAZ) , explosive strength (jump from further - MSDM , triple jump - MTRS , throwing balls - MBLP) , repetitive forces (lift hull for 30 seconds - MD30 , mixed - MMZG chin-ups , squats - MČUČ) .

Measuring instruments for the assessment of motor skills are taken on the basis of research Kurelića and associates , 1975.

3.RESULTS AND DISCCUSION

Table 1 Main statistical parameters for the assessment of motor skills of the experimental group in the initial measurement

varijable	N	Mean	Min	Max	Std.dev.	Skewn.	Kurtos
MDPK	30	41.53	28.00	48.00	6.90	0.725	1.006
MŠPA	30	133.28	120.00	153.00	10.21	0.744	-0.272
MISP	30	68.45	46.00	87.00	10.36	-0.707	-2.212
MTAN	30	21.83	15.00	26.00	25.73	-0.387	-0.047
MTAP	30	29.34	22.00	35.00	25.23	-0.382	0.144
MTAZ	30	13.62	10.00	17.00	1.34	-0.902	1.605
MSDM	30	152.85	144.00	178.00	17.05	0.226	2.312
MTRS	30	438.24	395.00	510.00	6.96	-0.105	2.621
MBLP	30	18.56	15.00	25.00	5.23	-0.345	2.144
MD30	30	11.73	7.00	16.00	1.34	-0.952	0.672
MMZG	30	3.67	0.00	6.00	17.05	0.206	0.302
MČUČ	30	7.26	3.00	13.00	16.96	-0.158	0.601

Legend: arithmetic mean (Mean) , minimum (Min) , maximum (Max) , standard deviation (Std.dev) skjunis (Skewn) kurtozis (kurtos)

Analysis of table 1 in the experimental group in the area of motor skills tests indicated no statistically significant difference between the results of the normal distribution . Results of tests which assessed motor skills of the respondents indicate that the distribution is positive. To confirm the results of the asymmetry of distribution (skjunosis) not exceeding 1.00 and that means that the tests are not heavy (up to +1.00) of light (up to -1.00), but correspond to the research population and below the unit . The homogeneity of the results indicates that there is good sensitivity because the obtained values below 2.75 . The results of motor skills do not differ from the results of similar studies tested by us on this population of patients thereby enabling the application of multivariate method of analysis in this study .

Table 2.Basic statistical parameters for the estimation of motor skills of the experimental group on final measurement

varijable	N	Mean	Min	Max	Std.dev.	Skewn.	Kurtos
MDPK	30	43.24	29.00	49.00	32.27	-0.414	1.410
MŠPA	30	138.53	122.00	155.00	33.23	0.600	2.258
MISP	30	62.38	43.00	82.00	15.14	-0.358	-0.552
MTAN	30	23.76	18.00	31.00	12.24	-0.345	-2.344
MTAP	30	31.50	25.00	37.00	21.51	0.253	-1.241
MTAZ	30	14.83	12.00	18.00	25.52	0.352	1.459
MSDM	30	168.64	149.00	181.00	10.27	0.027	2.304
MTRS	30	542.72	410.00	592.00	15.10	0.745	-2.240
MBLP	30	28.34	17.00	32.00	15.15	-0.358	-0.502
MD30	30	16.15	8.00	19.00	12.27	-0.311	-0.340
MMZG	30	5.45	2.00	8.00	20.52	0.223	-0.201

MČUČ	30	10.88	5.00	16.00	9.54	0.332	0.450

Legend: arithmetic mean (Mean) , minimum (Min) , maximum (Max) , standard deviation (Std.dev)
skjunis (Skewn) kurtozis (kurtos)

Presents the results in Table 2 in the experimental group in the area of motor skills tests on the final measurements indicate that there is no significant difference between the results of the normal distribution. The test results, which were assessed motor skills of the respondents indicate that the distribution is positive. To confirm the results of the asymmetry of distribution (skjunis) not exceeding 1:00 and that means that the tests are not heavy (up to +1.00) or light (up-1.00), but correspond to the research population below jedinice.Homogenity results (kurtozis) indicates that there is good sensitivity are obtained as values below 2.75.

Table 3.Basic statistical parameters for the estimation of motor skills of the control group on initial measurement

varijable	N	Mean	Min	Max	Std.dev.	Skewn.	Kurtos
MDPK	36	42.28	36.00	48.00	2.50	0.742	-0.698
MŠPA	36	134.15	112.00	146.00	1.50	0.602	1.020
MISP	36	67.82	53.00	78.00	10.02	0.122	-1.209
MTAN	36	22.56	19.00	26.00	5.24	0.455	1.045
MTAP	36	28.74	22.00	34.00	32.15	0.155	-2.648
MTAZ	36	14.15	11.00	18.00	2.12	0.274	-1.547
MSDM	36	151.26	138.00	178.00	5.51	0.299	-1.524
MTRS	36	441.43	390.00	496.00	2.47	0.274	-1.105
MBLP	36	19.72	15.00	26.00	25.22	0.455	1.045
MD30	36	12.10	6.00	17.00	21.11	0.155	-1.642
MMZG	36	3.14	0.00	5.00	20.12	0.274	-0.517
MČUČ	36	7.82	3.00	12.00	15.51	0.204	-0.004

Legend: arithmetic mean (Mean), minimum (Min), maximum (Max), standard deviation (Std.dev)
skjunis (Skewn) kurtozis (kurtosis)

Analysis of the results in table 3 in the control group in the area of motor skills tests in the initial measurements indicate that there is no statistically significant deviations from the normal distribution results. The test results, which were assessed motor skills of the respondents indicate that the distribution is positive.

Table 4 The basic statistical parameters for the assessment of motor abilities of the control group on the final measurement

varijable	N	Mean	Min	Max	Std.dev.	Skewn.	Kurtos
MDPK	36	43.82	37.00	49.00	25.74	0.587	0.633
MŠPA	36	136.43	116.00	153.00	3.30	0.341	1.226
MISP	36	65.72	50.00	74.00	22.52	0.051	2.025
MTAN	36	24.18	20.00	30.00	1.22	0.599	-1.963
MTAP	36	30.76	23.00	37.00	25.45	0.025	-1.115
MTAZ	36	16.13	12.00	19.00	5.31	0.165	0.304
MSDM	36	154.10	140.00	178.00	12.15	0.024	2.925
MTRS	36	472..56	395.00	525.00	13.12	0.542	0.226
MBLP	36	21.43	16.00	29.00	1.22	0.500	-1.795

MD30	36	12.90	7.00	18.00	25.45	0.022	-1.112
MMZG	36	3.74	1.00	6.00	5.31	0.160	0.302
MČUČ	36	8.34	4.00	14.00	12.15	0.024	2.025

Legend: arithmetic mean (Mean), minimum (Min), maximum (Max), standard deviation (Std.dev) skjunis (Skewn) kurtozis (kurtos)

The presented results in table 4 in the control group in the area of motor skills in the final measurements indicate that there is no statistically significant difference between the results of the normal distribution. The test results, which were assessed motor skills of the respondents indicate that the distribution is positive.

Table 5. Univariate analysis of motor ability between the experimental and control group in the initial measurement

Testovi	Mean(E)	Mean(K)	F-odnos	Q
MDPK	41.53	42.28	1.56	.135
MŠPA	133.28	134.15	1.96	.242
MISP	68.45	67.82	1.28	.257
MTAN	21.83	22.56	1.38	.104
MTAP	29.34	28.74	1.59	.158
MTAZ	13.62	14.15	1.55	.122
MSDM	152.85	151.26	1.54	.109
MTRS	438.24	441.43	1.75	.130
MBLP	18.56	19.72	1.54	.128
MD30	11.73	12.10	1.56	.225
MMZG	3.67	3.14	1.82	.109
MČUČ	7.26	7.82	1.69	.150

Legend: The arithmetic mean of the experimental group (mean e), the arithmetic mean of the control group (mean k), the value of F-test (F ratio), the level of significance (Q)

Table 5 shows the univariate analysis of variance tests of motor skills by comparing the results of arithmetic mean experimental and control groups at initial measurement. Based on the coefficient of F-relations and their significance (P level) can be said to not feature significant differences levels of motor skills between the experimental and control groups.

Table 6 Univariate analysis of motor ability between the experimental and control group on the final measurement

Testovi	Mean(E)	Mean(K)	F-odnos	Q
MDPK	43.24	43.82	1.67	.196
MŠPA	138.53	136.43	1.54	.155
MISP	62.38	65.72	1.54	.136
MTAN	23.76	24.18	1.52	.128
MTAP	31.50	30.76	1.55	.196
MTAZ	14.83	16.13	1.42	.180
MSDM	168.64	154.10	1.35	.149
MTRS	542.72	472.56	7.00	.000
MBLP	28.34	21.43	5.78	**.000**
MD30	16.15	12.90	10.54	**.000**
MMZG	5.45	3.74	8.54	**.000**

| MČUČ | 10.88 | 8.34 | 11.52 | **.000** |

Legend: The arithmetic mean of the experimental group (mean e), the arithmetic mean of the control group (mean k), the value of F-test (F ratio), the level of significance (Q)

Table 6 shows the univariate analysis of variance tests of motor skills by comparing the results of arithmetic mean experimental and control groups at the final measurement. Based on the ratio F relations and their significance (P level) it can be concluded that the statistically significant difference level of motor skills between the experimental and control groups for the following motor tests in triple jump (MTRS .000), throwing balls (MBLP.000), lifting the trunk in 30 seconds (MD30 000), mixed movements (MMZG .000), and squats (MČUČ .000).

Table 7.Relevence difference between the arithmetic mean of the experimental group

Testovi	Mean(i)	Mean(f)	T-value	P
MDPK	41.53	43.24	1.61	.214
MŠPA	133.28	138.53	1.54	.185
MISP	68.45	62.38	1.65	.146
MTAN	21.83	23.76	1.42	.123
MTAP	29.34	31.50	1.52	.128
MTAZ	13.62	14.83	1.56	.120
MSDM	152.85	168.64	1.52	.125
MTRS	438.24	542.72	5.00	**.000**
MBLP	18.56	28.34	5.61	**.000**
MD30	11.73	16.15	6.52	**.000**
MMZG	3.67	5.45	7.60	**.000**
MČUČ	7.26	10.88	6.40	**.000**

Legend: the arithmetic mean of the initial (and Mean), the arithmetic mean of the final (Mean f), the value of T-test (t-value), and the level of significance (p)

Table 7 presents the results of t-test of motor skills between the initial and final measurements of the experimental group. After analyzing the results it is concluded that there is a statistically significant difference in triple jump (MTRS .000), throwing balls (MBLP.000), lifting the trunk in 30 seconds (MD30.000), mixed movements (MMZG .000), and squats (MČUČ .000).

Table 8 Significance of the difference between the arithmetic mean of controls

Testovi	Mean(i)	Mean(f)	T-value	P
MDPK	42.28	43.82	1.47	.122
MŠPA	134.15	136.43	1.54	.184
MISP	67.82	65.72	-1.52	.254
MTAN	22.56	24.18	-1.54	.215
MTAP	28.74	30.76	-1.21	.267
MTAZ	14.15	16.13	-1.45	.219
MSDM	151.26	154.10	1.54	.145
MTRS	441.43	472.56	1.21	.289
MBLP	19.72	21.43	-1.52	.117
MD30	12.10	12.90	-1.25	.262
MMZG	3.14	3.74	-1.47	.227

MČUČ	7.82	8.34	1.58	.148

Legend: the arithmetic mean of the initial (and Mean), the arithmetic mean of the final (Mean f), the value of T-test (t-value), and the level of significance (p)

Table 8 presents the results of t tests of motor skills between the initial and final measurements of the control group. After the obtained results it can be concluded that there is no statistically significant difference in tests of motor skills.

Table 9 Significance isolated discriminant function motor potential for regen experimental group

Disc Func	Eigenvalue	Cannonical R	Wilks Lambada	Chi-Sqr.	df	P-Level
1	4.074	.88	.127	147.30	12	**.000**

Legend: The squares of the coefficient of discrimination (eugenvalue), the coefficients of the canonical relation (Cannonical R) values Bertletovog test (Wilks Lambada, the size of Chi-square test (Chi-SQR), the degree of freedom (df), significance level of the coefficient of determination (R-Level)

The resulting one significant discriminant function of high intensity (CR = 88%), which indicates where the correlated data set based on who performed discriminant analysis results. Results diskrimative volume motor variables give Wilks-Lambda (.127), indicating that the differences between the initial and final measurements in the area of motor skills of the experimental group significance (p = .000) as the size of Hi-square-meter test has a high value (Chi-Sqr = 147.30).

Table 10 Significance of isolated discriminant function motor potential for regen control group

Disc Func	Eigenvalue	Cannonical R	Wilks Lambada	Chi-Sqr.	df	P-Level
1	0.289	.24	.746	13.85	12	**.287**

Legend: The squares of the coefficient of discrimination (eugenvalue), the coefficients of the canonical relation (Cannonical R) values Bertletovog test (Wilks Lambada, the size of Chi-square test (Chi-SQR), the degree of freedom (df), significance level of the coefficient of determination (R-Level)

The resulting discriminant function is a medium intensity CR = .24% which shows where the correlated data set on the basis of which was performed discriminant analysis results. Results intensity variables are given Wilks test Lambada (.746), which confirms that the differences between the initial and final measurements in the area of motor skills control group were not significant (P = .287 level) because the size of Chi-square test has a low value (Chi-Sqr = 13.85).

Table 11.Multivariate analysis of variance motor skills between the experimental and control groups at the final measurement

Wilks'Lambda	Rao's R	Q
.198	10.77	**.000**

Legend: values Bertletovog test (Wilks Lambda) , Ra F approximation (Rao , from R) and significance level (Q)

Table 11 shows the results of multivariate analysis of variance between the experimental and control groups on the final measurements indicate that there is a statistically significant intergroup differences in motor skills as WILK , with Lambda is .198 , which Ra F approximation provides a significant difference in the level of Q = . 000 Thus the system that used motor abilities were found statistically significant differences .

4.CONCLUSION

A sample of 66 subjects were divided into two groups : the experimental and control groups . The experimental group consisted of 30 patients and a control group of 36 subjects . The subject of research is the study program for the correction of lordosis and basic mobility exercises with primary school students aged 10 years at the Clinical Center in Nis . The case study is a study program for the correction of lordosis in primary school students aged 10 years and their anthropological characteristics of the Clinical Center in Nis . The first problem of the research is to investigate methods and resources applied load in the process of implementation of the program for the correction of lordosis and basic mobility exercises with primary school students aged 10 years can affect significant adaptive processes of motor skills at the end of the experimental period in the experimental group subjects. The second problem is to examine whether the applied methods and means of load in the process of implementation of the program for the correction of lordosis in primary school students aged 10 years can affect significant adaptive processes of motor skills at the end of the experimental period in the control group . The third problem is to get the answer to the question of whether the experimental groups significantly differ in the level of motor skills than the control group on the final measurement . Based on the set of cases and issues research goal of this research is to determine the program for the correction of lordosis and basic mobility exercises and their impact on the transformation process of anthropological characteristics of children with physical deformities in the experimental group subjects. The aim of the research is establishing the program for the correction of lordosis and its impact on the transformation process of anthropological characteristics of children with physical deformities in the control group .
Drawn the following conclusions :
- Results of canonical discriminant functions indicate that the final compared to the initial measurement of the experimental group there was a statistically signifi cant change in motor skills .
- It can be concluded that there are significant changes are the result of motor skills in the final measurement in relation to the initial state in the experimental and control group .
- Results of multivariate analysis of variance indicated that the effect of the experimental program of explosive power ii coordination of the development of motor skills in relation to the control groupe.Postoji statistically significant differences were found motor skills at the final measurement between the experimental and control groups .

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