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Contents

A COMPARATIVE STUDY OF HEALTH EDUCATION SYLLABI FOR FUTURE KINDERGARTEN TEACHERS' TRAINING	1639
Svetlana Angelova	1639
C-REACTIVE PROTEIN -BIOMARKER OF COMORBIDITIES IN PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE	1647
Liljana Simonovska	1647
Iva Paneva.....	1647
A CONCEPTUAL MODEL OF WEB-BASED EDUCATION QUALITY ASSESSMENT SYSTEM IN MEDICAL HIGHER SCHOOLS	1653
Kristina Kilova.....	1653
Tanya Kitova.....	1653
Antonia Yaneva	1653
Teodora Dimcheva.....	1653
Zhivko Peychev	1653
Desislava Bakova.....	1653
Nonka Mateva.....	1653
ACUTE CORONARY SYNDROME – EARLY SURGICAL RESULTS.....	1661
Zaprin Vazhev.....	1661
Hristo Stoev	1661
Asen Ivanov	1661
Todor Gonovski.....	1661
Yordanka Tsokova.....	1661
AN APPROACH TO A CHILD WITH RESPIRATORY TRACT INFECTION	1667
Arlind Alili.....	1667
Alba Alili	1667
Adelina Alili.....	1667
Tauland Muharemi.....	1667
ANALYSIS OF THE IMPLEMENTATION OF THE „STUDENT PRACTICE“ PROJECT IN THE MEDICAL UNIVERSITY - PLOVDIV FOR THE PERIOD 2013-2015 Y.....	1671
Zhivko Peychev	1671
Mihaela Shishmanova-Doseva.....	1671
Stela Peycheva	1671
Teodora Dimcheva.....	1671
Antonia Yaneva	1671
Kristina Kilova.....	1671
Angelina Kirkova.....	1671
ANATOMICAL VARIATIONS OF FORAMEN OVALE	1677
Svetlana Jovevska	1677
Lence Nikolovska	1677
ANTITUMOR ACTIVITY EVALUATION OF 4-THIAZOLIDINE DERIVATIVES	1681
Stefan Harkov	1681
Vanya Pepelyasheva	1681
APPLICATION IN THE CLINICAL PRACTICE OF A MODIFIED MODEL FOR EARLY POSTOPERATIVE RECOVERY	1689
Stefka Georgieva.....	1689

Mariya Dimitrova.....	1689
Tanya Popova.....	1689
Dimitrinka Blagoeva.....	1689
APPLICATION OF SPECIALIZED KINESITHERAPEUTIC METHODS IN CHILDREN WITH CEREBRAL PALSY	1695
Margarita Valerieva Avramova	1695
BACTERIAL RESISTANCE IN HOSPITALIZED PATIENTS.....	1701
Marija Darkovska-Serafimovska	1701
Tijana Serafimovska	1701
Vaso Taleski.....	1701
BIOCHEMICAL MARKERS OF BONE METABOLISM, OSTEOPOROSIS PREVENTION AND PROPHYLACTICS	1709
Pavlina Teneva.....	1709
Mariana Staneva.....	1709
Ivelina Dobрева.....	1709
Rumyana Sherletova	1709
BLOOD TYPES AND SUICIDE RATES IN THE REGION OF PLOVDIV, REPUBLIC OF BULGARIA	1713
Marin Kostadinov Baltov.....	1713
Ekaterina Lyubenova Raykova	1713
Vanina Krasteva Mihaylova	1713
Iliya Petrov Bivolarski	1713
BRUXISM – TEETH GRINDING	1719
Katerina Zlatanovska	1719
Ivona Kovacevska	1719
Natasa Longurova	1719
Sandra Atanasova.....	1719
Mihajlo Petrovski.....	1719
CHALLENGES AND CHANGES IN RELATIONS BETWEEN FITNESS TRAINER AND FITNESS AMATEUR IN THE TECHNOLOGY CENTURY	1725
Ivan Nedelchev	1725
COMPARISON OF HEMODINAMIC PROFILE AND ARTERIAL STIFFNESS IN STUDENTS OF MEDICINE, TRAINING FOOTBALL AND PHYSICALLY INACTIVE OBJECTS.....	1729
M. Bancelova	1729
J. Nikolova	1729
K. Kanalev	1729
P. Nikolov	1729
K. Kableskov.....	1729
P. Krastev.....	1729
CURRENT DIRECTIONS IN PROVIDING HEALTHY AND SAFE WORKING CONDITIONS IN MEDICAL UNIVERSITY - PLOVDIV	1735
Mariya Pavlova	1735
DENTAL CHARACTERISTICS IN BULIMIC PATIENTS.....	1741
Natasha Longurova	1741
Ivona Kovachevska.....	1741
Nikola Denkov	1741

Katerina Zlatanovska	1741
Verica Toneva	1741
DOCTORS AND CLERICS IN IMPLEMENTING THE PATIENT CARE IN CLINICAL SETTINGS	1745
P. Asparuhova	1745
E. Jeleva	1745
N. Yordanov.....	1745
ENHANCING PERSONAL AND PUBLIC WELL BEING THROUGH EVIDENCE BASED ARTTHERAPY	1751
T. Shekerdzhieva-Nowak.....	1751
L. Despotova-Toleva.....	1751
EPIDEMIOLOGICAL CHARACTERISTICS OF PEOPLE WITH CARDIOVASCULAR DISEASES IN THE REGION OF SHTIP	1759
Milka Zdravkovska	1759
Bisera Stojmenova – Runteva.....	1759
Marija Darkovska-Serafimovska	1759
ESSENTIAL TRACE ELEMENTS - CLINICAL SIGNIFICANCE AND LABORATORY METHODS	1765
Delyana Davcheva	1765
ESTABLISHMENT AND INTRODUCTION OF THE WEB-BASED INFORMATION SYSTEM FOR PREVENTION AND DIAGNOSIS OF bURNOUT SYNDROME	1771
Stanislava Harizanova.....	1771
Rumyana Stoyanova	1771
EVALUATION AND MANAGEMENT OF A CHILD WITH FEBRILE SEIZURE	1775
Leara Alili Ademi	1775
Blerim Ademi.....	1775
EXPLORATION OF THE IMPACT OF NOISE ON STUDENTS WITH IMPROVED DIFFICULTIES AND THE EFFECT OF A KINESITHEPAPETICAL PROGRAM FOR OVERCOMING OF THEIR SIDE EFFECTS	1779
Mariana Albert.....	1779
FECULENT PERITONITIS.....	1783
Boyko Atanasov.....	1783
Nikolay Belev	1783
GESTATION DIABETES AND IMPORTANCE OF DIAGNOSE DURING THE PREGNANCY, EXPERIENCE OF CLINIC FOR GYNECOLOGY AND OBSTETRICS IN SKOPJE IN THE PERIOD FROM 2013 TO 2015.....	1787
Biljana Gjorgjeska	1787
Vesna Mladenovska	1787
GLOBAL CAMPAIGN FOR SAFE INJECTION PRACTICES – K1-AD – THE SMART SYRINGES	1793
Yovka Zlatanova.....	1793
Nedyalka Boycheva	1793
Tsvetomila Valcheva	1793
IMPACT OF LEARNING CURVE ON LAPAROSCOPIC APPENDECTOMIES	1799
Boyko Atanasov.....	1799
Nikolay Belev	1799

INNOVATIVE APPROACHES IN THE PREPARATION OF MANAGEMENT DISCIPLINES OF MANAGERIAL STAFF IN PUBLIC HEALTH	1803
Vanina Mihaylova.....	1803
Mariana Lyochkova	1803
Maria Semerdzhieva	1803
Adolf Alakidi	1803
Dimitar Shopov.....	1803
INTERRELATION BETWEEN OXIDATIVE STRESS AND DISEASES RELATED TO INSULIN RESISTANCE	1811
Desislava Arabadzhyska	1811
Dora Terzieva.....	1811
KINESITHERAPY FOR CHILDREN WITH GENERALIZED JOINT HYPERMOBILITY (GJH) ..	1817
Snezhina Georgieva	1817
MANAGEMENT IN HEALTHCARE	1823
Oliver Dimitijević	1823
MANAGEMENT AND LEADERSHIP IN A HEALTH ORGANIZATION FOR OUTPATIENT CARE	1827
Radka Goranova- Spasova	1827
Mila Moskova	1827
Nadejda Kostova- Kamburova.....	1827
MANAGEMENT OF CHRONIC DISEASES - DEFINITION AND PRINCIPLES	1833
Boryana Levterova.....	1833
MANAGEMENT OF HEALTHCARE IN CHRONICAL VASCULAR DISEASES.....	1839
Mihaela Mireva.....	1839
Milan Tsekov	1839
Mariana Albert.....	1839
Aleksandra Zdravkova-Maleva.....	1839
MANAGER QUALIFICATION AS CONDITION FOR QUALITY OF THE HEALTHCARE	1843
Kamelia Bogdanova.....	1843
Evgeni Ivanov	1843
Zhulieta Gerenova.....	1843
MARKETING IN HEALTH SERVICES IN KOSOVO.....	1849
Nadire Loku	1849
MEDICAL AND SOCIAL CHARACTERISTICS OF PATIENTS WITH PRIMARY ENDOPROSTHESIS OF SHOULDER JOINT	1855
Kevork Kaykchian	1855
METABOLIC SYNDROME IN PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE: FREQUENCY AND RELATIONSHIP WITH CLINICAL CHARACTERISTICS.....	1861
Adem Musliu	1861
Bekim Mustafa.....	1861
Arber Musliu.....	1861
MIDDLE HIGHT MOUNTAIN TREATMENT BY PATIENTS WITH BRONHIAL ASTHMA.....	1869
Rumyana Bahchevandzhieva	1869
MOTIVATION FOR SELF-MONITORING, SOCIOCONTROL AND AUTOLOGY IN PATIENTS WITH SUGAR DIABETES	1873
Varvara Pancheva	1873

NECESSITY OF COMMUNICATION SKILLS TRAINING OF MEDICAL NURSES AS A POST GRADUATE EDUCATION	1879
Julieta Gerenova.....	1879
Todor Dimitrov	1879
Evgeni Dimitrov.....	1879
NITRATES AS A RISK FACTOR FOR METHAEMOGLOBINAEMIA.....	1883
Ivelina Dobрева.....	1883
Pavlina Teneva.....	1883
Petya Krumova.....	1883
NUTRITIONAL NEEDS OF FORCES FOR EXPEDITIONARY OPERATIONS	1887
AT A NATIONAL TRAINING	1887
Pavlin Glushkov.....	1887
Stefan Filipov.....	1887
Nikolay Stefanov	1887
OBSERVATIONS ON AN APPROBATION OF A COURSE BOOK OF BULGARIAN LANGUAGE FOR STUDENTS IN MEDICINE, DENTAL MEDICINE AND PHARMACY AT PLOVDIV MEDICAL UNIVERSITY	1895
Lidiya Kavrakova.....	1895
Milena Dineva-Muleshkova.....	1895
OCCUPATIONAL THERAPY WITH CHILDREN AND YOUTH PEOPLE WITH MENTAL DISORDERS – PROBLEM AREAS	1901
Nikola Sabev	1901
Kiril Panayotov	1901
Yoana Negrova	1901
ORAL HEALTH CARE AT STUDENTS FROM DIFFERENT FACULTIES	1907
Ivona Kovachevska	1907
Natasha Longurova	1907
Katerina Zlatanovska	1907
Mihajlo Petrovski.....	1907
Zlatko Georgiev	1907
ORAL HYGIENE CARE FOR PATIENTS WITH GASTROINTESTINAL DISEASE.....	1913
Ivona Kovacevska	1913
Verica Toneva.....	1913
Aleksandra Toneva	1913
Sandra Atanasova.....	1913
Darko Kochovski	1913
ORTHOGONAL FREQUENCY DIVISION MULTIPLEXING (OFDM) METHODS FOR THE MULTIPLEXING IN WORLDWIDE INTEROPERABILITY FOR MICROWAVE ACCESS (WIMAX)	1919
Amet Shabani.....	1919
Besnik Qehaja	1919
OVERCOMING OCCUPATIONAL STRESS IN THE PERSPECTIVE OF NURSES IN MANAGEMENT POSITION.....	1925
Zlatina Lecheva.....	1925
Lora Georgieva	1925

PATIENT AWARENESS FOR THE UPCOMING PROCEDURES AND EMPATHY TOWARDS THEM	1931
Julieta Gerenova.....	1931
PATIENT EDUCATION IN THE FOOT CARE WITH ONYCHOCRYPTOSIS -	1935
AN IMPORTANT CONDITION FOR CARE AND PREVENTION	1935
Binnaz Asanova	1935
Katya Savova	1935
PHARMACOTHERAPEUTIC CONSIDERATIONS FOR USE OF ANNABINOIDS TO RELIEVE SYMPTOMS OF NAUSEA AND VOMITING INDUCED BY CYTOTOXIC THERAPY.....	1939
Marija Darkovska-Serafimovska	1939
Tijana Serafimovska	1939
Vaso Taleski.....	1939
Milka Zdravkovska	1939
Biljana Gjorgeska.....	1939
Trajan Balkanov.....	1939
PREVENTION AND DENTAL TREATMENT OF PATIENTS WITH EPILEPSY	1945
Sanja Nashkova.....	1945
Sandra Atanasova.....	1945
Verica Toneva.....	1945
PSYCHOLOGICAL ACCENTS IN ONCOLOGICAL PRACTICE	1951
Silvia Tcvetkova	1951
Daniela Petrova.....	1951
PSYCHOLOGICAL DIMENSIONS OF COPING WITH THE FEAR OF DEATH AMONG MEDICAL SPECIALISTS	1957
Nikola Georgiev.....	1957
Polina Balkanska.....	1957
PSYCHOSOCIAL SITUATION OF DEVELOPMENT OF STUDENTS WITH SENSORY AND MOTOR DISABILITIES IN THE GENERAL AND SPECIAL EDUCATION	1963
Tzvetomira Angelova.....	1963
QUALITY OF LIFE ASSESSMENT FROM PATIENTS WITH MULTIPLE SCLEROSIS.....	1971
Todor Dimitrov	1971
REFRACTORY ANOMALIES ON PRESCHOOL CHILDREN IN STIP	1977
Gazepov Strahil.....	1977
Panova Gordana.....	1977
Dimitrova Kristina	1977
Dodevska Biljana	1977
REHABILITATION OF FRACTURES IN CHILDREN'S AGE	1987
Lence Nikolovska	1987
Robert Milenkovski	1987
Tose Krstev	1987
Svetlana Jovevska	1987
RELATIONSHIP BETWEEN AEROBIC EFFICIENCY OF THE ATHLETES AND BLOOD LIPID PEROXIDATION.....	1991
Albena Alexandrova	1991
RELATIONSHIP BETWEEN ANTIOXIDANT ENZYMES AND INSULIN RESISTANCE IN PATIENTS WITH CHRONIC LIVER DISEASE	1997

Dimitar Terziev	1997
ROLE OF THE THEATRE IN THE EDUCATION OF STUDENTS IN THE SPECIALTY "MEDICAL AESTHETICIAN"	2003
Binnaz Assanova.....	2003
SELF-CONTROL OF PATIENTS WITH DIABETES UNDER INSULIN THERAPY	2007
A. Trajkovska – Dimitrova	2007
T. Dimitrov	2007
G. Tchaneva.....	2007
SEROUS MICROCYSTIC CYSTADENOMA (SMCA) OF THE PANCREAS.....	2011
N. Belev	2011
B. Atanasov.....	2011
E. Moshecov	2011
SOCIO-EMOTIONAL SKILLS OF UNIVERSITY STUDENTS – SPORTS PEDAGOGUES	2015
Nevyana Dokova.....	2015
Stefan Kinov	2015
SOURCES OF DIFFICULTIES OF PARENTS OF CHILDREN WITH MENTAL DISORDERS	2021
Ivana Rašković.....	2021
Aleksandra Đurić-Zdravković.....	2021
Mirjana Japundža-Milisavljević.....	2021
STANDARD TREATMENT OF PATIENTS WITH BURNS IN EMERGENCY HOSPITAL CENTERS	2027
Anushka Dimitrova.....	2027
Mariya Dimitrova.....	2027
Petya Kantareva	2027
Miloslava Ilieva	2027
SURGICAL TRAUMA CAUSE FOR MARGINAL BONE RESORPTION AROUND DENTAL IMPLANTS PREVIOUS TO PROSTHETIC APPLIANCES	2035
Kiro Papakoca	2035
Sonja Rogoleva	2035
Ljupka Lazarova	2035
Olivera Terzieva-Petrovska.....	2035
Mihajlo Petrovski.....	2035
THE METHODOLOGY OF HEALTH CARE EDUCATION AND TRAINING FOR THE PREPARATION OF THE MEDICAL SPECIALISTS.....	2041
E. Jeleva	2041
P. Asparuhova	2041
N. Yordanov.....	2041
THE PRESENCE OF IRREGULAR ANTIBODIES OF THE LEWIS SYSTEM IN BLOOD OF PREGNANT WOMEN.....	2045
Dragan Radonjić	2045
Duško Kljakić	2045
Snežana Filipović.....	2045
Stefan Grujičić	2045
Milenka Vraneš-Grujičić	2045
THE PREVALENCE OF POSTURAL DISORDERS AND SPINAL DEFORMITIES AMONG THE PUPILS IN THE MUNICIPALITY OF BEROVO	2051

Lence Nikolovska	2051
Timko Neshovski	2051
Tose Krstev	2051
Tamara Stratorska	2051
THE PROCESS OF FORMATION OF HEALTH COMPETENCIES OF GERIATRIC PROFESSIONALS - CHALLENGES,REGULATIONS, PERSPECTIVES.....	2057
Hristina Milcheva.....	2057
Petya Krumova.....	2057
Rumyana Sherletova	2057
TRAINING AND PROFESSIONAL COMPETENCIES OF THE NURSE	2063
Stefka Georgieva.....	2063
Petya Kantareva	2063
Antoaneta Terzieva	2063
Anushka Dimitrova	2063
TRAINING FOR PLANNING AND SOLUTIONS FOR CLIENTS	2069
WITH ALCOHOL DEPENDENCE	2069
Vanya Dineva.....	2069
VAC THERAPY IN THE TREATMENT AND PROPHYLAXIS OF WOUND INFECTION	2075
Nikolay Belev	2075
VALIDATION OF THE BULGARIAN TRANSLATION OF THE PATIENT ASSESSMENT OF CHRONIC ILLNESS CARE (PACIC 5As) SURVEY	2079
Teodora Dimcheva.....	2079
Nonka Mateva	2079
Antonia Yaneva	2079
Zhivko Peychev	2079
Kristina Kilova.....	2079
НЕПРАВИЛНИ МАНУАЛНИ УМЕНИЯ ЗА ПИСАНЕ ПРИ ДЕЦА СЪС СПЕЦИФИЧНО ЕЗИКОВО НАРУШЕНИЕ.....	2085
Лилия Янчева -Велинова.....	2085
Мартин Маринов.....	2085
NOMOPHOBIA OR MOBILE PHONE ADDICTION	2091
Ljiljana Desević	2091
Stefan Grujičić	2091
Milenka Vraneš-Grujičić	2091
STANDARD COMPUTERIZED PERIMETRY IN FUNCTION OF DIAGNOSTIC GLAUCOMA..	2095
Strahil Gazepov.....	2095
Iljaz Ismaili	2095
Elena Lichkova	2095
Gordana Panova	2095
Verica Stoimenova.....	2095
Emilija Goshevska Dashtevska.....	2095
THALASSOTHERAPEUTIC FACTORS IN TREATMENT AND REHABILITATION OF CHILDREN WITH CHRONIC RESPIRATORY DISEASES	2101
Snezhina Georgieva	2101
THE PROBLEM OF IRRATIONAL USE AND DISABILITY OF FRESH FROZEN PLASMA IN OUR PRACTICE	2105

Dragan Radonjić	2105
Mirjana Varjačić	2105
Gordana Šošilj.....	2105
Snežana Filipović.....	2105
Stefan Grujičić	2105
XEN IMPLANT AND FAKOEMULSYPHICATION	2109
Strahil Gazepov.....	2109
Topov A.	2109
Gordana Panova.....	2109
Gjorgji Shumanov	2109
REFERENCES.....	2112
DISCOURSE ANALYSIS IN THE TEXT OF RESTORATIVE DENTISTRY	2113
Djukica Mirkovic	2113
Tijana Vasiljevic – Stokic.....	2113
Miodrag Smelcerovic.....	2113
THE ROLE OF THE NURSE IN OBSTETRICS	2119
Panova Gordana.....	2119
Shumanov Gj.	2119
Gazepov S.	2119
Dzidrova V.....	2119
Dimova T.	2119
Petrova M.....	2119
УЛОГАТА НА ПАТРОНАЖНАТА СЕСТРА ПРИ ЕДУКАЦИЈА И ТРЕТМАН НА ПАЦИЕНТИ СО ДИЈАБЕТЕС.....	2127
Ивана Тренчева	2127
Гордана Панова.....	2127
SCREENING OF GLAUCOMA ON 2015 YEAR	2135
Iljaz Ismaili	2135
Emilija Gjosheska-Dashtevska	2135
Nadi Rustemi	2135
Hristijan Duma.....	2135
Strahil Gazepov.....	2135
Gazmend Mehmedi.....	2135
ФУНКЦИОНИРАНЕ ПСИХИЧНАТА ЗАЩИТНА ДОМИНАНТА НА ОБВИНЯЕМИЯ ПРИ ПРОВЕЖДАНЕТО НА РАЗПИТ В РАМКИТЕ НА НАКАЗАТЕЛНИЯ ПРОЦЕС	2143
Христо Иванов Попниколов	2143

**THE PREVALENCE OF POSTURAL DISORDERS AND SPINAL DEFORMITIES AMONG
THE PUPILS IN THE MUNICIPALITY OF BEROVO**

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Abstract: The material included in this paper is presented through four basic chapters.

The first chapter covers a review of literature, where are presented the basic features of the spinal cord, the basic anatomical and physiological characteristics, then the terms pathological curvature and spinal deformities are defined. The objectives and methods of kinesitherapy are also outlined. The elements that serve as the basis for the application of kinesitherapy (human habitus, locomotor apparatus, normal attitude, factors that contribute to disturbance of the normal put and the forces that fight it to maintain it in normal). The deformities of the spinal cord, legs, feet are explained in detail.

The second, third and fourth chapters refer to the research section. Here, the goals, materials and methods of work are shown, as well as the results and discussion of postural disorders and bodily deformities, which emphasize the essence of kinesitherapy.

Because of the large volume of the material, especially because of the actuality of postural deformities and spinal deformities, recommendations for further research are given in the last chapter.

Keywords: deformities, lordosis, kyphosis, scoliosis, extremities, feet

Introduction: One of the unique features that separates people from animals is our unique ability to walk on two legs. Walking on four limbs is more stable, with built-in unnecessary. However, by standing on our hind legs, we can see far higher than other vertebrates from the animal world, and our hands and hands are free to handle tools. The only balance between the flexibility and stability of the spinal column in humans helped in understanding this evolutionary discovery. It's astonishing that this balance is maintained during life-cycle in most of the world's population. By changing this equilibrium, a spinal deformity occurs in one or more platelets of movement, and thus other postural disorders.

Although today there are several methods for measuring the spinal curvature in the sagittal ram, there is a small number of tests that have been tested for metric characteristics, which would give an insight into whether the test measures what it is intended for. For these reasons, an attempt has been made to show the cypholordosimeter pair and the reliability of the measuring instrument, the subject of which is the dorsal kyphosis and lumbar lordosis.

Most anomalies of the locomotor apparatus in school youth caused by various exogenous risk factors are relatively revealing because they do not usually have some visible subjective symptoms, that is, due to the fact that teachers do not perform appropriate measurements at the beginning of each school year in time discover any shortcomings. All this tells how they can be dangerous, because as a rule they always come unannounced. For these reasons, neither the parent nor the child initially require proper medical or other assistance. They seem as if they are not sufficiently aware of the changes that can later have catastrophic consequences on the correct psychophysical development of the child.

Systematic examinations of school children aim to monitor their physical and psychological development, which is at this age the most intense. On such examinations, which are regularly performed in primary and secondary education today, the early spinal deformities of the schoolchildren are covered. They are referred to the Department of Physical Medicine in a timely manner, where their further detection and treatment is successfully managed with the help of kinesitherapy and corrective gymnastics.

Kinesitherapy is a branch of physical medicine and rehabilitation and is one of the most important links in the process of complete functional facilitation of persons, after injuries, diseases or some other condition that has led to disturbance of the normal balance between certain functions in the body.

One of its species, which is most commonly used to remove the disorders in the body, is called corrective gymnastics. It is one of the basic methods used for prevention and correction.

Today, when it comes to kinesitherapy, all preventive and therapeutic activities are meant, the goal of which is to maximize possible damage to the damaged functions of the body. Other suitable environments, such as water, when talking about hydro kinesitherapy, can be used, or basic human activities, so-called occupational therapy (ergotherapy), are also used. The goal of kinesitherapy should not only be local registration and correction of deviations from the normal attitude, but it should also have a broader character as to have a preventive effect.

The purpose of the research is: to show the prevalence of postural disorders and spinal deformities among the pupils in the Municipality of Berovo.

Tasks of the research:

- To show the percentage of prevalence of postural disorders and spinal deformities in boys and girls;
- To show the percentage of postural disorders and spinal deformities among students of grades I, III, V and VII (primary school) and students of I, II, III and IV classes (high school).

Materials and Methods: According to the latest data from the Institute for Public Health of the Republic of Macedonia, in the school year 2016/2017, the number of pupils from elementary and secondary education who were examined, in accordance with the Program for systematic examinations of male students and female students in the Republic of Macedonia for 2016/17, is 119.149 or 96, 1% of the underlying. The coverage of students with systematic examinations in primary schools is satisfactory and amounts to 96.7%. The occupancy rate in secondary education is 94.7%.

In 2016/17, 84,692 primary school students were systematically examined. In the secondary schools in the course of 2016/17, 39,156 students were systematically examined.

In the research in this specialist work, students from primary and secondary schools in the municipality of Berovo and the municipality of Pehcevo were tested. A total of 557 pupils from I, III, V and VII grade (primary education) and 237 pupils from I, II, III and IV classes (secondary education) have been enrolled in total.

Research Material: The information on the situation with orthopedic deformities among the students in the Republic of Macedonia was prepared according to the Program for Preventive Health Care for 2017. The classic method for screening the health of school children and youth is the systematic examinations that are organized in the public health institutions by the services of preventive health care and preventive dental care of schoolchildren.

Data on the presence of postural abnormalities and spinal deformities in the Municipality of Berovo and the Municipality of Pehchevo were taken from the archive of PHI "Health House" - Berovo, from the Unit for School Medicine for the period 2016-2017.

Clinical assessment of a patient with a spine deformity begins with an inspection of the face as a whole from 2 to 3 meters distance, in order to get a general picture of the posture, the constitution and the relation of the individual segments of the body.

This inspection is carried out from the front, back - anteroposterior in (frontal plane) and side to (sagittal plane). The person to be observed should be barefooted and slammed under the hips or sports panties so that the back of the shoulder should be visible to the saddle. Also were done clinical examination, Radiographic assessment of the spine and angle of the Rotation.

Results:

Table 1. Percentage representation of the determined conditions in systematically examined pupils from elementary and secondary education from Berovo and Pehcevo in the academic year 2016/2017.

Education	Total examined	Body deformities and poor body posture	Percentage
Primary	558	308	55,2
Secondary	225	136	60,4
Total	783	444	56,7

Out of the total number of 783 students examined, in 444 there was some kind of deformity of the body or bad bodily posture. The share of students in secondary education is higher, and it rises to 60.4%. In other words, out of 225 examined students, 136 students have deformation or poor physical presence.

Table 2. Percentage representation of body deformities and poor posture among primary and secondary school students in Berovo and Pehcevo in school year 2016/2017

Education	Body deformities and poor body posture	
	N	%
Primary	308	63
Secondary	136	37
Total	444	100

The number of body deformities and poor body posture and their percentage in 308 primary school pupils in Berovo and Pehcevo is shown in Table 3.

Table 3. Representation of the deformities among primary school students in the city of Berovo and Pehcevo in the academic year 2016/2017

Sex	Deformities of the body		Bad body posture		Total
	N	%	N	%	
Male	117	57,6	47	44,8	164
Female	86	42,4	58	55,2	144
Total	203	100	105	100	308

Table 3 shows that out of 308 elementary school students, 203 (65.9%) have deformities and 105 (34.1%) have poor posture. Of the 203 pupils, with deformity of the body, 117 (57.6%) are male and 86 (42.4%) are females. In poorly positioning the body the situation is reversed, that is, the poor posture of the body is more common among the female students, 58 (55.2%), in contrast to the men with 47 (44.8%).

Table 4. Representation of the deformities and poor posture among secondary school students in the city of Berovo and Pehcevo in the academic year 2016/2017

Sex	Deformities of the body		Bad body posture		Total
	N	%	N	%	
Male	33	41,3	24	42,8	57
Female	47	58,7	32	57,2	79
Total	80	100	56	100	136

Table 4 shows that out of a total of 136 secondary school students, 80 (58.8%) have some postural disorder, and 56 students (41.2%) have only poor posture.

As for the prevalence of postural disorders among secondary school students, they are more represented in girls. In 79 (58%) of the girls, some kind of deformity of the body or poor bodily presence is observed. In contrast to boys, that number is 57 (42%).

Table 5. Prevalence of postural disorders and spinal deformities among primary and secondary school pupils in the municipality of Berovo and Pehchevo, in the academic year 2016/2017

Education	Municipality of Berovo		Municipality of Pehchevo		Total
	N	%	N	%	
Primary	142	71	61	73,5	203
Secondary	58	29	22	26,5	80
Total	200	100	83	100	283

Postural abnormalities and spinal deformities in the primary education are more frequent in the municipality of Pehcevo (73.5%), while in the secondary it is higher in the municipality of Berovo (29%).

Conclusion. The results of the study, which covered a total of 783 primary and secondary school pupils in the municipalities of Berovo and Pehcevo and evaluated a total of 444 students with postural disorders and deformities, indicated a high percentage of representation of bodily deformities.

Out of the total 444 students, 283 students have been diagnosed with body disorders, and 161 have been diagnosed with poor physical presence. Out of 161 pupils who have been diagnosed with a bad body movement, 105 students are from primary school, and 56 are secondary school students. Out of 283 students with diagnosed body disorders, 203 students are from the primary, and 80 are from secondary education.

Postural disorders among primary school pupils are more present among males, unlike those in secondary education, where they are more represented in females. Postural disorders and spinal deformities in primary education are more common in the municipality of Pehcevo, while in the secondary it is higher in the municipality of Berovo.

The research confirms the hypothesis of the importance of systematic examinations and it is confirmed, that is, if regular systematic examinations are made, all postural disorders will be determined and corrected in a timely manner. In order to prevent the large number of pathological conditions found during the systematic examinations, it is necessary to undertake measures for improvement and modernization of the working conditions in the schools (inventory - chairs, desks, etc., whether their height corresponds to the age of the students in accordance with the prescribed standards and norms, the lighting - whether it is sufficient, natural, artificial or combined). Of course, the modern way of life, especially the computer-generated swing, has contributed to the passive, sedentary lifestyle dominating in everyday life, especially among the school population, so it is necessary to influence the change of passively elapsed time in a physically actively programmed time.

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