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DIFFERENT ASPECTS OF REHABILITATION AND PHYSIOTHERAPY

Edited by
ZOFIA KUBIŃSKA
ANNA PAŃCZUK

Biała Podlaska 2013

POPE JOHN PAUL II STATE SCHOOL OF HIGHER EDUCATION
IN BIAŁA PODLASKA

Different Aspects of Rehabilitation and Physiotherapy

Różnorodne aspekty rehabilitacji i fizjoterapii

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Foreword

Rehabilitation and physiotherapy are two related sciences, having some common areas. Together with dynamic development of both fields, in Poland currently conducted is a discussion about a clear taxonomy determining scope and specificities of physiotherapy and medical rehabilitation. Physiotherapy, using for preventive and medicinal purposes movement and other physical factors present in nature, is an inherent part of structure of medical rehabilitation, considering its interdisciplinary character. The task of rehabilitation, in medical, social and professional dimension, is regaining of fitness to disabled persons, allowing them for a self-reliance in their lives. That`s why those two fields may use a common language in all levels of medical procedures realized by them, including their universality, comprehensiveness, earliness and continuity.

Contemporary health problem of different social groups, because of high costs, disturb a normal functioning of national health care systems and enforce developing preventive and health-promoting strategies. Those procedures belong to the rehabilitation structures, especially through physiotherapy. According to the rule, elaborated by the World Confederation for Physical Therapy (WCPT), physiotherapy, being a part of rehabilitation, is also a part of health promotion, prophylaxis, prevention and therapy.

The present monograph consists of three thematic chapters, containing articles covering selected theoretical and practical problems from the fields of rehabilitation and physiotherapy, taking into consideration especially disabled persons. Papers entered in the Chapter I concern physiotherapy, showing its specificity and selected methods, applied in prevention and therapy. Works gathered in the Chapter II present selected method of rehabilitation in treatment of disabled persons and their activation. In the Chapter III introduced are articles covering relaxation, which role in rehabilitation is important, but often underestimated. The editors of the present volume, exposing the topic of relaxation, wanted to emphasize the need of its broader applying in rehabilitation and physiotherapy. All papers introduced herein undoubtedly broaden scientific achievements in rehabilitation in its integration, biomedical, psychopedagogical, social and legal aspects, contributing to mobilization of disabled persons. They show also a multidimensional nature of physiotherapy and its established position with perspectives of a dynamic development.

The Editorial Board

Wstęp

Rehabilitacja i fizjoterapia to dwie pokrewne dziedziny, które mają wspólne obszary funkcjonowania. Trwająca w Polsce dyskusja na temat potrzeby wypracowania czytelnej taksonomii charakteryzującej *(Określającej specyfikę i zakres?)* rehabilitację medyczną i fizjoterapię przebiega równolegle z dynamicznym rozwojem obu dziedzin. Fizjoterapia wykorzystująca w celach profilaktycznych i leczniczych ruch i inne czynniki fizyczne obecne w naturze, wpisuje się w strukturę rehabilitacji medycznej mającej interdyscyplinarny charakter. Przywracanie sprawności osobom niepełnosprawnym umożliwiające samodzielność w życiu to zadanie, które rehabilitacja realizuje w wymiarze medycznym (leczniczym), społecznym i zawodowym. W związku z powyższym zasadne jest stwierdzenie, że obie dziedziny łączy nie tylko „wspólny język" na poziomie każdego ogniwa (diagnozy, prognozy, ordynacji, kontroli) realizowanego procesu ale również: powszechność, kompleksowość, wczesność i ciągłość działań.

Współczesne problemy zdrowotne różnych grup społecznych ze względu na wysoki rachunek ekonomiczny, paraliżują funkcjonowanie systemów opieki zdrowotnej i wymuszają rozwój strategii zapobiegawczych i prozdrowotnych. Działania te wpisują się również w strukturę rehabilitacji, szczególnie przez fizjoterapię. Zgodnie z definicją Światowej Konfederacji Fizjoterapeutów (WCPT World Confederation for Physical Therapy) fizjoterapia będąc częścią rehabilitacji jest również częścią promocji zdrowia, profilaktyki, prewencji i terapii.

Monografię stanowią trzy tematyczne części zawierające w sobie rozdziały (artykuły) podejmujące wybrane zagadnienia teoretyczne i praktyczne z zakresu rehabilitacji i fizjoterapii ze szczególnym uwzględnieniem osób z niepełnosprawnością.

Prace Autorów zamieszczone w pierwszej części monografii dotyczą fizjoterapii i ukazują specyfikę oraz wybrane metody zastosowania jej w profilaktyce i terapii. Kolejna, druga część monografii prezentuje prace na temat wybranych metod rehabilitacji w terapii osób z niepełnosprawnością oraz ich aktywizację. W trzeciej części przedstawiono artykuły podejmujące temat relaksacji, która spełnia bardzo ważną , aczkolwiek często niedocenianą rolę w rehabilitacji. Redaktorzy tomu eksponując temat relaksacji chcieli podkreślić potrzebę szerszego stosowania jej technik w rehabilitacji i fizjoterapii. Wszystkie zaprezentowane prace niewątpliwie poszerzają dorobek naukowy z rehabilitacji integracyjnej (biomedycznej, psychopedagogicznej, społecznej i legislacyjnej) przyczyniającej się do aktywizacji. Ukazują również wielowymiarowość i ugruntowaną pozycję fizjoterapii z perspektywą dynamicznego rozwoju.

Redaktorzy

Chapter I

Physiotherapy in Prophylaxis and Treatment

Fizjoterapia w profilaktyce i terapii

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Using of physiotherapeutical measures in the treatment of bronchial asthma

Wykorzystanie środków fizjoterapeutycznych w leczeniu astmy oskrzelowej

Summary
The bronchial asthma is a chronic inflammation of a respiratory system, involving many cells and substances released by them. A chronic inflammation causes a hyperactivity of the bronchi, leading subsequently to recurrent attacks of dyspnoea, wheezing breath, coughing and tightness in breast, appearing especially at night or at dawn. Such attacks are usually accompanied by a flooding bronchial obturation with a diversified intensity, often subsiding spontaneously or because of a treatment.
The aim of the present paper is introducing of mechanisms causing bronchial asthma and current trends of rehabilitation proceedings.
Conclusions: The rehabilitation methods in patients suffering from bronchial asthma should be individually selected, considering the advance of an illness, occurring of co-existing diseases and complications. In order to obtaining the maximum level of recovery, a complete rehabilitation program should be worked up and applied. Full rehabilitation proceedings cause a significant improvement of the patients` life comfort.

Key words: bronchial asthma, rehabilitation, physiotherapy

Streszczenie
Astma oskrzelowa jest przewlekłą chorobą zapalną dróg oddechowych, w której uczestniczy wiele komórek i substancji przez nie uwalnianych. Przewlekłe zapalenie jest przyczyną nadreaktywności oskrzeli, prowadzącej do nawracających epizodów świszczącego oddechu, duszności, ściskania w klatce piersiowej i kaszlu, występujących szczególnie w nocy lub nad ranem. Epizodom tym zwykle towarzyszy rozlana obturacja oskrzeli o zmiennym nasileniu, często ustępująca samoistnie lub pod wpływem leczenia.
Celem pracy jest przedstawienie mechanizmów powstania astmy oskrzelowej oraz aktualnych trendów postępowania rehabilitacyjnego.
Wnioski: Podejście rehabilitacyjne u chorych na astmę oskrzelową powinno być

dobrane indywidualnie. Powinno ono uwzględniać stopień zaawansowania choroby, występowanie chorób współistniejących oraz występowanie powikłań. W celu osiągnięcia maksymalnej poprawy stanu zdrowia pacjenta należy opracować i zastosować kompleksowy program rehabilitacji. Pełne postępowanie rehabilitacyjne daje znaczną poprawę jakości życia chorych.

Słowa kluczowe: astma oskrzelowa, rehabilitacja, fizjoterapia

Introduction

In the course of years the definition of asthma has been changed. Its final version was fixed in 2002. According to it, bronchial asthma is a chronic inflammatory disease of respiratory ducts, involving many cells and stuffs released by them. A chronic inflammation causes hyperactivity of the bronchi, leading subsequently to recurrent attacks of dyspnoea, wheezing breath, coughing and tightness in breast, appearing especially at night or at dawn. Such attacks are usually accompanied by a flooding bronchial obturation with a diversified intensity, often subsiding spontaneously or because of a treatment (Bateman et al. 2008; Bodzenta-Łukaszczyk, Kowal 2007; Busse et al. 1999; Busse, Lemanske 2001; Doniec, Tomalak 2006; Kowalski, Kubsik 2010; Kuś, Rowińska-Zakrzewska 2003).

Bronchial asthma causes lowering of the patients` comfort of living, depending on advance of disease. In the first, mildest stage some living functions are disturbed, but the patient remains independent, whereas in the fourth, the most severe stage the patients become unable to work or education, moreover, they can`t do without an assistance of other persons (Emeryk, Trojanowska 2009).

The contemporary medical science can significantly increase the comfort of living in patients affected with asthma. Rehabilitation plays an important role in the healing process, the sooner began – the better. Used should be all accessible means, as pharmacological, kinesiotherapeutic and physiotherapeutic ones, including also a healing massage. Important are also: prophylaxis, psychological rehabilitation and education of patients and their families (Czupryna et al. 2004).

Nowadays in Poland about 8.6% of children and 5.4% of adults suffer from bronchial asthma. Additional research results indicate, that in recent several years the incidence rate of this disease is permanently increasing. Noteworthy is, that 25% of Poles suffer from different kinds of allergy (Borowicz et al. 2009).

The aim of the present paper is introduction of bronchial asthma development and current trends of rehabilitation methods. Assumed was also, that introduced should be a compete rehabilitation cycle and its influence upon the patients1 comfort of living. Bronchial asthma, etiology, pathogenesis, symptoms, diagnostics, prognosis.

The research results show, that exist many factors influencing the occurrence of bronchial asthma. Directly bound with its incidence rate are the following factors:

1. Genetics – the research confirmed, that asthma depends on many genes. In the human genom localized were several regions containing genes responsible for asthma, atopia, hyperactivity of bronchi and intensifying of IgE production.
2. Atopia – the state of excessive standby to IgE production, when exposed to antigens.

3. Hyperactivity of bronchi – readiness of bronchi to react with a cramp to several physical, chemical and pharmacological stimuli. It depends on gravity of the disease and occurs in 80% of patients, whereas during the attack – in 98-100% of patients.
4. Sex - asthma occurs twice more often in boys than in girls (Bernacka-Parzych et al. 2011; Bjamason et al. 2000; Bręborowicz et al. 2007; Ober 2005; Stelmach et al. 2002).

Occur also many factors triggering off the symptoms. Such factors are as follows:

1. Influence of the environment – climate factors, environmental pollution
2. Inhaled allergens – house dust, .mites, plant pollen, animal epidermis, molds.
3. Nutritional allergens – especially significant in children.
4. Psychogenic factor – fear of danger.
5. Viral, bacterial and mycotic (very rare in Poland) infections.
6. Exogenic (Uranium, glue, organic solvent) or endogenic (digestive reflux) toxic factors.
7. Drugs – all drugs may trigger off asthmatic attacks, even aspirin (Bernacka-Parzych et al. 2011; Bjamason et al. 2000; Bręborowicz et al. 2007; Ober 2005; Stelmach et al. 2002).

The major pathological phenomenons in asthma are the following ones: bronchial muscles` cramp, swelling, intensified permeability of blood vessels, intensified mucus excretion and appearing of inflammatory intumescences. Inflammatory changes subsequently lead to thickening of bronchial walls, swelling and hypertrophy of muscle layer. Finally it results in an irreversible sclerosis of bronchial walls in an advanced stage of asthma. All those processes, however, may be noticed in early stages of the illness, resulting in narrowing of inside diameter of the bronchi (Kuś, Rowińska-Zakrzewska 2003).

The basic symptom of asthma is an exhalation dyspnoea. Its attacks may have different intensity, in chronic patients also during the remission periods. They can be triggered off by the presence of an allergen, physical effort, cold air or taking an anti-inflammatory drug. The dyspnoea is preceded by a dry cough, later replaced by the main symptom. Patients are sweating, willingly sit down, whereas their breathing frequency exceeds 20 per minute. They automatically start extra respiratory muscles, the exhalation phase is prolonged, audible are wheezing, humming and rustling sounds. Finally the dyspnoea attack ends with spitting of a dense, sticky and transparent saliva. The attacks reaching 30-60 min., despite drugs application, are called severe asthmatic states (Busse, Lemanske 1997; Gdalevich et al. 2001; Kuś, Rowińska-Zakrzewska 2003). In patients suffering from severe asthmatic states deepening are the clinical symptoms, fund In the initial stage, as anxiety, profuse sweating, fear of death, blue lips, end of the nose and ears. Occur concentration problems, a patient gets sleepy, hardly answers the questions asked, loses orientation and gets physically exhausted. The breath gets gradually more shallow, humming and rustling stop. The patients` pulse values exceed 140-160 beats per minute, whereas their blood pressure decreases (Busse, Lemanske 1997; Gdalevivh et al. 2001; Kuś, Rowińska-Zakrzewska 2003). In the case of chronic asthma the patient`s rib cage often stands in an inhalation position. In asthmatic children often occurs broadening the rib cage in its front-back dimension. Humming and rustling are clearly audible in the beginning of an attack, whereas the deeper becomes dyspnoea – the quieter are the sounds, Sometimes they stop being audible at all, what indicates a dangerous symptom, because it witnesses lack of ventilation, caused by a strong bronchial cramp (Kuś, Rowińska-Zakrzewska 2003).

In diagnostics of bronchial asthma we use a medical history, physical examination (auscultation of lungs), watching the patient`s figure in order to find potential anomalies, as well as measuring of his/her breast circumference during the inhalation and exhalation, spirometrical test and measuring of top exhalation flow using peakflometer. If necessary, diagnostic procedures may be widened by additional examinations, as skin tests, X-raying of the rib cage, bronchoscopy, measuring of concentration of carbon dioxide and oxygen in circuit blood (Akerman et al. 2003; Baldacci et al. 2001; Bridge et al. 2005; Boros et al. 2006; Burge et al. 2010; Martinez, Stein 2000).

The prognosis may be different and uncertain, varying from subsiding of the illness to its transition into a severe state. It depends on the age of appearing the first symptoms, gravity of the illness` course and frequency of asthmatic states.. By prognosing, one must consider occurring complications and co-existing illnesses. To those complications may belong respiratory or coronary insufficiency, as well as a pulmonary heart. In general, asthma is hard to get rid of, but one cal live with it until an old age (Kuś, Rowińska-Zakrzewska 2003).

The clinical forms of bronchial asthma

Grade 1. An episodic, light form of asthma. Within the last 3 months such symptoms, as coughing, dyspnoea and a wheezing breath, occur less often than once a week. Night attacks appear less often than twice a month and may be caused by an effort or exposing to the allergen. Between exacerbation periods no other symptoms occur. The values of FEV_1 and top exhalation flow don`t decrease under 80% of the norm, whereas the variability of the other indicator doesn`t exceed 20%. In such conditions the patient is able to manage with the attack, using relaxant drugs. Possible is elimination of allergens and fulfilling normal living functions (Kuś, Rowińska-Zakrzewsjka 2003).

Grade 2. Chronic, mild (moderately severe) asthma. The disease symptoms appear at least once a week, but not every day whereas the night attacks – more often than twice a month. The value of top exhalatory flow exceeds 80% of a norm, whereas its daily variability oscillates from 20 to 30%. Attacks occurring in that group of patients require a medical aid. The patients may become periodically unable to work or study (Kuś, Rowińska-Zakrzewska 2003).

Grade 3. Chronic, moderately severe asthma. The disease symptoms appear every Day, whereas the night attacks more often than once a week. The value of top exhalatory flow varies from 60 to 80%, whereas its daily variability doesn`t exceed 20-30%. Patients may suffer from life-threatening attacks and partial insufficiency to work and study.

Grade 4. Chronic, severe asthma. The dyspnoea stays permanentny, night attacks are frequent despite the treatment. The physical fitness of the patient is limited. The value of top exhalatory flow doesn`t exceed 60% of a norm, whereas its daily variability exceeds 30%. Despite an intensive medical treatment spirometrical indicators of patients decrease, appearing are severe side symptoms and constant recurrences of asthmatic states. Patients are no more able to work or study (Kuś, Rowińska-Zakrzewska 2003).

Preventive measures

Prevention should begin from education of patients and their families. A patient should be informed about the essence and course of the illness, course of the healing process and a correct behavior during the dyspnoea attack. Education allows reducing fear in patients, like in model schools in Sweden and Norway, where asthma-affected patients are encouraged to keep special charts, filled with information about frequency of attacks, the length of their lasting and what was the trigger (Custovic, Wijk 2005; Rosławski, Woźniewski 2001). For proper preventive measures important is identification of environmental factors triggering off the attacks or intensifying inflammatory processes in bronchi, as house dust, animal allergens, molds or plant pollen (Custoviv, Wijk 2005).

The primary prophylaxis is aimed at prevention of appearing of the disease. It embraces avoiding of allergens, breast-feeding of newborn babies, baby milk formulas modifications and avoiding the air pollution. Significant is identification of persons with an increased risk factors (allergy, skin irritations) and their monitoring. Recently desensibilization was gradually introduced As far, as allergy for plant pollen is concerned, it included injection of allergen solution before the pollination season. In the cases of allergy for house dust – desensibilizing injections should be given all the year round (Peat 1999; Brożek et al. 2003).

The secondary prophylaxis is applied in patients affected with a confirmed bronchial asthma. Its task is to stop or slow the Progress of the illness, present the dyspnoea attacks and appearing complications. It includes avoiding of allergens, stopping of smoking, getting rid of house pets, moving to another region and applying preventive shots (against flu, pneumonia and others) (Peat 1999; Brożek et al. 2003).

Pharmacological treatment

Drugs applied in bronchial asthma may be divided into two groups:

1. Emergency drugs – applied when needed, in a case of exhalation dyspnoea attack, in order to diastole smooth bronchial muscles.
2. Controlling drugs – applied permanently, in order to stop inflammatory process in bronchial mucous membrane, reducing hyperactivity, prevent exacerbations and lowering demand for emergency drugs (Ashrafian, Violaris 2007; Bodzenta-Łukaszczyk, Kowal 2007; Bręborowicz et al. 2007; Dargie et al. 2004; Kim et al. 2007; Kuś, Rowińska-Zakrzewska 2003).

Kinesiotherapy

Of the highest importance among kinesiotherapeutic methods in asthma treatment are breathing exercises, learning of effective coughing and some exercises improving general fitness. Their aim is maintaining the correct ventilation of lungs, rib cage and diaphragm mobility, enhancing effective coughing. The aims of breathing exercises are: regaining of correct breathing mechanisms, convincing the patient of possibilities of breaking the attack by involving diaphragm breathing, eliminating of uncoordinated breathing movements. The exercises should be preceded by applying of diastolic drugs and should not exceed 5 repetitions, because excessive efforts are contraindicated for the patients. Applied also should be a classic massage of rib cage, back and inter-rib muscles, using stroking, rubbing and vibration techniques (Rosławski, Skolimowski 2003; Rosławski, Woźniewski 2001).

Very important is learning of effective coughing, in order to remove discharge lying heavy in the bronchi. To tear it out, the patient should deeply inhale through the nose, and exhale air through the mouth with short, coughing intervals, causing quick changes of air pressure in bronchi and a subsequent vibration in bronchial walls, moving the discharge to the outside (Rosławski, Woźniewski 2001).

In the periods of remission the patient should perform exercises regaining general fitness and corrective, to remove posture faults, especially in children. Exercises should be of moderate intensity, because excessive efforts may trigger off a dyspnoea attack and discourage a patient to further movements. Physical exercises should be planned between dyspnoea attacks, when patients are breathing correctly, in a warm room with air saturated with water vapour, for example, with a wet towel placed on a radiator. In the case of dyspnoea, the exercises should be stopped immediately (Rosławski, Skolimowski 2003; Rosławski, Woźniewski 2001).

The exercises should provide short-lasting efforts, alternated with breaks. They should be preceded with applying diastolic drugs. It must be emphasized, however, that patients shouldn`t avoid physical activity at all (Rosławski, Skolimowski 2003; Rosławski, Woźniewski 2001).

Postural drainage

Drainage postures use gravity forces for removing discharge lying heavy in border sections of bronchi, making it move to the windpipe. It is called a passive drainage, what should be supported with different massage techniques, correct breathing and expectorating. It may be also preceded by inhalations. The best times to apply the postural drainage are in the morning (before breakfast) and in the evening (before supper or 2 hours after it). The patient is changing postures every 20-30 seconds (Rosławski, Woźniewski 2001).

Inhalations

Drugs are often applied by the means of inhalations. This way are mostly applied diastolic drugs, enhancing discharge expectorating, antibiotics and measures preventing inflammations and swelling of bronchial mucous membrane. Used are many inhalation devices, from the simple pocket inhalators to complicated nebulizators, using compressed air or ultrasounds. In health resorts used are mineral waters, especially brines and alcalic ones. As a kind of inhalation acknowledged can be also say in a salty cave (Doniec, Tomalak 2006; Rosławski, Woźniewski 2001; Straburzyńska-Lupa et al. 2008b).

Physiotherapy

The infra-red radiation (IR) is often used In rehabilitation of patients with bronchial asthma. Their biological influence on tissues consists in their thermal effects. It reduces the tension of respiratory muscles, intensifies the metabolism and improves blood supply in irradiated tissues. The infra-red treatments are also applied as an introduction to breathing exercises. Irradiated may be breast or space between shoulder blades. We apply a sufficient filter according to a doctor`s disposition or state of a patient. In a medical literature one may find remarks about applying of ultra-violet radiation in rehabilitation of patients affected with bronchial asthma. (Kasprzak, Mańkowska 2008; Rosławski, Woźniewski 2001; Straburzyńska-Lupa et al. 2008a).

Application of sauna causes acceleration of breathing and increasing of lungs` volume. Before the treatment patient`s body should be thoroughly washed and dried out. The patient enters the sauna chamber two or three times, but the total time of staying there can`t exceed 30 minutes. After every entering the chamber, with staying there for 5-10 minutes, the patient should cool down for no less than 5-10 min, either going out to dive in cold air, or pouring cold water over himself. The patient should be accompanied by another person, what increases his security (Staraburzyńska-Lupa et al. 2008a).

Full hot baths, in water with the temperature of 38 degrees, belong to hydrotherapy. Such treatments last about 20-30 minutes and allowed is cooling the patient`s head with a cold compress. Hot baths cause better blood supply of the airways. Applied are also brine hot baths, conducted every second day, lasting about 15-20 minutes. We begin from a lower concentration of a brine, increasing it gradually. Brine baths, like hot baths, improve the blood supply of airways and the general resistance of the organism (Straburzyńska-Lupa et al. 2008a).

Ionoforesis may also be useful in asthmatic patients treatment. Applied are solutions of iodine (softening effect) and calcium (anti-inflammatory and anti-allergenic effect). We specify two methods of conducting those treatments. In the classic method embraced are side parts of rib cage. The other one is Wermel`s method, in which used is an active electrode, made from foil, with a surface of 400 square centimeters. It is placed between the shoulder blades, whereas two passive electrodes are placed on calves. The treatment lasts 20 minutes, with the amperage varying between 10 and 20 mA (Kim et al. 2007; Straburzyńska-Lupa et al. 2008b).

Applied is also a short-wave diathermia (DKF) for overheating of tissues. Used is a condensator method, consisting In placing of one stiff electrode between the shoulder blades, whereas the rather one placed is near to the breastbone. The heat dose depends on individual feelings of a patient. One treatment lasts usually 10-15 minutes (Kasprzak, Mańkowska 2008; Low et al. 2009).

Seldom occur cases of applying ultrasonic devices, applied for sides of the chest and The part of the spine. The doses reach 0,3-0,5 W/cm^2, each treatment lasts 10 minutes. Its task is to relieve a too high tension of respiratory muscles (Kasprzak, Mańkowska 2008).

Rehabilitation in health resorts

The strongest healing effect In health resorts is mainly created by natural factors. The most effective is a change of climate and balneological treatment, using minor stimuli. The most suitable climate for treatment of asthmatic patients are the following spas: Wieliczka, Czerniawa, Iwonicz Zdrój, Muszyna, Piwniczna, Rymanów Zdrój, Ustroń, Wysowa. Used are natural mineral waters or brines. Recommended is also mountain trekking, but only for pleasure (Rosławski, Woźniewski 2001; Straburzyńska-Lupa et al. 2008b).

Psychological rehabilitation

Psychological rehabilitation can be useful In all branches of the medicine, because intensity of illness symptoms is influenced by psychogenic factors. Many authors recommend relaxation as an introduction to breathing exercises. From the conducted research results a close relationship between the gravity of illness and the intensity of fear, depression and aggression. On the other hand, helpful is an active attitude towards

the disease, avoiding of factors irritating the mucous membrane, immediate giving up smoking, maintaining a good family atmosphere and an autogenic training or other forms of psychotherapy (Rosławski, Woźniewski 2001).

Measures in case of a dyspnoea attack

In case of a dyspnoea attack a bronchi widening drug should be applied. The patient should be calmed down and persuaded to take a posture loosening the muscles. The patient should be seated on a chair with the face to its backrest, with forearms leaned on it and head resting on them, turned to the side. In those postures hindered is lifting of shoulders, thus one can avoid involving auxiliary respiratory muscles. A patient should be taught of those postures in the periods between attacks, Recommended is also massage of chest and shoulder girdle, whereas the patient should pronounce any given words with the mouth closed, while breathing calmly and passively (Rosławski, Woźniewski 2001).

Discussion

Bronchial asthma makes a serious problem in current medicine, as well as in physiotherapy, often underestimated. IN current literature one can hardly find remarks on physiotherapeutic methods used in regaining fitness in asthmatic patients.

Using physiotherapeutic methods in rehabilitation of bronchial asthma affected patients brings measurable benefits. Applying of kinesiotherapy enables regaining correct breathing mechanisms, convincing patients about possibilities of stopping the attack through involving diaphragm breathing, eliminating of uncoordinated respiratory movements, removing of mucus lying heavy in bronchi and correcting of posture defects caused by the illness. Using of physiotherapy results in relieving excessively tensed respiratory muscles, pain and inflammation stopping and improving of blood supply of airways. Applying of a healing massage helps removing the discharge lying heavy in the bronchi, improves the flexibility of skin, reduces the excessive tension of respiratory muscles.

Physiotherapeutic methods, because of measurable benefits of their using, should be involved in standard therapy of bronchial asthma affected patients.

Conclusions

1. Rehabilitation measures in asthmatic patient should be individually selected, just as pharmacological treatment. It should concern advance of the illness, occurrence of side diseases and complications.
2. In order to achieve maximum recovery, a complete rehabilitation program should be elaborated.
3. Measures in case of dyspnoea attack should be based not only on applying drugs widening bronchi, but also on correct postures relieving the muscles and correct breathing technique.
4. In a complete therapeutic process important is conducting of psychological rehabilitation and a social support for the patient. It can significantly influence the patient` s recovery.
5. Full rehabilitation measures result in a significant improvement of health and living comfort of asthma affected patients.

Bibliography

1. Akerman M., Valentine-Maher S., Rao M. (2003) Allergen sensitivity and asthma severity at an inner city asthma center. "J Asthma" nr 40: 55-62.
2. Ashrafian H., Violaris A.G. (2005) Beta-Blocker therapy of cardiovascular diseases in patients with bronchial asthmaor COPD: the pro viewpoint. "Prim Care Respir J." nr 14: 236- 241.
3. Baldacci S., Omenaas E., Oryszczyn M.P. (2001) Allergy markers In respiratory epidemiology. "Eur Respir J." nr 17: 773- 790.
4. Bateman E.D., Bousqnet J., Fitzgerald M., Haahtela T., O'Byrne P., Ohta K., Paggiaro P., Pedersen S.E., Soto-Quiroz M., Tan W., Wong G.W. (2008) Global Strategy for Asthma Management and Prevention 2008 (update) http:/www.ginasthma.com (05.07.2009).
5. Bernacka-Parzych U., Bodzenta - Łukaszczyk A., Skiepko R, Ziętkowski Z. (2011) Nadreaktywność oskrzeli- patogeneza i diagnostyka. „Alergia Astma Immunologia" nr 16(3): 132-138.
6. Bjarnason R., Kjellman B., Sigurbergsson F., Sigurs N. (2000) Respiratory syncytia virus bronchiolitis in infancy is an important risk factor for astma and allergy at age 7. "Am J Respir Crit Care Med." nr 161: 1501- 1507.
7. Bodzenta- Łukaszyk A., Kowal K. (2007) Postępowanie w zaostrzeniach astmy. „Alergia Astma Immunologia" nr 12(4): 171-176.
8. Boros F., Franczuk M., Wesołowski S. (2006) Zasady interpretacji wyników badania spirometrycznego. „Pneumonol Alergol Pol." nr 1: 74.
9. Borowicz J., Gotlib T., Gutkowska-Ślesik J., Hałat Z., Jakubik N., Komorowski J., Krzych E., Lipiec A., Lusawa A., Marszałkowska J., Raciborski F., Samel-Kowalik P., Samolińska-Zawisza U., Samoliński B., Sybilski A.J., Tomaszewska A., Trzpil L., Walkiewicz A. (2009) Występowanie astmy oskrzelowej u dzieci, młodzieży i młodych dorosłych w Polsce w świetle badania ECAP. „Alergia Astma Immunologia" nr 14(1): 27-34.
10. Bręborowicz A., Emeryk A., Kulus M. (2007) Postępowanie diagnostyczne i terapeutyczne w astmie oskrzelowej u dzieci. „Alergia Astma Immunologia" nr 12(3): 129-141.
11. Bridge P.D., Chan E.Y., Dundas I. (2005) Skin-prick testing as a diagnostics aid for childhood asthma. "Pediatr Pulmonol." nr 39: 558- 562.
12. Brożek G., Cholewa Z., Woś H. (2003) Wpływ karmienia naturalnego na częstość występowania astmy oskrzelowej u dzieci w młodszym wieku szkolnym. „Pediatria Współczesna, Hepatologia i Żywienie Dziecka" nr 5(1): 21-27.
13. Burge P.S., Jaakkola M.S., Moore V.C. (2010) Systematic review of serial peak expiratory flow measurements in the diagnosis of occupational asthma. "Ann Res Med." nr 1: 31- 44.
14. Busse W.W., Gem J.E., Lemanske R.F. (1999) Early life origins of asthma. "J Clin Invest" nr 104: 837-843.
15. Busse W.W., Lemanske R.F. (1997) Asthma. JAMA nr 278(22): 1855-1873.
16. Busse W.W., Lemanske R.F. (2001) Asthma. "N. Engl. J. Med." nr 344: 350-362.

17. Custovic A., Wijk R.G. (2005) The effectiveness of measures to change the indor environment in the treatment of allergic rhintis and asthma. "Allergy" nr 60: 1112-1115.
18. Czupryna K., Domagalska M., Gieremek K., Nowotny J., Nowotny-Czupryna O., Saulicz E. (2004) Podstawy fizjoterapii. Część II. Wydawnictwo Kasper. Kraków.
19. Dargie H., Kjekshus J., Lechat P., Lopez-Sendon J., maggiem A.P., McMurray J., Swedberg K, Tamargo J., Tendera M., Torp-Pedersen C., Waagstein F. (2004) Expert consensus dokument on β adrenergic receptor blocers. "Eur Heart J." nr 25: 1341-1362.
20. Doniec Z., Tomalak W. (2006) Przydatność inhalatorów uruchamianych wdechem u dzieci chorych na astmę z obturacją oskrzeli. „Wiadomości Lekarskie" nr 1-2: 61-64.
21. Emeryk A., Trojanowska A. (2009) Wybrane aspekty jakości życia rodziców dzieci chorych na astmę oskrzelową. „Zdr Publ" nr 119(4): 399-402.
22. Gdalevich M., Mimouni D., Mimouni M. (2001) Berast-feeding the risk of bronchial astma in childhood. A systematic review with meta-analysis of prospective studiem. "J Pediatr." nr 139: 261-266.
23. Kasprzak W., Mańkowska A. (2008) Fizykoterapia, medycyna uzdrowiskowa i SPA. Wydawnictwo Lekarskie PZWL. Warszawa.
24. Kim D.Y., Lee Y.S., Lim J.E., Ro J.Y., Ryu S.Y. (2007) Anti-inflammatory mechanizm of simvastatin in mouse allergic asthma model. "Eur J Pharmacol." nr 557: 76-86.
25. Kowalski M., Kubsik B. (2010) Astma i otyłość. „Alergia Astma Immunologia" nr 15(1): 19-24.
26. Kuś J., Rowińska-Zakrzewska E. (2003) Astma oskrzelowa. Choroby Układu oddechowego. Wydawnictwo Lekarskie PZWL, Warszawa.
27. Low J., Reed A., Robertson V., Ward A. (2009) Fizykoterapia. Aspekty kliniczne i biofizyczne. Wydawnictwo Elsevier Urban & Partner. Wrocław.
28. Martinez F.D., Stein R.T. (2000) Asthma phenotypes In childhood: lessons from an epidemiological approach. "Pediatr Respr Rev" nr 5: 155-161.
29. Ober C. (2005) Perspectives on the past decade of asthma genetics. "J Allergy Clin Immunol." nr 116: 274-278.
30. Peat J.K. (1999) Czy można zapobiec astmie? Wnioski z epidemiologicznych badań wykonanych w ostatniej dekadzie u dzieci w Australii i Nowej Zelandii. „Alergia Astma Immunologia" nr 4(1): 7-12.
31. Rosławski A., Skolimowski T. (2003) Technika wykonywania ćwiczeń leczniczych. Wydawnictwo Lekarskie PZWL. Warszawa.
32. Rosławski A., Woźniewski M. (2001) Fizjoterapia oddechowa. Wydawnictwo AWF. Wrocław.
33. Stelmach I, Jerzyńska J, Stelmach W (2002) The prevalence of mouse alergen in inner-city homes. "Pediatr Allergy Immunol." nr 13: 299-302.
34. Straburzyńska-Lupa A., Straburzyńska-Migaj E., Straburzyński G. (2008a) Fizjoterapia z elementami klinicznymi. Tom I. Wydawnictwo Lekarskie PZWL. Warszawa.
35. Straburzyńska-Lupa A., Straburzyńska-Migaj E., Straburzyński G. (2008b) Fizjoterapia z elementami klinicznymi. Tom II. Wydawnictwo Lekarskie PZWL. Warszawa.

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Aims and effects of physiotherapy in postoperative treatment of scolioses in young people

Zadania i efekty fizjoterapii w pooperacyjnym leczeniu skolioz u młodzieży

Summary
The aim of the paper is a presentation of tasks and effects of physiotherapy in the postoperative treatment of scoliosis in young people. Scoliosis surgery combined with rehabilitation both before and after the procedure is beneficial for the majority of patients. The study included 50 patients with scoliosis diagnosed at a young age. The survey was carried out by means of a self-designed anonymous personal questionnaire. The subjects were divided into two study groups, A and B. Study group A consisted of 40 individuals operated on at the age of 13-19 years., and group B included 10 patients aged 23-43 years, who had been operated on for scoliosis at a young age. Almost all the respondents in both groups availed of the help of a physiotherapist directly after the operation. The most common form of rehabilitation following scoliosis surgery was help with walking, breathing exercises, as well as passive and active exercises. The effects of surgical treatment of scoliosis and physiotherapy were beneficial and brought about improvement in the quality of daily living. Almost all the asked individuals answered that their decision to undergo an operation had been a good one. What was also noted was a growth in the patients' awareness and a big importance of prophylactic body posture correction in the young generation. Own study result analysis also showed that the standards of doctor's treatment are constantly increasing and the role of physiotherapists in postoperative treatment grows gradually. Strict cooperation of all members of the care team is the most beneficial for the patient and gives the best results during hospitalization and ambulatory care.

Key words: physiotherapy, scolioses in young people, physiotherapist, correct body posture

Streszczenie
Tematem pracy jest prezentacja zadań i efektów fizjoterapii po operacyjnym leczeniu skolioz u młodzieży. Leczenie operacyjne skolioz połączone z usprawnianiem zarówno przed jak i po zabiegu przynosi duże korzyści u większości pacjentów. Badaniami objęto 50 osób, u których rozpoznano skoliozę w wieku młodzieńczym. Badania przeprowadzono za pomocą samodzielnie opracowanej anonimowej ankiety personalnej. Badanych podzielono na dwie zasadnicze grupy: A i B. Grupę badaną A stanowiło 40 osób operowanych w wieku 13 – 19 lat, a grupę B stanowiło 10 osób w wieku 25 – 43 lata, które w wieku młodzieńczym były operowane z powodu skoliozy. Niemal wszyscy respondenci obu grup korzystali z pomocy fizjoterapeuty bezpośrednio po zabiegu operacyjnym. Najczęstszą formą działań fizjoterapeutycznych po zabiegu skoliozy była: pomoc przy chodzeniu, ćwiczenia oddechowe oraz ćwiczenia bierne i czynne. Efekty leczenia operacyjnego skolioz i zastosowanej fizjoterapii są korzystne

i wpływają na poprawę jakości codziennego życia. Prawie wszystkie badane osoby odpowiedziały, że podjęta decyzja o leczeniu operacyjnym była słuszna. Odnotowano również wzrost świadomości pacjentów oraz duże znaczenie profilaktycznej korekcji wad postawy ciała młodego pokolenia. Z analizy badań własnych wynika również, że stale podnoszone są standardy stosowanej terapii przez lekarza oraz stopniowo zwiększa się rola fizjoterapeutów w procesie leczenia pooperacyjnego. Ścisła współpraca członków całego zespołu medycznego jest najefektywniejsza i daje największe korzyści dla pacjenta w trakcie leczenia szpitalnego i ambulatoryjnego.

Słowa kluczowe: fizjoterapia, skoliozy u młodych ludzi, fizjoterapeuta, prawidłowa postawa ciała

Introduction

Involving a three-dimensional deformation of spinal curvatures, scoliosis is a common orthopaedic problem of adolescence. All changes within the spine directly affect posture, especially in children and youth at the developmental age. The physical examination discloses a number of symptoms, like: shoulder asymmetry, protrusion of ribs and/or scapulae, enhanced lumbar lordosis, waist asymmetry, increased or decreased thoracic kyphosis, and inequality of lower limbs. The extent of posture defect and the degree of trunk deformation depend on the site and degree of abnormal spine curvature. In early childhood and childhood scolioses more often affect the male population, whereas in older population more scoliosis is observed in girls, with female juvenile scoliosis statistically sevenfold as frequent as male juvenile scoliosis. Scoliosis is commonly divided into functional and structural, where functional scoliosis is usually caused by external factors and can effectively be corrected, and structural scoliosis involves pathological changes in all the locomotor system, which is difficult to cure. Clinical research shows that scoliosis with a small angle is the most common and thus screening tests of children and youth are crucial for prophylaxis and for the introduction of the best possible rehabilitation programme. Clinical studies of scoliosis over many years reveal that the highest risk of scoliosis progression occurs in young people aged 10 – 13 years. Except for rehabilitation procedures and exercises, in patients with curvatures above 25 - 40˚ Cobb a more aggressive treatment is selected, i.e. a surgery aiming at stabilization of the vertebral column. The general observation is that the earlier posture defects are detected and pathological symptoms appear, the higher the risk of disease progression and the poorer the prognosis. Screening tests, early prophylaxis and radiological examinations play a principal role in scoliosis diagnostics in young people. Precise and non-invasive computerized methods are increasingly applied for the accurate determination of type, location, and size of scoliosis. Any neglect in this respect or inadequate treatment may bring about the development of irreversible changes within the spine itself, as well as permanently disturb functioning of the locomotor system, which in turn significantly limits patients' fitness, aggravates neurological impairment, exacerbates respiratory and cardiovascular insufficiency, causing permanent disability. The main objective of the present paper is to study the aims and effects of physiotherapeutic procedures used in postoperative treatment of scoliosis in young people. Basing on the conducted research, we will also analyse the significance of physiotherapy in the preoperative period of scoliosis treatment, as those procedures complement the entire therapy. Another goal of the present analysis is to evaluate the role of physiotherapist in the management of scoliosis.

Materials and methods

The study was based on a self-designed questionnaire consisting of 51 open and closed questions divided into three parts. The first part of the survey includes instruction on how to fill in the questionnaire and a description of the study objective; the next part comprised questions referring to the respondents' socio-demographic data, like sex, age, education, marital status, information about disease; and in the third part we asked questions directly related to the main subject of the study. The study was conducted in July 2012 among individuals treated in orthopaedic and rehabilitation hospital wards and outpatients' departments of the Lublin region. The main part of the study was carried out on the premises of the Children's Clinical Hospital in Lublin on the rehabilitation and orthopaedic wards and in the children's outpatients' orthopaedic department, as well as in the Independent Public Health Care Complex in Włodawa, Poland. The questionnaire included 50 individuals with scoliosis which had been surgically treated in adolescence. The participation of the under-aged in the study was preceded by obtaining the parents' written consent. All the subjects were informed about the objective of the study, its anonymous character and the aim for which the results will be used. Division of the study population into two groups was performed: group A included 40 patients operated for scoliosis at the age of 13 – 19 years (Tab.1), whereas in group B there were 10 individuals aged 25 – 43 years, who had been operated for scoliosis in adolescence (Tab.2). All the subjects who gave consent for taking part in the study received the study questionnaire in person, by mail, or e-mail. The obtained results were analysed qualitatively and quantitatively, and both study groups were compared in order to find possible differences in the efficacy of scoliosis therapy at present and several years before.

Tab. 1 Group A subjects according to age and sex

		The examined persons		Group A	
		Women	Men		
		number	number	sum of numbers	%
The age examined persons	13 years	1	0	1	2.5
	14 years	4	2	6	15.0
	15 years	5	0	5	12.5
	16 years	4	1	5	12.5
	17 years	6	1	7	17.5
	18 years	6	0	6	15.0
	19 years	10	0	10	25.0
Total:		36	4	40	100.0
Total %:		90.0	10.0	100.0	

Tab. 2 Group B subjects according to age and sex

		The examined persons		Group B	
		Women	Men		
		number	number	sum of numbers	%
The age examined persons	25-27 years	4	1	5	50.0
	31–32 years	1	1	2	20.0
	40–43 years	3	0	3	30.0
Total:		8	2	10	100.0
Total %:		80.0	20.0	100.0	

Results

On the basis of the obtained data and an analysis of the study material, the following results were obtained. The majority of subjects in both study groups A and B were female; in group A there were 90.0% women and 10.0% men, and in group B 80.0% were women and 20.0% were men. A majority of the respondents in both groups live in a town/city: group A – 67.5%, group B – 90.0%; whereas 32.5% of the subjects from group A and 10.0% from group B live in the country. The most common family model that the respondents were brought up in was that with 2-3 children in both groups (40.0% each). The subjects' living conditions in their own opinions were good or average (82.0% respondents in both groups). As regards complaints before the surgery, the respondents in both groups most frequently mentioned back pain (95.0%), dyspnoea (30.0%), headache (17.5%). One respondent (2.0%) from group A also mentioned numbness in the lower limbs (Fig.1).

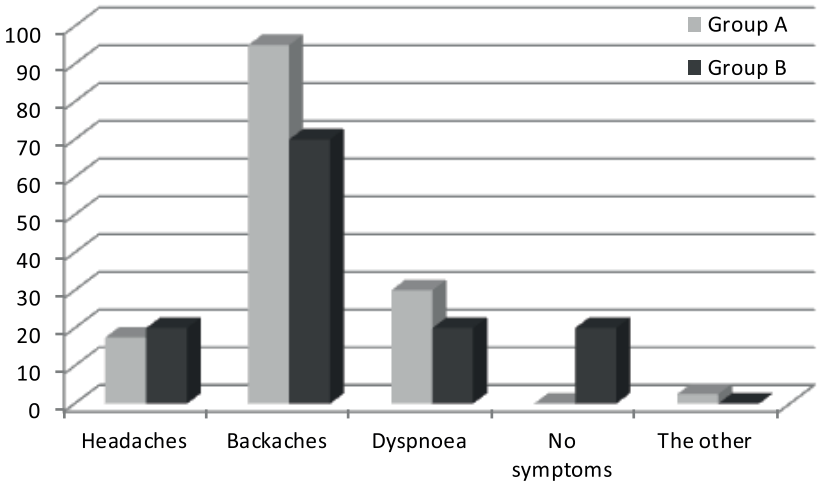


Fig. 1 Common complaints before the surgery

Almost half the subjects from groups A and B (42.5%) described their quality of life before the operation as bad, and 40.0% said it had been satisfactory (Fig.2).

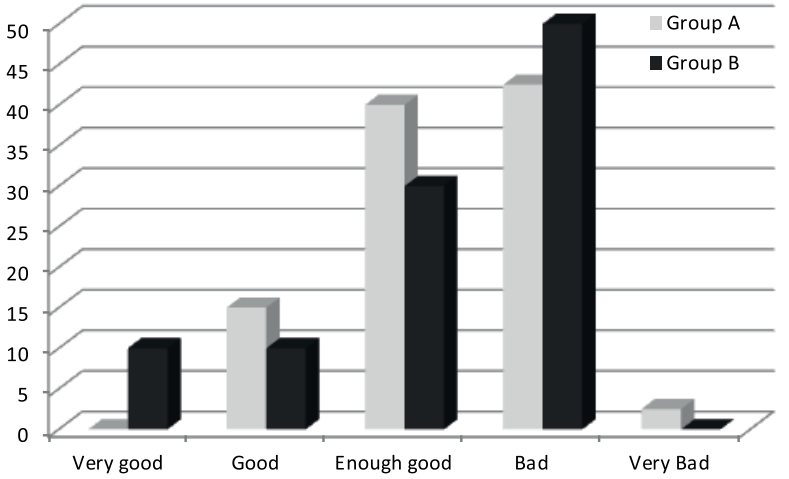


Fig. 2 Evaluation of the quality of life before the operation

In both study groups more than half the respondents admitted to not being able to catch up with their peers in many aspects of life (Fig.3).

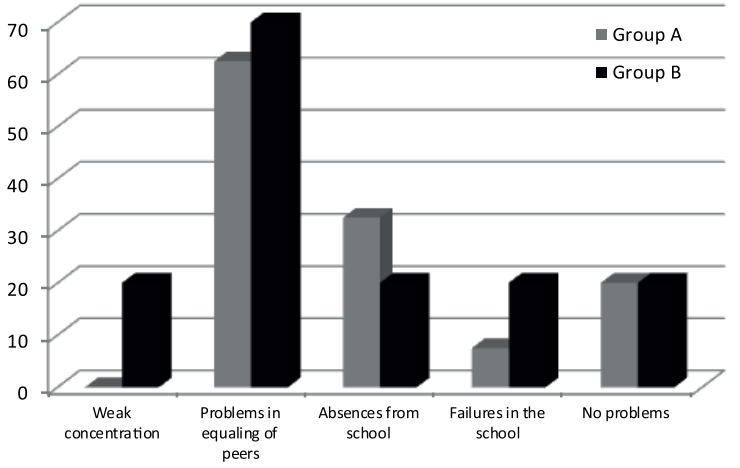


Fig. 3 Youth with scoliosis in school environment

The respondents declared that the disability adversely affected their private lives to a great extent (32.5% of group A and 40.0% of group B subjects) (Fig.4).

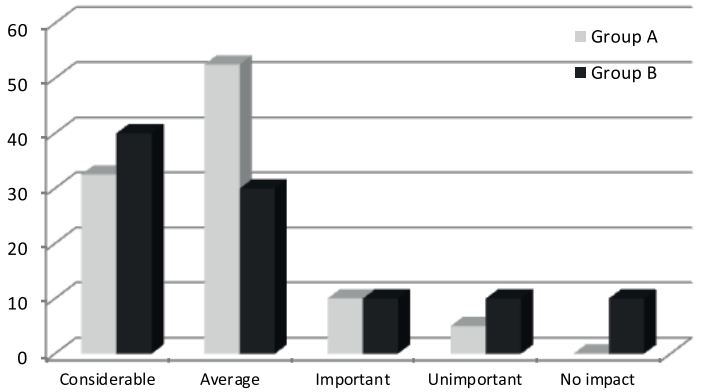


Fig. 4 Negative effect of disease on the patients' private lives

Respondents in both study groups pointed out to parents as the ones who educated them about correct body posture (group A – 95.0%; group B – 80.0%). Parents' disinterestedness in this aspect of their health was declared by 5.0% of the subjects in group A and 20.0% of group B. A great majority of patients from both groups declared having adequate knowledge about scoliosis (95.0% of group A and 90.0% of group B). Only 5.0% of respondents from group A and 10.0% from group B admitted to not being knowledgeable enough in that respect. In group A 82.5% of patients underwent a form of physiotherapeutic treatment before the surgery, and only half the respondents in group B. In group A 17.5% of the surveyed did not undergo physiotherapy before surgical treatment of scoliosis. The kinds of physiotherapy that the patients used before scoliosis surgeries included kinesitherapy (55.0% in group A) and water exercises (50.0% in group A), and massage was the least popular kind of therapy (10.0% of respondents). Among the group A subjects 15.0% mentioned traction as the method of physiotherapy used before the operation. In group B all the mentioned methods of physiotherapeutic treatment were used equally frequently (20 – 30%) by the subjects, except traction (Fig.5).

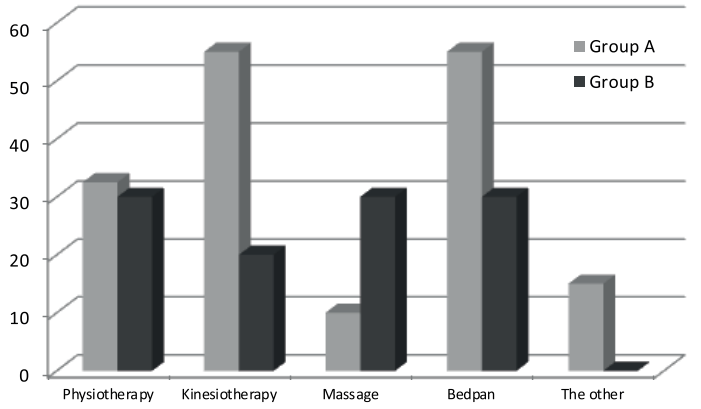


Fig. 5 Use of physiotherapeutic treatment before surgery

The most frequently occurring diagnosis in the study population was idiopathic scoliosis: 75.0% of group A and 50.0% of group B (Fig.6).

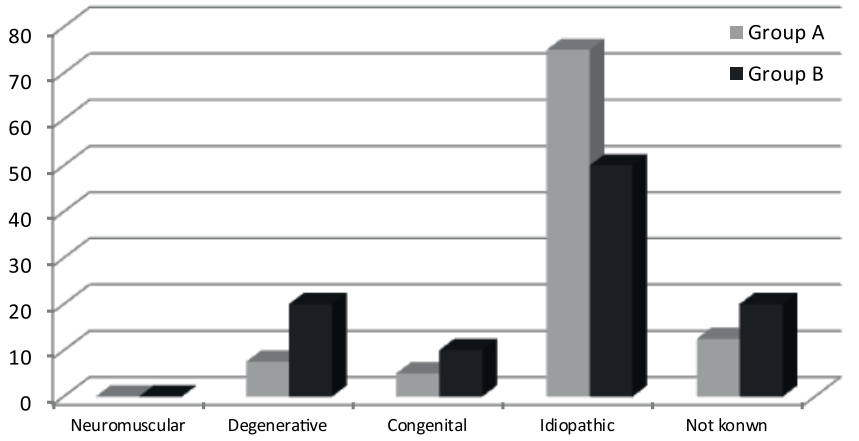


Fig. 6 Scoliosis types according to the subjects

An analysis of medical records disclosed that more than half of group A population (57.5%) suffered from single scoliosis, whereas double scoliosis occurred in 32.5%. In group B half the patients had double scoliosis, and 20.0% suffered from single scoliosis. The medical records showed that 42.5% of people in group A had undergone the scoliosis surgery several months to one year before the study. Those operated on 2 years before the study accounted for 30.0% of group A population, 3 years prior to the study – 15.0% and 4 years before – 12.5%. In group B all the respondents underwent operative treatment of scoliosis 4 or more years before the present study. Study results analysis showed that the majority of the subjects in both study groups A (50.0%) and B (40.0%) maintained that their scoliosis angle (an abnormal curvature of thoracic spine) was equal or exceeded 60˚ according to Cobb, whereas those with scoliosis angle of 50 - 59˚ constituted 37.5% of group A and 10.0% of group B respondents. A great majority of both groups were people whose operations were through posterior approach: 65.0% of group A and 90.0% of group B, and in 22.5% group A subjects were operated on through the anterior approach. Moreover, one person in group A underwent surgical treatment of their scoliosis which involved both anterior and posterior approach, and 15.0% in that group and 10.0% of group B could not give information about the kind of procedure they had undergone. The operative procedures resulted in corrections of scoliosis angles, and it was noted that in both study groups the majority of the subjects benefited from a correction of thoracic spine of 10 - 19˚ Cobb (22.5% in group A and 30.0% in group B) and 20 - 29˚ Cobb (27.5% of A respondents and 30.0% of B). Additionally, it was found that more than half the study population in both groups had undergone just one operative procedure to correct their scoliosis, whereas two-stage surgeries were performed in 17.5% of group A subjects and 10.0% of group B. Scoliosis surgeries consisting of three or more stages accounted for 20.0% of procedures in both study groups. After the surgeries wearing

a back brace was used as a form of treatment in both groups with almost half the respondents of group A using a back brace and 60.0% of group B respondents. The study revealed that the level of self-care that the respondents enjoyed after the operative procedures was described as "slightly limited" by 47.5% of group A subjects and 80.0% of those in group B, with complete self-care declared by every third patient of group A and every fifth of group B. All the group A respondents and almost all of group B underwent physiotherapy directly after operative procedure. The most common forms of physiotherapeutic interventions directly after the surgery included help with walking, according to group A respondents, and help with breathing exercises, according to group B respondents. The next form of physiotherapy that the A subjects mentioned were breathing exercises, as well as active exercises, whereas in group B it was help with walking and active exercises. Passive exercises were the least frequent form of postoperative rehabilitation in both groups. All the respondents stressed that they had felt safe while exercising when the physiotherapist was present (Fig.7).

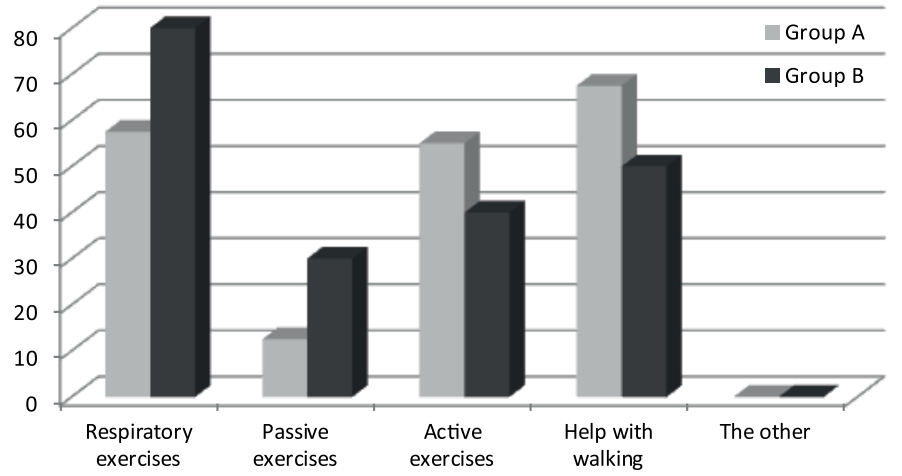


Fig. 7 Types of exercises used for postoperative rehabilitation of scoliosis patients

The subjects were also asked about the knowledge they possessed concerning physical activity after an operative treatment of scoliosis, and it was found that three quarters of group A patients and all the group B respondents exhibited a good level of education in this respect. It was observed that two thirds of the subjects in group A and almost a half of group B underwent physiotherapy after the operative procedure, with a physiotherapist present during rehabilitation exercises. The respondents were also asked about most common complaints and it was noted that 35.0% of those in group A and 10.0% of group B did not declare any. The complaint that occurred the earliest after the surgery was back pain in 30.0% of group A subjects and 80.0% of those from group B. Headaches appeared in 5.0% of group A and 10.0% of group B. Asked about the main source of information, the majority of respondents pointed to a doctor (87.5% - group A , 90.0% - group B); however, it is worth noting that the subjects confirm an increasing role of physiotherapist in this respect, with 47.0% of the

questionnaires in group A containing such reference. It was also noted that almost all the patients in both groups (92.5% and 90.0% respectively in groups A and B) strictly adhered to recommended limitation of physical activity after surgery. The most common form of physical activity declared by the respondents was walking (70.0% in group A and 60.0% of group B); water exercise was the next popular form of activity (A – 40.0%, B – 60.0%); the respondents also mentioned dancing (A – 30.0% and B – 20.0%), cycling (5.0%), and skiing (2.5%). A great majority of the respondents in both groups (A – 72.5% and B – 80.0%) advocated support on the part of their parents/ family as the most desirable. In group A a lot of respondents (37.5%) expected support on the part of peers, whereas in group B there was only one (10.0%) such person. About 30.0% of the subjects in both groups expected support on the part of their siblings. The subjects' evaluation of the physiotherapist's level of care was positive in both groups. The characteristics that were used the most frequently in the descriptions of the physiotherapist were: supportive (A – 65.0%, B – 30.0%), well-wishing (A – 35.0%, B – 30.0%), understanding (A – 25.0%, B – 80.0%), and nice (A – 22.5%, B – 60.0%). No less than 80.0% of the subjects in both study groups expressed their satisfaction with the cosmetic effect that had been achieved as a result of scoliosis surgery, with the remaining 20.0% of the subjects not satisfied with such effect. The majority of both groups stated that postoperative scarring was visible (60.0% of group A and 70.0% of group B), with only 3 individuals in group A (7.5%) maintaining that the scarring was too big. Almost all the studied individuals from both A and B groups declared that the scoliosis surgery was a good decision in their lives.

Discussion

Ongoing research on large populations of children and youth carried out around the world and in Poland revealed incidence of scoliosis in 4-14% of schoolchildren aged 10-14 years, which means that, on average, every tenth child is diagnosed with scoliosis. In the majority of the cases the scoliosis measures less than 20˚ Cobb, yet those values confirm the social significance of the problem. Researchers found that among 10-11-year-old schoolchildren scoliosis occurs as frequently among girls as among boys; however, at the age of 14 years, the proportion of girls to boys among those with progressive scoliosis equals 10:1, which means that scoliosis itself is not connected with the person's sex but its progression is, to a certain extent, correlated with the level of sex hormones (Feizi, Mohseni, 2009; Milanowska, Dega, 2003). An etiology of just a small number of scoliosis types has been discovered, constituting just 10-20% of all pathological curvatures of the spinal column. Idiopathic scoliosis is the most common, accounting for 80-90% of all diagnoses (Feizi, Mohseni, 2009; Stępień 2010; Kwolek 2003; Majcher, Fatyga 2000; Milanowska, Dega, 2003; Nowotny 2006; Piątkowski 1990; Wilczyński 2000). The division of scoliosis depending on age only refers to idiopathic scoliosis. W. James introduced the classification of scoliosis into three principal groups: infantile scoliosis, juvenile scoliosis, and adolescent scoliosis. The results of the present study concerning incidence of scoliosis indicate a statistical advantage of women over men in this respect at the proportion of 88% to 12% of the subjects (Feizi, Mohseni, 2009; Karski 2003; Kutzner–Kozińska, 2004; Kwolek 2003; Majcher, Fatyga 2000; Milanowska, Dega, 2003; Piątkowski 1990). The common classification of scoliosis, i.e. abnormal sideways curvature of thoracic spine segment, is that developed by Cobb, basing on the scoliosis angle; thus,

scoliosis of the 1st degree measures 30˚ Cobb; 2nd degree - 30˚-60˚; 3rd degree - 60˚-90˚; 4th degree – above 90˚Cobb. The determination of scoliosis angle is crucial for the choice of treatment and recommendation as to subsequent rehabilitation (Karski 2003; Kwolek 2003; Majcher, Fatyga 2000; Piątkowski 1990; Wilczyński 2000). Our study revealed that almost half the respondents in both study groups declared scoliosis angle of 60˚, according to Cobb; those with the angle of 50˚-59˚Cobb were similarly numerous. According to the number of arches within the developing scoliosis, it is divided into single, double, and multi-curve scoliosis (Kasperczyk 1994; Kwolek 2003; Majcher, Fatyga 2000). The study showed that single scoliosis occurred in more than half of group A respondents, and double scoliosis was diagnosed in every third patient. The study disclosed that half the group B subjects had double scoliosis, whereas single scoliosis was diagnosed in just every fifth subject. Research carried out recently in England, United states and Russia has confirmed the significance of genetic predisposition to idiopathic scoliosis. Its results have indicated a high familial correlation with possible inheritance or multifactorial influence (Milanowska, Dega, 2003). Own study results did not confirm that finding, as the majority of our study population denied cases of scoliosis in the close family. One of the factors that adversely influence the health of the locomotor system is obesity and it is increasingly common among the young generation. In obese individuals hip joints are usually positioned in bending, which negatively influences the formation of spinal curvatures, gradually leading to abnormalities. On the other hand, in children and young people who are excessively thin, where the back is flat, the vertebral column is unequally weighted, which leads to decreased endurance, stiffness of joints, and, consequently, scoliosis (Wiercicka, 2010). In the present study more than 60% of the respondents had normal body weights, whereas every fifth subject was overweight. Management and treatment of scoliosis being lengthy, it requires decisiveness and consequence on the part of patients, but also their parents and the whole medical team. The aim of therapy is to diminish the deformation of the spine, to check the progression of scoliosis, and, lastly, to retain the corrected body posture. Modern methods of non-operative treatment of scoliosis involve regular exercise and the use of adequately chosen orthopaedic aids, i.e. orthopaedic braces. Kinesitherapy has always been the rule of thumb in non-surgical treatment of scoliosis, consisting in a correct selection of general fitness exercises, which help create correct body shape and strengthen muscles which stabilize the spine. Exercises improve the child's general condition, strengthen the muscle corset and decrease the commonly occurring contracture within the muscle-ligament system, which frequently results in stopping scoliosis progression and in correction of body posture. In spite of appropriate kinesitherapy, the deformation sometimes increases and its angle grows; then the range of treatment is extended to include electrotherapy or orthopaedic devices (Kutzner–Kozińska 2004; Kwolek 2003; Majcher, Fatyga 2000; Milanowska, Dega, 2003; Nowotny 2006; Piątkowski 1990). Own study revealed that almost half the group A patients underwent brace treatment, and more than two thirds of group B respondents were treated with orthopaedic braces. More than three quarters of group A patients and half the group B subjects underwent physiotherapy prior to operative procedure, most common forms of therapy being kinesitherapy, water exercises, and massage. Kinesitherapy of young people treated non-surgically is very different from that designed for young individuals prepared for the operation. The main importance is attached to elongation and derotation of the spinal column. Preparing the patients for the

operation involves the use of traction in order to stretch the shortened soft elements of perispinal structures (Milanowska, Dega, 2003; Nowotny 2006). Own study shows that in group A traction as form of physiotherapy was used in every seventh respondent, and in group B traction was not used at all, whereas all the other forms of physiotherapy were equally used among the study population. Research confirms that the most appropriate time for a scoliosis surgery is the age of 13-15 years. Qualification requirements for an operative procedure include idiopathic scoliosis with the angle greater than 45-50 degrees Cobb. Surgical treatment of moderate scoliosis (50–70^0) allows for remarkable correction, making scoliosis practically invisible (Kwolek 2003; Milanowska, Dega, 2003). Similar results were obtained in the present study. Own study also shows that the majority of patients in both groups underwent surgical correction of thoracic spine segment deformation of the order of 10–19^0 and 20–29^0 (30% each) with the best therapeutic results. In progressive scoliosis a surgical treatment is seen as a continuation of rehabilitation, i.e. the extension of the preceding non-surgical treatment. Operation is the middle stage between the preceding conservative treatment and rehabilitation that follows as the last stage of therapy. The surgery may be performed in two ways: through anterior approach and through posterior approach. Quite frequently those two ways are combined in order to enhance the corrective effect and to free the patients from the necessity of using external stabilizers (Feizi, Mohseni, 2009; Milanowska, Dega, 2003; Nowotny 2006). Own study disclosed that a great majority of both study groups (9 in 10 cases) were operated on through the posterior approach, and only every fifth respondent was treated through anterior approach. After the surgery, whether the child is wearing a brace or not, isometric exercises of dorsal muscles, exercises increasing muscular strength of shoulder girdle, and pelvic girdle, and breathing exercises (Kwolek 2003; Milanowska, Dega, 2003; Nowotny 2006) are used. An analysis of the present study shows that almost all the patients in both groups were aided by a physiotherapist directly after the operation. The most common form of rehabilitation after scoliosis surgery according to the respondents was help with walking and monitoring the correctness of breathing exercises. The task of physiotherapy is also to educate the patient and his family as to physical activity before and after the operation (Stępień, 2010). It is good to note that over the years patients start to appreciate the role of a physiotherapist as the basic source of information. Long experience of Polish and foreign centres dealing with the treatment of scoliosis has revealed that the best results are achieved while basing management on early detection of scoliosis, early introduction of regular rehabilitation, and continuation of treatment with regular check-ups at least until the end of bone growth, i.e. up to 16-18 years of age (Milanowska, Dega, 2003).

Conclusions

1. Scoliosis most frequently affects females and the most common variety is idiopathic scoliosis, with deformation of the spinal column equal or greater than 60˚ according to Cobb, corrected surgically and giving remarkable health and aesthetic benefits to patients' satisfaction.
2. A physiotherapist is an integral member of the rehabilitation team rehabilitating children and young people diagnosed with scoliosis before and after the operation.

3. The parents, teachers, and the young people themselves should become complementary members of the rehabilitation team, possessing a high level of knowledge concerning prophylaxis.
4. The effects of operative procedure and physiotherapy on scoliosis beneficially influence the quality of everyday life of the young population.
5. The young people's strict cooperation and compliance with the recommended limitations after operative correction of scoliosis are closely associated with continuous education as to possible threats and complications after the surgery.
6. Cooperation with the physiotherapist, their effort and level of care were positively evaluated by the patients, which proves a growing level of service and growing patients' awareness.
7. Almost all the questionnaire respondents agreed that scoliosis surgery had been a good decision in their lives, and the effects of therapy significantly improved their quality of life.

Bibliography

1. Feizi H., Mohseni M. (2009) Scoliosis curve: before and after surgical correction. "Pakistan Journal of Biological Sciences", 12(10): 786-791.
2. Karski T. (2003) Skoliozy tzw. idiopatyczne, Wydawnictwo Folium, Lublin.
3. Kasperczyk T. (1994) Wady postawy ciała, Kraków.
4. Kutzner–Kozińska M. (2004) Proces korygowania wad postawy, Wyd. AWF, Warszawa.
5. Kwolek A. (2003) Rehabilitacja medyczna, Wyd. Urban & Partner Wrocław.
6. Majcher P., Fatyga M. (2000) Wady i zniekształcenia kręgosłupa, Wyd. Centrum Medycznego Kształcenia Podyplomowego Lublin.
7. Milanowska K., Dega W. (2003) Rehabilitacja medyczna. PZWL, Warszawa.
8. Nowotny J. (2006) Podstawy kliniczne fizjoterapii w dysfunkcjach narządu ruchu, Wyd. Medipage, Warszawa.
9. Piątkowski S. (1990) Ortopedia, traumatologia i rehabilitacja narządów ruchu, Wyd. PZWL, Warszawa.
10. Stępień A. (2010) Ocena pacjenta ze skoliozą idiopatyczną na poziomie struktur i aktywności dla potrzeb planowania procesu fizjoterapii. Kręgosłup (część 2) „Praktyczna Fizjoterapia & Rehabilitacja", 3: 59-62.
11. Wiercicka M. (2010) Profilaktyka zaburzeń postawy ciała u dzieci. „Praktyczna Fizjoterapia & Rehabilitacja", 4: 57-58.
12. Wilczyński J. (2000) Boczne skrzywienia kręgosłupa (część I), Wyd. Wszechnica Świętokrzyska, Kielce.

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Patients' opinions on the effectiveness of kinesitherapy in multiple sclerosis

Skuteczność kinezyterapii w stwardnieniu rozsianym w opinii pacjentów

Summary
Multiple sclerosis (MS) is a demyelinating disease of the central nervous system. In the course of the disease there are neurological deficits leading to patient's disability. In addition to essential medical treatment, rehabilitation, including kinesitherapy (movement therapy), is significantly improving the clinical condition of MS patients'. The aim of this study is to know the opinion of MS patients on the effectiveness of kinesitherapy to which they were subjected. The study involves 60 people with MS. The method of study was a questionnaire survey. Balance exercises were frequently performed for MS patients, and general exercises to improve and strengthen the lower limbs. Most of MS patients observed the decrease in the severity of the symptoms after kinesitherapy. The greatest improvement concerned the imbalances and dysfunctions of the lower limbs and kinesitherapy found impact on the patients whose disease has lasted for a relatively short time. The improvement of physical function and self-activity was observed after kinesitherapy usually in the type of secondary progressive disease. In conclusion, the best effects of kinesitherapy were observed in patients with secondary progressive type of MS.

Key words: multiple sclerosis, rehabilitation, kinesitherapy

Streszczenie
Stwardnienie rozsiane (SM) jest chorobą demielinizacyjną ośrodkowego układu nerwowego. W przebiegu choroby występują ubytkowe objawy neurologiczne prowadzące do inwalidztwa chorego. Oprócz leczenia farmakologicznego istotne znaczenie w poprawie stanu klinicznego chorych na SM przypisuje się rehabilitacji, w tym kinezyterapii (leczeniu ruchem). Celem pracy było poznanie opinii chorych na SM na temat skuteczności przeprowadzonej u nich kinezyterapii. W badaniu uczestniczyło 60 osób chorych na SM. Metodą badania był kwestionariusz ankiety. Najczęściej wykonywanymi ćwiczeniami przez chorych na SM były ćwiczenia równoważne oraz ogólnousprawniające i wzmacniające kończyny dolne. Większość chorych na SM obserwowała zmniejszenie nasilenia wszystkich objawów choroby po kinezyterapii. Największa poprawa dotyczyła zaburzeń równowagi i zaburzeń funkcji kończyn dolnych. Najlepiej oceniły wpływ kinezyterapii na sprawność fizyczną osoby, u których choroba trwała stosunkowo krótko. Poprawę sprawności fizycznej oraz czynności samoobsługowych po kinezyterapii najczęściej obserwowano w typie wtórnie postępującym choroby. Podsumowując, największą skuteczność kinezyterapii obserwowali u siebie chorzy z wtórnie postępującym typem SM.

Słowa kluczowe: stwardnienie rozsiane, rehabilitacja, kinezyterapia

Introduction

Multiple sclerosis (multiple sclerosis, MS) is a disease of the central nervous system. The cause of the disease is myelin destruction as a result of the immune process. In clinical terms, the disease is characterized by a variety of symptoms. These are:

- spastic paresis with the intensification of tensions often on both lower limbs, rarely one, three or four limbs. Sometimes pyramidal symptoms are discreet and only express increased fatigability, exaggerated reflexes and presence of Babinski symptom,
- damage to the cerebellar symptoms as chanted speech, intentional tremors, dysmetria, ataxia and disorders of balance,
- sensory disorders: paresthesia, numbness, pain and weakness feeling in different locations. Moreover, the impression of strapping, hand clumsiness with proper strength, Lhermitte sign (electric current passing feeling along the spine when tilting the head) and trigeminal neuralgia,
- signs of damage to the brain stem: the abolition of double vision eye adduction and nystagmus in the abducted eye (damage to the medial longitudinal fasciculus), facial muscle weakness (damage to the endotrunk fibers of facial nerve), acceleration of heart rate, vomiting, hiccups (damage to the autonomic nuclei trunk),
- bladder dysfunction in the form of urgency, intermittent urination, urinary incontinence and residual urine in the bladder. Abnormal function leads to a rectal constipation, and a sexual dysfunction - impotence,
- retrobulbar optic nerve inflammation, manifested by weakness and impaired vision in the visual field,
- mental disorders such as depression, euphoria and cognitive impairment, usually to a small extent.

Among the MS patients the increase of transient neurological symptoms with the body temperature growth are observed (Uthoff phenomenon). Some patients complain of fatigue, which does not correlate with the state of the present, or the results of neuroimaging studies (Kazibutowska 2008).

Based on the clinical course of MS the following types of diseases are distinguished (Bonek, Maciejek 2009):

- relapsing-remitting, which is characterized by the occurrence of relapses or acute symptoms of neurological damage. They can cause new deficits or a worsening of existing ones. Symptoms occur when the output can withdraw completely or partially remain. Recurrences are separated by periods of relative stabilization of neurologic state,
- secondary progressive form, which affects about 80% of patients with the relapsing-remitting form after several years of illness in old age. It leads to progressive disability by cumulative losses of symptoms that occur after many recurrences,
- primary progressive form that affects 10% of patients after the first signs of a gradual increase of disease symptoms without explicit projections there are short periods of stabilization and temporary remissions. No obvious exacerbations have been observed. Thus, the deterioration of the patients' health is gradual,
- progressive relapsing form that affects 6% of patients in whom the disease progresses from the very beginning, with some periods of exacerbation, with or without symptoms. In the period between relapses there is a gradual deterioration of the clinical condition.

In the course of the disease various defecting symptoms of the nervous system cause the disability of patients. For this reason, physiotherapy along with the general medical treatment plays an important role. The aim of physiotherapy of patients with MS is to improve their muscle strength and a general physical condition, compensation of the problems with coordination, maintenance of an active range of motion in the joints, normalization of the muscle tone, balance, prevention of muscle atrophy and fatigue. Physiotherapy should be carried out continuously. Excessive physical exertion or fatigue is contraindicated. Active exercises should be carried out without any weight (in relieving position or with the weight – block system). During exercises patients should avoid overheating of the body. Elevated temperature may increase spasticity and fatigue. Thus, patients should exercise in a cool, well-ventilated room and use alternate dynamic and breathing exercises together with relaxation. In kinesitherapy neuromuscular priming proprioceptive input (PNF) and NDT Bobath methods can be used. Both methods may be used interchangeably and their selection depends on the form, duration of the disease and its period, the dominant type and severity of symptoms, general condition of patients, and concomitant diseases. Physiotherapy should start as soon as possible. Currently, it is assumed that during the MS relapse patient usually remains in the hospital, and the improvement of the movement is limited to individual exercises, which should include: frequent changes of a body position in bed (every 2-3 hours), breathing exercises (breath support), cautious passive exercises in limited circumstances, self exercises in bed (Woszczak 2008).

Kinesitherapy (movement therapy) among patients with MS is used in the form ofmuscles training not only those affected by the weakness but also comprehensively all the muscles of the body, including those not covered by spastic paralysis or hypotension. The exercise consists of (Woszczak 2008):

- stretching exercises, increasing muscle flexibility and a range of motion in the joints and reducing spasticity,
- dynamic exercises, increasing muscle strength, improving the nutrition of tissues by strengthening the muscle – vascular pump, and improving overall efficiency and immunity,
- breathing exercises, increasing the efficiency of the respiratory tract, stretching, relaxing and increasing the efficiency of dynamic exercises,
- equivalent exercises, enhancing balance, facilitating self-control of the body and the stability of the movement,
- coordination exercises, improving the coherence of motion, making it easier to move and eliminating the excessive energy consumption caused by a lack of coordination.

The aim of this study was to learn the opinion of MS patients about the effectiveness of kinesitherapy they were subjected to.

Material and research methods

The study included 60 patients (40 women, 20 men) with diagnosed MS. The largest group consisted of people aged 18-30 years - 30%. However, the smallest group of patients consisted of persons aged 40-50 years - 20%. The middle groups included patients aged 30-40 years - 23% and above 50 years - 27%. People with MS who participated in the study

were in the process of rehabilitation or immediately after rehabilitation. Participation in the study was voluntary and anonymous. The study was carried out at the health centers in Lublin. The method of study was a questionnaire consisting of 30 questions.

Results

In 20 (33%) respondents the duration of the disease was 10-15 years, with 12 (20%) of the duration of the disease ranged from 1-5 years, 10 (17%) of disease duration up to 1 year, in 8 (13%) respondents the duration of the disease was 15-20 years, also in 8 (13%) the duration of the disease was more than 20 years.

Secondary progressive type was present in 10 (17%) men and 16 (27%) women. Relapsing-remitting type occurred in 4 (7%) men and 16 (27%) women. Primary progressive type appeared in 4 (7%) men and 6 (10%) women. The least frequently occurring type was progressive relapsing - in 2 (3%) females and 2 (3%) men.

Most patients - 40 (67%) exercise at home. Twenty-two people (55%) exercise several times a week. Ten patients (17%) perform exercises daily, and 8 (13%) perform once a week. Twenty-two (55%) persons practice an average of 15-30 minutes, 12 (30%) practice an average of 30-60 minutes, 4 (10%) persons practice an average of 15 minutes, the average time of exercise per 2 (5%) persons is more than 60 minutes.

The majority of respondents - 44 (73%) had previously participated many times in kinesitherapy treatment outside their homes. Only16 (27%) respondents participated for the first time in this type of treatment outside the home. According to the data collected during the recent rehabilitation of patients they usually attended kinesitherapy treatments in hospitals - 18 (30%) and in clinics - 16 (27%) patients, less in sanatoriums - 20 (33%), while the number of patients practicing at home equals 14 (23%). In most cases, rehabilitation lasted for about two weeks - for 14 (23%) patients. A smaller percentage of respondents participated in kinesitherapy with a duration of 2-4 weeks - 16 (27%) patients, and over one month - 20 (33%) patients. Twenty-six (43%) patients used daily kinesitherapy treatments, 24 (40%) made use of treatments several times a week, and 4 (7%) people - once a week. The types of exercises performed by patients with MS are presented in Table 1.

Tab. 1 Types of exercises performed by patients with MS

Type of exercise	Percent MS patients who were practicing
Breathing	73%
Kegl's	37%
Passive, active-passive	43%
Stretching	33%
General improvement	80%
Relaxation	77%
In aqueous	67%
Self-supportive	50%
Gait re-education	53%
Equivalent	90%
Hand manipulative	53%
Strengthening the upper limbs	73%
Legs strengthening	80%

The results show that the most common exercises performed by patients with MS were equivalent and general exercises to improve and strengthen the lower extremities, followed by relaxation, breathing and strengthening of the upper limbs. The least frequent exercises performed were stretching exercises and Kegel's.

Half of the patients (50%) said that after the exercises they felt quite well. For 14 (23%) respondents the well-being was good. Ten (17%) respondents identified their well-being did not improve while 14 (23%) patients did not notice any changes.

Thirty-six (60%) respondents said that the physical exercise was enough, 16 (27%) respondents said that the physical exercise was not enough. According to 6 (10%) respondents there was too much exercise, and 2 (3%) patients did not provide the response to the questions.

Evaluation of changes in MS symptoms after kinesitherapy is shown in Figure 1.

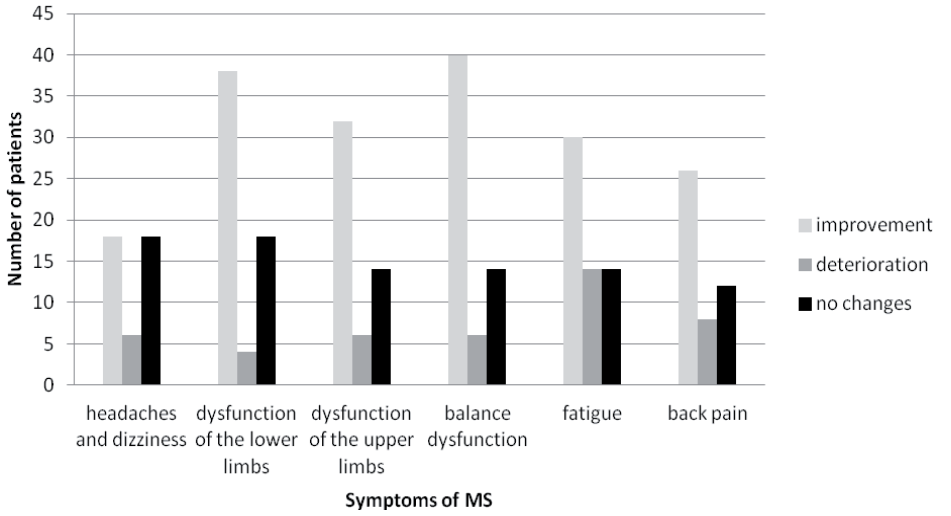


Fig. 1 Evaluation of changes in the severity of symptoms of MS after kinesitherapy

More than half (55%) of the patients noticed the decrease of the intensity of their symptoms, 13% of respondents noted deterioration while 32% respondents did not notice any changes. The improvement concerned all symptoms but the greatest improvement included balance disorders and impaired function of the lower extremities.

Assessment of the impact of physical kinesitherapy among MS patients depending on the duration of the disease is shown in Figure 2.

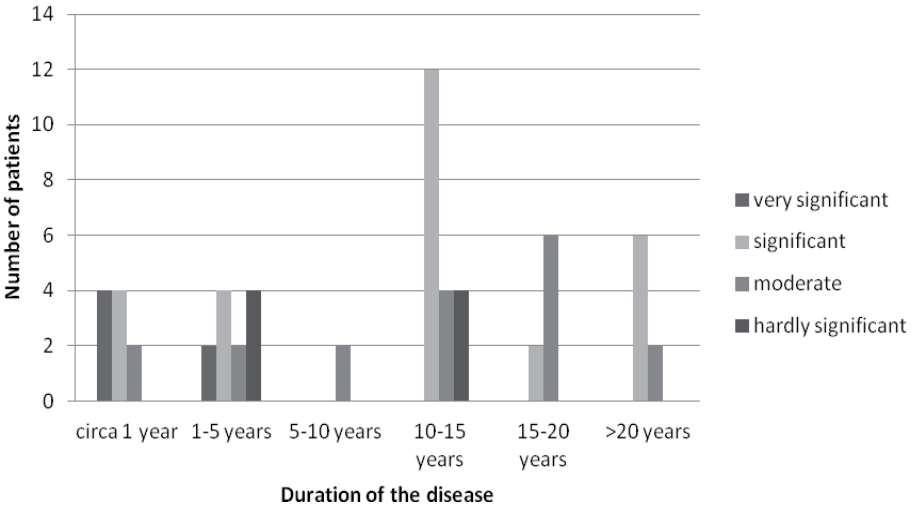


Fig. 2 Impact assessment on the physical efficiency of kinesitherapy among MS patients depending on the duration of the disease

The best effect of kinesitherapy on physical efficiency was among patients with the disease duration of an about 1 year and 1-5 years.

The assessment of physical changes after kinesitherapy based on the type of the disease is shown in Figure 3.

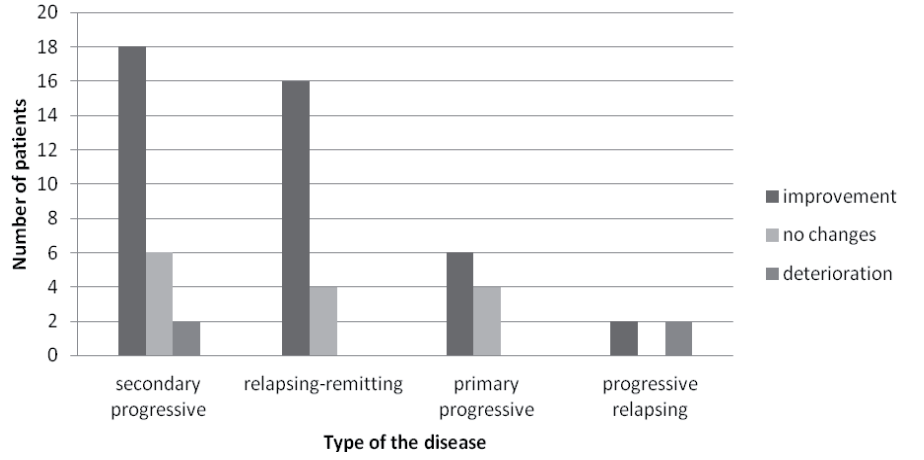


Fig. 3 The assessment of physical changes after kinesitherapy based on the type of the disease

The improvement of physical function after rehabilitation was usually observed in secondary progressive type, the least - in the progressive relapsing type.

The assessment of the positive influence of kinesitherapy on physical condition of the patients depending on the type of MS is presented in Figure 4.

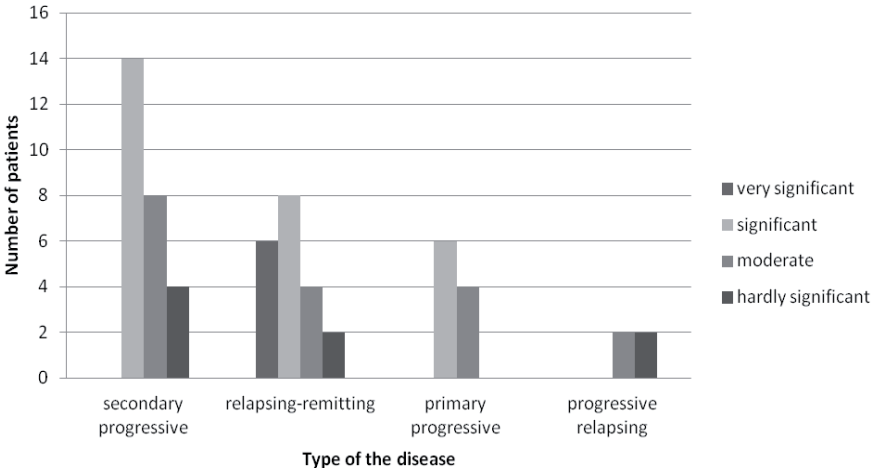


Fig. 4 The assessment of the influence of kinesitherapy on the physical condition of patients depending on the type of MS

Majority of patients suffering from the secondary progressive type of MS determined that the impact on their physical condition was very significant. Patients with relapsing-remitting type of the disease felt that the impact was also significant. Patients with the primary progressive type of the MS mostly determined that the effect of physiotherapy on physical condition was high. Patients with progressive relapsing type of the disease concluded that the effect of physiotherapy was moderate or hardly significant.

Evaluation of the changes in the self-performance among patients with MS after kinesitherapy based on the type of the disease is presented in Figure 5.

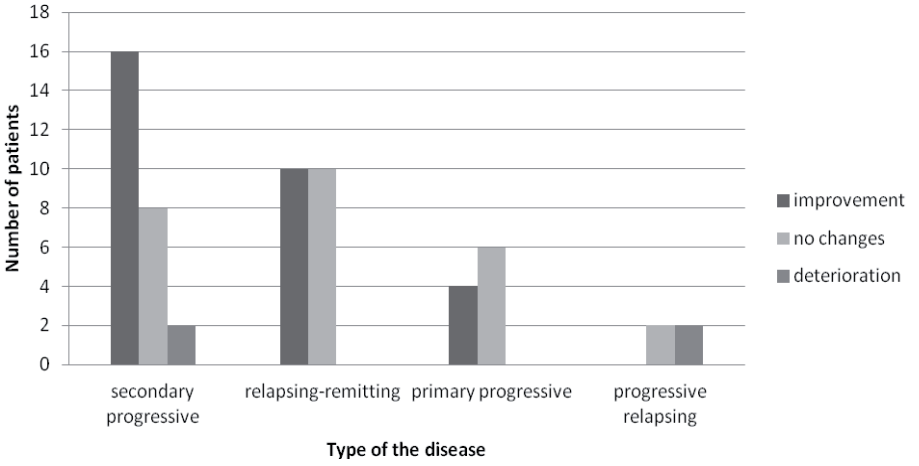


Fig. 5 The evaluation of changes in the self-performance in patients with MS after kinesitherapy based on the type of the disease

Self-improvement of activities after kinesitherapy was usually observed in secondary progressive type while in the progressive relapsing type it was not observed at all.

Evaluation of the effectiveness of kinesitherapy depending on the clinical type of MS is presented in Figure 6.

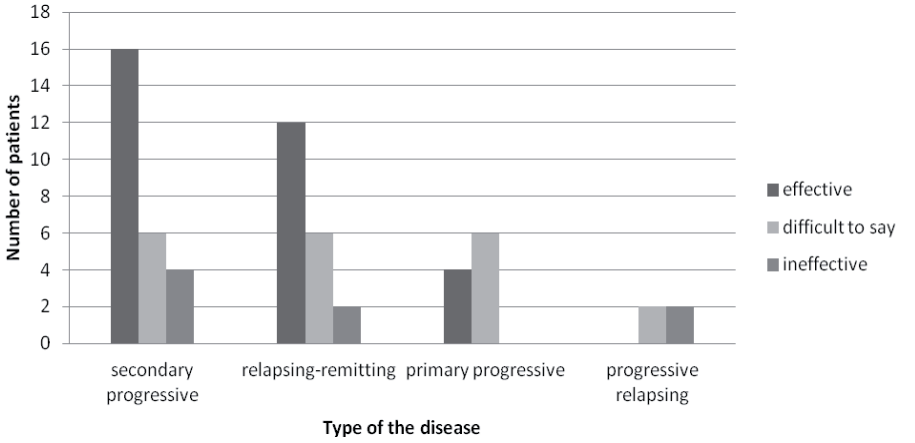


Fig. 6 Evaluation of the effectiveness of kinesitherapy depending on the type of the disease

The best results of kinesitherapy were observed among patients with secondary progressive MS. None of the patients with progressive relapsing type confirmed the effectiveness of kinesitherapy in their case.

Discussion

Our findings indicate that the most common exercises performed by patients with MS were equivalent and general exercises to improve and strengthen the lower limbs. More than half of the patients observed the decrease of the symptoms after performing kinesitherapy. The improvement concerned all symptoms but the greatest improvement included balance dysfunctions and impaired function of the lower extremities. Kinesitherapy was found to have the greatest impact on patients who were sick for a short period of time. This is related to the presence of a small degree of disability in the early stages of the disease. Improvement in the physical function after rehabilitation was usually observed in secondary progressive type of the disease. The majority of patients suffering from secondary progressive, relapsing-remitting and primary progressive MS determined that the impact on physical condition was large while those with progressive relapsing type of the disease concluded that the effect of kinesitherapy was moderate or insignificant. Self-improvement activities after kinesitherapy were usually observed in secondary progressive type but were not observed in the progressive relapsing type. The best results of kinesitherapy were observed among patients with secondary progressive MS.

The results show that the efficiency of kinesitherapy depends on the type of the disease. In the case of primary progressive and progressive relapsing there was a rapid and noticeable deterioration of health and functioning of the body. This is primarily due to the loss of sight or limb dysfunction after 6-8 years of illness. In the course of relapsing-

remitting MS there is a serious disability over time, but the period may be extended by 2-3 times at an average of 20 years. The literature shows that patients with MS after admission to rehabilitation because of their clinical deterioration have the same beneficial effect as in the case of rehabilitation of patients clinically stable. The authors believe that the ability to move, that is the degree of disability not the type of MS and disease duration, seems to have a significant impact on the results of rehabilitation (Gaber et al. 2012).

Previously, it was thought that exercise may cause the output of MS. Thus, patients were advised to avoid physical exertion. However, published reports from recent years indicate the importance of aerobic exercises for the improvement of the cardiovascular efficiency among patients. These exercises are performed on a treadmill and bicycle ergometer. In a randomized Italian study, 50 patients participated in a rehabilitation program carried out in the hospital or at home. Significant improvement in terms of the clinical condition of patients was observed in those who received treatment in the hospital. The effect of rehabilitation persisted to about 6 months whereas a positive effect on quality of life and emotional well-being had a longer duration (Solari et al. 1999).

The literature shows that while providing constant monitoring of aerobic exercises with increasing applied load causes the improvement of exercise capacity without a significant risk of neurological deterioration of the patient. This training should, however, take at least a few weeks and preferably several months (Snook, Motl 2009).

In one study, the evaluation of the effectiveness of rehabilitation in MS was carried out using three scales: a functional assessment, the assessment of lower limb muscle strength and physical failure rate. The study involved patients with MS who were subjected to rehabilitation in the Department of Rehabilitation in Łódź. Statistical analysis showed a significant improvement including all the scales after the rehabilitation. The author concludes that a comprehensive rehabilitation in the group of MS patients effectively resulted in reducing the level of disability, functional improvement and increased lower limb muscle strength (Miller 2009).

In the British study, which included 66 patients, the treated group underwent short 25-day hospital ward rehabilitation. After six weeks, the group showed a significant improvement in the Functional Independence Scale - FIM and the disability (London Disability Scale) (Freeman et al. 1997).

MS patients believe that physical activity is beneficial for them but in the course of the disease the disability substantially limits their ability to perform physical exercise (Kasser, Kosma 2012).

Research on the impact of physical therapy to maintain a balance in patients with MS showed a small but significant effect in patients with low and medium level of disability. But there is no evidence of a beneficial effect of physiotherapy on balance among patients with more advanced degree of disability (Paltamaa et al. 2012).

There was also a study on the effect of exercise on quality of life in women with MS. It was shown that the exercise improved gait and muscle strength and benefited the quality of life of women (Giacobbi et al. 2012).

Randomized study of exercise in patients who are at an intermediate MS clinical status was conducted. Results showed that the 12-week exercise program caused a significant improvement in the level of physical activity and affected the balance of patients and muscle strength in a positive way (Learmonth et al. 2012).

Fatigue is a common symptom reported by patients with MS. There is little research on the effect of kinesitherapy concerning the above mentioned symptom The literature shows that exercise can potentially decrease fatigue in patients with MS but the results are varied (Andreasen et al. 2011).

The studies on patients with MS concerning the impact of physical activity of varying intensity on clinical condition of patients showed no significant differences. It is believed that the greater benefits may be associated with higher exercise intensity. However, in the case of MS patients such intensive practice may be less well tolerated (Collett et al. 2011).

Clinical symptoms of MS result in a reduction of physical activity of patients. On the other hand, increased physical activity and exercise can improve their clinical condition including gait function in this disease (Motl et al. 2010).

The duration of an exercise as well as its type should be individually adjusted to the stage of the disease and the depth of functional deficits. Rehabilitation in MS should be commenced as soon as possible. It can limit the degree of disability and improve the quality of life of patients with MS (Beer et al. 2012). The literature shows that there is a relationship between physical activity and the progression of disability in patients with MS (Motl, McAuley 2011).

The study on the anti-inflammatory and regulating the immune system influence of physiotherapy in patients with MS was conducted. The authors have demonstrated significant changes in IgG subclasses in the number of neutrophils and lymphocytes in subpopulations of T and B cells and NK cells. The study also showed a significant correlation between changes in clinical symptoms and changes in the IgG1. The authors suggested that physiotherapy could be used as an immune-active therapy that affects the psycho-neuro-immune-endocrine response in patients with MS (Rasova et al. 2012).

Conclusions

1. The most frequently performed exercise for MS patients were equivalent and general exercises improving and strengthening the lower limbs.
2. The majority of patients with MS after kinesitherapy observed the decrease in severity of the symptoms. The greatest improvement concerned the improvement in balance disorders and impaired function of the lower extremities.
3. Patients who noticed the greatest impact of kinesitherapy on their physical condition were suffering from MS for a relatively short time - about 1 year and 1-5 years.
4. The improvement of physical well-being and self-activity after kinesitherapy was usually observed in secondary progressive MS type.
5. Kinesitherapy is an effective form of treatment for patients with MS.

Bibliography

1. Andreasen A.K., Stenager E., Dalgas U. (2011) The effect of exercise therapy on fatigue in multiple sclerosis. “Multiple Sclerosis” 17(9): 1041-1054.
2. Beer S., Khan F., Kesselring J. (2012) Rehabilitation interventions in multiple sclerosis: an overview. “Journal of Neurology” 259: 1994–2008.
3. Bonek R., Maciejek Z. (2009) Naturalny przebieg stwardnienia rozsianego. „Aktualności Neurologiczne” 9: 116-125.

4. Collett J., Dawes H., Meaney A., Sackley C., Barker K., Wade D., Izardi H., Bateman J., Duda J., Buckingham E. (2011) Exercise for multiple sclerosis: a single-blind randomized trial comparing three exercise intensities. "Multiple Sclerosis" 17(5): 594-603.
5. Freeman J., Langdon D., Hobart J., Thompson A. (1997) The impact of inpatient rehabilitation on progressive multiple sclerosis. "Annales of Neurology" 42, 236-244.
6. Gaber T.A., Oo W.W., Gautam V., Smith L. (2012) Outcomes of inpatient rehabilitation of patients with multiple sclerosis. "NeuroRehabilitation" 30(2): 97-100.
7. Giacobbi P.R Jr, Dietrich F., Larson R., White L.J. (2012) Exercise and quality of life in women with multiple sclerosis. "Adapted Physical Activity Quarterly" 29(3): 224-242.
8. Kasser S.L., Kosma M. (2012) Health beliefs and physical activity behavior in adults with multiple sclerosis. "Disability Health Journal" 5(4): 261-268.
9. Kazibutowska Z. (2008) Diagnostyka, rokowanie i leczenie w stwardnieniu rozsianym w kontekście zagadnień rehabilitacji. „Polski Przegląd Neurologiczny" 4, supl. A: 46-47.
10. Learmonth Y.C., Paul L., Miller L., Mattison P., McFadyen A.K. (2012) The effects of a 12-week leisure centre-based, group exercise intervention for people moderately affected with multiple sclerosis: a randomized controlled pilot study. "Clinical Rehabilitation" 26(7): 579-593.
11. Miller E. (2009) Skuteczność rehabilitacji w stwardnieniu rozsianym. „Polski Merkuriusz Lekarski" 26: 205-207.
12. Motl R.W., Goldman M.D., Benedict R.H. (2010) Walking impairment in patients with multiple sclerosis: exercise training as a treatment option. "Neuropsychiatric Disease and Treatment" 6: 767-774.
13. Motl R.W., McAuley E. (2011) Association between change in physical activity and short-term disability progression in multiple sclerosis. "Journal of Rehabilitation Medicine" 43(4): 305-310.
14. Paltamaa J., Sjögren T., Peurala S.H., Heinonen A. (2012) Effects of physiotherapy interventions on balance in multiple sclerosis: a systematic review and meta-analysis of randomized controlled trials. "Journal of Rehabilitation Medicine" 44(10): 811-823.
15. Rasova K., Dolezil D., Kalistova H., Kucera P., Juzova O., Zimova D., Medova E., Jandova D., Tintera J., Ibrahim I., Zvara K., Bicikova M., Martinkova P. (2012) Physiotherapy as an immunoactive therapy? A pilot study. "Neuro Endocrinology Letters" 33(1): 67-75.
16. Snook E.M., Motl RW. (2009) Effect of exercise training on walking mobility in multiple sclerosis: a meta-analysis. "Neurorehabilitation and Neural Repair" 23: 108-116.
17. Solari A., Filippini G., Gasco P., Colla L., Salmaggi A., La Mantia L., Farinotti M., Eoli M., Mendozzi L. (1999) Physical rehabilitation has a positive effect on disability in multiple sclerosis patients. "Neurology" 52: 57-62.
18. Woszczak M. (2008) Postępowanie fizjoterapeutyczne w stwardnieniu rozsianym. „Polski Przegląd Neurologiczny" 4, supl. A: 48-49.

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Assessment of a rehabilitation programme efficacy by patients after ischaemic cerebral stroke

Ocena skuteczności turnusu rehabilitacyjnego w opinii pacjentów po udarze niedokrwiennym mózgu

Summary
The quality of life of patients who suffered an ischaemic stroke increases with restoration of the lost functions, which is the consequence of skillfully adapted specialist kinesitherapeutic methods. This problem has a considerable social impact as, resulting from the sustained stroke, the patients' way of functioning in their environments changes dramatically. Ischaemic stroke sometimes makes a person give up their professional activity and social contacts. However, those patients' biggest problems are those associated with loss of big motor functions, mainly locomotion, as well as disturbances within small motor functions, which are connected with independent functioning on an everyday basis. The aim of the paper was to evaluate the efficacy of rehabilitation during a 3-week rehabilitation programme basing on the opinions of patients – survivors of an ischaemic stroke. The questionnaire survey conducted at the end of the rehabilitation programme during which the PNF and Bobath methods were used to work with patients showed an improvement in the subjects' quality of life. The therapy was tailored to individual needs and capabilities of patients, and it resulted in greater physical activity of the subjects, and subsequently, their greater independence in daily living. Success of physiotherapy is also conditioned by the patients' determination to fight disability and their desire to return to former social roles.

Key words: cerebral stroke, rehabilitation, specialist kinesitherapeutic methods, activities of daily living, orthopaedic aids

Streszczenie
Jakość życia pacjentów po przebytym udarze niedokrwiennym mózgu podnosi się wraz z przywróceniem utraconych funkcji, co następuje dzięki umiejętnemu wykorzystaniu dostępnych metod kinezyterapeutycznych. Problem ten ma duży aspekt społeczny, bowiem w wyniku doznanego udaru zmienia się sposób funkcjonowania w dotychczasowym otoczeniu. Niekiedy następstwem incydentu niedokrwiennego mózgu jest wręcz rezygnacja z życia zawodowego oraz kontaktów towarzyskich. Jednak największym problemem chorych po udarze mózgu jest utrata funkcji z zakresu dużej motoryki, głównie lokomocji, jak również zaburzenie małej motoryki, związanej z możliwością samodzielnego wykonywania czynności dnia codziennego. Celem pracy była ocena skuteczności usprawniania podczas 3-tygodniowego turnusu rehabilitacyjnego przez pacjentów po przebytym udarze niedokrwiennym mózgu.
Badania przeprowadzone po zakończeniu turnusu rehabilitacyjnego, w czasie któ-

rego do pracy z pacjentem wykorzystano metodę PNF oraz NDT Bobath, wykazały poprawę jakości życia usprawnianych. Terapia była dobrana indywidualnie do potrzeb oraz możliwości pacjenta, a w jej wyniku nastąpiło zwiększenie aktywności fizycznej, a co za tym idzie osiągnięcie większej samodzielności przez badanych w zakresie wykonywania czynnościach samoobsługowych. Na powodzenie terapii ma również wpływ determinacja pacjentów do walki z pokonaniem niepełnosprawności oraz ich chęć powrotu do wykonywanych uprzednio ról społecznych.

Słowa kluczowe: udar mózgu, rehabilitacja, specjalistyczne metody kinezyterapeutyczne, czynności dnia codziennego, pomoce ortopedyczne

Introduction

Cerebral stroke is a sudden disturbance of brain activity lasting longer than 24 hours and caused by vascular dysfunction. The most common type of stroke is ischaemic stroke (Pierzchała et al. 2006). Neurological deficit in an acute insufficiency of cerebral circulation manifests itself in the form of hemiparesis, speech disturbances like aphasia or agnosia, dementia, as well as impairment of body axis coordination. The symptoms of a neurological deficiency may wear off, increase, recur, or persist for a longer period (Mirowska 2001).

What is essential in the management of a stroke patient is to early introduce a rehabilitation regime into their treatment programme. In the rehabilitation of patients after an ischaemic incident brain plasticity is made advantage of. The most important objective of comprehensive rehabilitation at the time of stroke is to minimize disability and to improve the quality of the patient's life in general. At an early stage of stroke management rehabilitation is combined with an intensive medical treatment aiming at limiting inappropriate motor patterns. Members of the rehabilitation team aim to restore the patient's motor functions as soon as it is possible, so that they could function independently and successfully perform activities of daily living (Opara 1999).

The traditional rehabilitation methods initially include positioning of the body, passive motion exercises at the bed, active exercises, patient's assuming the erect position, passing from high to low positions and back again, learning and relearning how to walk (gait re-education), rehabilitation of the hand, and exercises in the universal rehabilitation facility (Opara 2002).

Physiotherapy uses specialist kinesitherapeutic methods, like PNF stretching, Bobath approach, and others. The concept of the PNF stretching method is to perform natural movements in three dimensions, which mimic tasks of daily living. Those movements are performed along slanting motion axes, which enables activation of a large number of muscles within the same muscle chain. Rotation is an important component of movement in this method as it conditions the force and coordination of the performed movement (Wolny et al. 2008). The PNF stretching method devotes a lot of attention to interactions between body stability and mobility, with special attention to concentric muscle contractions under gravity (Taub, Morris 2001). Theoretical assumptions of the Bobath approach focus on the brain's plasticity and an integrational function of the central nervous system. The basic principle of this method is to choose such exercise positions and movements which do not induce pathological spastic reflex reactions. Common elements of both methods include

balance training, improvement of hand-eye coordination, gait re-education, and functional rehabilitation of upper and lower limbs (Pasek et al. 2007).

The aim of the paper was to evaluate the efficacy of rehabilitation during a 3-week rehabilitation programme basing on the opinions of patients – survivors of an ischaemic stroke. During the course two specialist kinesitherapeutic methods were used for 50 patients, PNF stretching and Bobath approach. After completion of the programme the patients filled in a questionnaire, in which they answered questions concerning efficiency of the rehabilitation process.

Material and methods

The study was conducted in the year 2010 in Lublin physiotherapy centres. The study included a group of 50 individuals after ischaemic stroke, aged from 55 to 60 years, referred to take part in a rehabilitation programme during which specialist kinesitherapeutic methods were used (PNF stretching method in 58% of the patients and Bobath method in 48% of the pts).

The subjects had suffered their strokes from 3 to 6 months prior to the present study. Non-eligibility criteria included disability existing before the stroke, a high degree of aphasia, and dementia. The main eligibility criteria were complete independence in daily living activities before stroke, post stroke hemiparesis, and similar rehabilitation patterns during early hospitalization period, such as: passive exercises, assuming erect position, balance training, locomotion rehabilitation, exercise classes in a gym, exercises on a mat, and manual exercises.

The study tool in the form of a survey questionnaire was developed by the author of the present paper and consisted of 34 questions. The survey was conducted immediately after the end of the rehabilitation programme.

Results

Effects of the stroke in the study group

In the study group hemiparesis occurred a bit more often in the left side of the body (52%). Hemiparesis of the right side of the body occurred in 48% of the respondents (Tab. 1).

Tab. 1 Area of motor disability caused by the sustained stroke

Area of motor disability	Number of patients	% of patients
All left body half	18	36%
All right body half	12	24%
Left upper limb	8	16%
Right upper limb and/or right part of the face	12	24%

Patients most frequently reported problems with eye-hand coordination (76%) and with keeping their balance (70%). A relatively smallest group of patients reported problems with communication (32%) and vision problems (20%) (Tab. 2).

Tab. 2 Problems reported by ischaemic stroke patients

Problems	Number of patients	% of patients
Balance disturbance	35	70%
Eye-hand coordination disturbance	38	76%
Problems with communication	16	32%
Vision problems	10	20%
Sensation problems	21	42%
Problems with memory	20	40%
Depression	26	52%

The stroke patients associated the most difficulty in the activities of daily living with self-care during the morning routine (taking a shower or bath, tooth brushing, or using the toilet) and changing clothing/shoes (Tab. 3).

Tab. 3 Difficulties with activities of daily living in stroke patients

Activities causing difficulty	Number of patients	% of patients
Getting up from bed	19	38%
Walking	13	26%
Climbing up the stairs	21	42%
Climbing down the stairs	21	42%
Preparing and consuming one's own meals	19	38%
Writing	16	32%
Reading	11	22%
Morning beauty/grooming routine	34	68%
Dressing/putting on shoes	33	66%

Before the rehabilitation programme the highest percentage of patients in both study groups had problems with keeping their own balance, morning routine, preparing and consuming their own meals, and climbing stairs. After the programme patients rehabilitated by means of both methods noticed a significant improvement in their ability to perform those tasks (Tab. 4).

Tab. 4 Movement difficulties and daily living problems reported by stroke patients before and after a rehabilitation programme according to the rehabilitation method

Daily living activities causing problems	Patients rehabilitated by means of PNF stretching				Patients rehabilitated by means of Bobath approach			
	Before rehabilitation		After rehabilitation		Before rehabilitation		After rehabilitation	
	No. of patients	%	No. of patients	%	No. of patients	%	No. of patients	%
Getting up of bed	9	31.05	6	20.70	10	52.6	6	31.56
Walking	8	27.60	4	13.80	5	26.30	2	10.52
Climbing stairs	13	44.85	7	24.15	8	42.08	3	15.78
Descending stairs	12	21.90	5	17.29	9	47.34	2	10.52
Keeping one's balance	23	79.39	11	37.95	12	63.12	7	36.82
Preparing and consuming one's own meals	13	44.85	5	17.25	6	31.56	2	10.52
Writing	7	24.15	3	10.35	9	47.34	4	21.04
Reading	6	20.70	2	6.90	5	26.30	2	10.52
Morning routine	21	72.45	11	37.95	13	68.38	7	36.82

The patients reported the fewest problems with using the telephone (98% of the respondents) and managing their own money resources (56%), and the most problems were associated with leaving home on their own (24%) and shopping (24%).

A reduction of interpersonal contacts occurred in 55% of the subjects. Nearly 64% of the subjects had to give up their previous jobs.

Both groups of patients rehabilitated by means of specialist kinezitherapeutic methods benefited from the therapy. Patients were able to substitute or completely give up the orthopaedic aid they had used. In the case of subjects rehabilitated by means of the PNF stretching method, the percentage of individuals using a cane was 37.95% before the rehabilitation programme and it decreased to 24.45% after completion of the programme. The percentage of patients using canes and rehabilitated with the use of Bobath approach also dropped after the rehabilitation programme from 47.34% before the programme to 31.57% afterwards. A decrease in the number of subjects using wheelchairs in both groups was also noted after the rehabilitation programme (Tab. 5).

Tab. 5 Orthopaedic aids used by stroke patients before and after the rehabilitation programme according to the rehabilitation method

Type of orthopaedic aid used	Patients rehabilitated by means of PNF stretching				Patients rehabilitated by means of Bobath approach			
	Before Rehabilitation		After rehabilitation		Before rehabilitation		After rehabilitation	
	No. of patients	%	No. of patients	%	No. of patients	%	No. of patients	%
Cane	11	37.95	7	24.45	9	47.34	6	31.57
Walking frame	5	17.25	2	6.90	3	15.78	1	5.26
Stabilizer	3	10.35	1	3.45	-	-	-	-
Wheelchair	2	6.90	0	-	3	15.78	1	5.26

94% of the respondents confirmed a remarkable improvement of their health status resulting from the rehabilitation programme they went through, and 78% declared they would like to benefit from that kind of rehabilitation again in near future.

Discussion

The quality of life of patients after ischaemic stroke improves with restoration of the lost body functions, which is the consequence of the use of kinesitherapeutic methods. The success of rehabilitation is also conditioned by the patients' determination to fight disability and their willingness to return to previously performed social functions (Jaracz, Kozbuski 2006b). Moreover, rehabilitation administered in the first hospital phase of the disease beneficially influences further prognosis (Trochimiuk et al. 2009).

Important problems of those patients which affect their daily functioning include difficulties connected with focusing attention, communication and locomotion, which was confirmed in the results of the present study. The inconvenience of particular importance was connected with limited mobility, with a number of subjects having to resort to an orthopaedic aid. This problem was especially significant for those patients' professional activities and social roles (Jaracz, Kozbuski 2006a). Cerebral stroke is often associated with a decrease in the social status, a necessity to give up professional activity, a loss of ability to earn a living and worsening of living conditions (Daszkowska 2006).

Not infrequently, people who have suffered a stroke, despite having preserved their intellectual ability, find it difficult to move about and require the help of another person, which adversely affects their mental state (Vestling et al. 2005). Regaining the possibility of moving on one's own is a factor which positively affects the patient's mental status. They can see thereof measurable good results achieved thanks to the rehabilitation

programme they have undergone. Those benefits motivate the patient to further seek how to restore the lost functions. The patient who notices actual improvement in their daily functioning actively engages into therapy, which guarantees further improvement of body function (Członkowska, Mirowska 2001). The present study confirmed this assumption. It is important to consider low self-esteem concerning own social position that characterizes people who have undergone a stroke, which contributes to their limiting of interpersonal contacts (Krawczyk, Sidaway 2002).

The results of the present survey conducted at the end of a rehabilitation programme show that rehabilitation carried out by means of specialist kinesitherapeutic methods brought about improvement within small and large motor functions, which positively affected the patients' daily functioning.

A lot of authors point out that the task of entire team caring for the patient after ischaemic stroke is to lead them through the initial period of the disease and to simultaneously prepare them for restoration or compensation of the lost functions (Ryglewicz, 2001). Rehabilitation process of an individual after cerebral stroke has become a multi-disciplinary issue and it is now possible not only to restore the lost functions, but also, when it is not entirely possible, to decrease patient's inconvenience through appropriate arrangement of the individual's living space and the use of facilities designed to aid the patient (Tasiemski et al. 2010). The respondents of the present study used various aids such as a cane, a walking frame, stabilizers of different kinds, and, in more severe cases, wheelchairs. As a result of the rehabilitation process there occurred a replacement or elimination of the aid used heretofore, which reveals higher degrees of independence within big motor functions attained by the patients.

Universal priorities are followed during a complex rehabilitation of stroke patients: the rehabilitation aims at developing maximum independence of the patient in their daily living activities and locomotion, with daily living activities featuring self-care, i.e. consuming one's own meals, everyday hygiene and dressing (Opara 2006). Those aspects of life after stroke were also stressed by the patients. A lot of them declared that difficulties that they encounter concern those particular tasks. Methods which are most frequently used in order to achieve the most possible independence are the PNF method and the Bobath method. Therapists using specialist kinesitherapeutic methods very often pointed out in conversations that it was possible to achieve a significant improvement within small and big motor functions during a relatively short period of time (the programme lasted for 21 days). They also stressed the fact that neglecting further rehabilitation after completion of the programme may result in reduction of the achieved results.

In order to preserve the newly acquired fitness and further improvement herein, it is indispensable to continue the rehabilitation process by means of actively engaging in an exercise programme over a long period of time (Kwakkel et al. 2004). Moreover, it is recommendable to use consecutive forms of specialist physiotherapy. No less than 78% of the respondents perceived such a need and declared willingness to take part in such exercise classes again. This result shows the patients' satisfaction with therapy heretofore.

Conclusions

1. Ischaemic stroke of the brain negatively affected the subjects quality of life. They encountered the most problems with maintaining balance and independent locomotion, as well as with performing certain activities of daily living.
2. In the social sphere, the stroke contributed to a limitation in social contacts in 55% of the patients, whereas 64% of the patients gave up their professional activity because of the stroke.
3. Specialist kinesitherapeutic methods used during the rehabilitation programme, such as PNF stretching method and Bobath method, positively influenced the patients' quality of life, mainly within independent performance of daily living activities.
4. Rehabilitation conducted by means of both mentioned specialist methods brought about improvement of mobility, mainly due to balance training. As a consequence, the need for orthopaedic aids also dropped. Thus, acquiring a higher degree of mobility was motivating for patients in the respect of further rehabilitation.
5. Accompanying acquisition of a greater independence by the patients rehabilitated with specialist kinesitherapeutic methods was improved quality of life in all the physical, mental, and social spheres.
6. When the physiotherapy programme was over, the subjects appreciated the efficacy of therapy with specialist kinesitherapeutic methods and declared willingness to take part in another such programme in the future.

Bibliography

1. Członkowska A., Mirowska D. (2001) Chory po przebytym udarze mózgu. „Przewodnik Lekarza" vol. 4, tom 2: 47-52.
2. Daszkowska J. (2006) Jakość życia w koncepcjach związanych ze zdrowiem. Przegląd Medyczny Uniwersytetu Rzeszowskiego.
3. Jaracz K., Kozubski W. (2006a) Jakość życia chorych po udarze w świetle badań empirycznych. „Aktualności Neurologiczne" vol 2, nr 1: 35-44.
4. Jaracz K., Kozubski W. (2006b) Znaczenie wsparcia społecznego dla jakości życia chorych po udarze. „Neurologia i Neurochirurgia Polska" 40/2: 140-150.
5. Krawczyk M., Sidaway M. (2002) Kliniczne efekty intensywnego leczenia ruchem pacjentów po przebytym udarze mózgu. „Neurologia i Neurochirurgia Polska" 36/1: 48-55.
6. Kwakkel G., van Peppen R., Wagenaar R.C. (2004) Effects of augmented exercise therapy time after stroke: meta-analysis. „Stroke" 35/11: 2529-2539.
7. Mirowska D. (2001) Chory po przebytym udarze mózgu - w gabinecie lekarza rodzinnego. „Przewodnik Lekarza" vol. 4, tom 11: 47-52.
8. Opara J. (2006) Czy udar można zmierzyć? „Rehabilitacja w Praktyce" 2: 12-15.
9. Opara J. (1999) Skale udarów dla dokumentacji wyników rehabilitacji chorych z niedowładem połowiczym. „Postępy Rehabilitacji" nr 1: 31-40.
10. Opara J. (2002) Aktualne metody usprawniania ruchowego chorych po udarze. „Udar Mózgu" tom 4, nr 1: 33-36.

11. Pasek J., Sieron A. (2007) Rehabilitacja i Fizykoterapia po udarze niedokrwiennym mózgu. „Rehabilitacja w Praktyce" 2: 35-38.
12. Pierzchała K., Łabuz-Roszak B., Gajewska A., Nowiński M., Zając M. (2006) Analiza czynników ryzyka chorób naczyniowych mózgu u chorych leczonych w pododdziale udarowym. „Wiadomości Lekarskie" LIX, 1-2: 44-47.
13. Ryglewicz D. (2001) Zasady postępowania i leczenia udarów mózgu. „Służba Zdrowia" nr 86-87: 17-19.
14. Tasiemski T., Knopczyńska A., Wilski M. (2010) Jakość życia osób po udarze mózgu – badania pilotażowe. „Gerontologia Polska" tom 18, nr 3: 128-132.
15. Taub E., Morris D.M. (2001) Constraint-induced movement therapy to enhance recovery after stroke. "Curr. Atheroscler. Rep." 4: 279-286.
16. Trochimiuk J., Kochanowski J., Stolarski J., Wójtowicz S. (2009) Efekty wczesnej rehabilitacji w okresie pobytu szpitalnego pacjentów z udarem niedokrwiennym mózgu. „Rehabilitacja w Praktyce" 4: 15-17.
17. Vestling M., Ramel E., Iwarsson S. (2005) Quality of life after stroke: Well-being, life satisfaction, and subjective aspects of work. "Scand. J. Occ. Ther.": 89-95.
18. Wolny T., Saulicz E., Gnat R. (2008) Wykorzystanie metody PNF u chorych po udarze mózgu. „Rehabilitacja w Praktyce" 3: 32.

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Efficiency of shock wave therapy in patients with "tennis elbow" - preliminary study

Ocena skuteczności fali uderzeniowej u pacjentów z „łokciem tenisisty" - doniesienie wstępne

Summary
The increase in the number of patients with chronic pain of lateral elbow region ("tennis elbow") has been observed in recent years. The aim of the study was to evaluate the efficiency of extracorporeal shock wave therapy in treatment of patients with "tennis elbow". The examination embraced 10 patients with recognized "tennis elbow" who underwent clinical evaluation including the level of pain intensity according to visual analogue scale (VAS), functional tests and Mayo Elbow Performance Score (MEPS).
Conducted examinations proved that application of shock wave therapy leads to the reduction of pain estimated by VAS, improvement of functional tests results and progress in efficiency of elbow joint estimated by MEPS.
Basing on conducted examinations, it may be stated that application of extracorporeal shock wave therapy is an effective, non-invasive method of treatment of pain connected with "tennis elbow".

Key words: extracorporeal shock wave therapy, tennis elbow

Streszczenie
W ostatnich latach obserwowany jest wzrost pacjentów z przewlekłą bolesnością bocznego przedziału stawu łokciowego czyli tzw. „łokciem tenisisty". Celem pracy była ocena skuteczności zastosowania zogniskowanej fali uderzeniowej (ESWT) w leczeniu chorych z „łokciem tenisisty". Badaniem objęto 10 pacjentów z rozpoznaniem łokcia tenisisty, u których przeprowadzono ocenę kliniczną, obejmującą stopień nasilenia bólu według skali VAS, testy funkcjonalne oraz kwestionariusz wydajności stawu łokciowego (MEPS).
Przeprowadzone badania wykazały, że zastosowanie fali uderzeniowej powoduje zmniejszenie dolegliwości bólowych ocenianych w skali VAS, wykazano poprawę wyników testów funkcjonalnych oraz poprawę wydajności stawu łokciowego, ocenianego kwestionariuszem MEPS.

Na podstawie przeprowadzonych badań można stwierdzić, że zastosowanie zogniskowanej fali uderzeniowej jest skuteczną, nieinwazyjną metodą w leczeniu dolegliwości bólowych występujących w przebiegu „łokcia tenisisty".

Słowa kluczowe: zogniskowana fala uderzeniowa, łokieć tenisisty

Introduction

Lateral epicondylitis ("tennis elbow") includes disorders of ulnar extensor muscle of wrist in the area of its proximal attachment to the lateral epicondyle of humerus. The area of the most visible disorders is the proximal attachment of radial extensor muscle of the wrist. Overloads and recurrent injuries of this area may lead to fibroses and micro-tears of exposed tissues (Gaździk 2000, Veneziano et al. 2006).

The disease occurs in 1 patient per every 200 while the proportion of women and men with this problem is 5:4. The most frequently, tennis elbow syndrome occurs in middle-aged patients (approximately 35-45 years old) (Platssman, Kokosz 1997, Veneziano et al. 2007).

According to Krushnaar and Nirschl, as a result of overload, cells which do not develop in the direction of healthy tendon create large amount of fibroblasts, what is more, vascular hypertrophy occurs and disorganized collagen causes angiofibroblastic hypertrophy (Krushaara, Nirschl 1999). It has been proved that it is a physiological result of the rupture in collagen structure. Pathological changes are observed on the sterile area of inflammation and edema which occur after defragmentation of single fibers of the tendon. After a longer period of time edema develops on scars and exostoses. Patient suffers from the pain of tendons which became less solid (Wittek 1999). The pain may radiate to the humerus or wrist and may be experienced at the moment of resisting the contact and pressure from the physician. What is more, impairment of muscle strength and gradual limitation of upper limb functions occur (Gaździk 2000; Duk, Szykuła 1997). The pain of lateral elbow region may be caused by many different factors including enthesopathy of extensor muscles of wrist and fingers, brachioradial joint bursitis, fibrosis and pain of annular ligament, posttraumatic synovitis of cubital joint with hemorrhage to the articular cavity, hypertrophy of synovial bursa between the head of radial bone and the head of humeral bone, calcium deposits in the area of extensor muscles of wrist and fingers, neuropathies of posterior musculospinal nerve, periostitis, tendinitis, inflammatory states of ligaments and joint capsule as well as brachioradial joint degenerations (Tylman, Dziak 1986).

The most comprehensive and differentiating diagnostic method for "tennis elbow" has been described by Winkiel. He emphasized that the examination of elbow joints should be conducted according to the following order: medical interview, physical examination (palpation) and functional tests (Ryngier et al. 1999).

In the diagnostics of "tennis elbow" following imaging examinations are also applicable: roentgenography (RTG), computer tomography (CT), magnetic resonance (MR), ultrasonography (USG) and blood examination (Ryngier et al. 1999).

Available literature describes many methods of treatment of pain connected with "tennis elbow". As a first step, cooling of the elbow may bring alleviation of pain. Alternating hot and cold baths of injured joint are also recommended. Other methods of treatment are ultrasounds, iontophoresis with non-steroidal anti-inflammatory drugs

and application of low-frequency currents. Those methods are based on the analgetic, anti-inflammatory and anti-edema properties of physical stimuli (Pilecka, Hagner 2004). Cyriax transverse massage (Stasinopoulos et al. 2005) and kinesiotherapy (Walaszek et al. 2005) are also frequently recommended. Other conservative method of treatment could be the injection of glucocorticoids (Świerkot et al. 2008), however, it may lead to the atrophy of subcutaneous tissue. When conservative treatment does not bring expected results, surgical procedure is recommended (Świerkot et al. 2008).

Extracorporeal shock wave therapy brings satisfactory results in conservative treatment (Korabiewska et al. 2010; Franek et al. 2012; Król et al. 2012; McClure, Weinberger 2003; Stokłosa, 2009). Extracorporeal shock wave therapy may be applied as a three-dimensional method or on a small, specified surface with simultaneous ultrasonographic control (McClure, Weinberger 2003). In the first method, approximate localization of the change is defined using ultrasonography and radiography and the sensor is applied on the surface of the deformity without ultrasonographic control. Furthermore, the sensor embraces the larger surface than the one defined by USG or radiography. During the second examination, the sensor is placed in the same defined surface of the deformity. Along with increased dose of energy, USG control is recommended and the wave should be directed into the precise surface of the deformity according to the possibility of damage of surrounding structures of intact soft tissues (McClure, Weinberger 2003). The mechanism of analgetic properties of shock wave includes blocking of the transmission of nociceptive signal through the stimulation of nerve ends to the level allowing pain control. What is more, energetic impulses stimulate metabolism, improve blood circulation and collagen synthesis which influence significant acceleration of soft tissues regeneration. The activity of shock wave improves blood supply in tissues, has regenerative properties and may also disintegrate calcified cells of connective tissue, like for instance, fibroblasts. Muscle relaxing properties of shock wave therapy are also extremely beneficial (McClure, Weinberger 2003).

The aim of the study was to evaluate the efficiency of extracorporeal shock wave therapy in patients with "tennis elbow". In the study, the answers for following questions should be obtained:

1. Whether applied therapy influences the decrease of the level of pain estimated by visual analogue scale (VAS)?
2. Whether applied therapy influences the improvement of results of functional tests?
3. Whether applied therapy influences the improvement of functionality of elbow joint estimated by Mayo Elbow Performance Score (MEPS)?

Material and methods

Examination included 10 patients (7 women and 3 men aged 36-60) treated in the Department of Rehabilitation, University Hospital in Białystok who revealed "tennis elbow" after medical interview, physical examination and ultrasonography (USG).

Clinical evaluation regarded the level of pain intensity according to visual analogue scale (VAS). Graphic, numerical, 10cm scale has been applied where patient pointed the value of his/her actual pain. Two ends of the scale were the marginal levels of pain. "0" responded to the lack of pain and "10" was the maximum pain. Patients also completed the Mayo Elbow Performance Score (MEPS) estimating the capacity of elbow joint.

Patients defined the type of pain, the range of joint mobility, stability and dealing with everyday activities such as combing, eating, everyday hygiene, putting on clothes and shoes. The maximum score in MEPS was 100 and in such case the capacity of joint was defined as very good. Between 75 and 89 points the capacity was established as good, 60-74 points – satisfactory and less than 60 points indicated low capacity.

Physical examination of patients embraced palpation and functional tests: chair test, Cozen's test, Mill's and Maudsley's tests which confirmed the presence of tennis elbow syndrome. All examinations have been conducted before and after applied treatment.

Physical therapy program included application of EWST onto lateral epicondylitis. 4 series of the procedure have been performed once a week with 5-7 days intervals between the single procedures. Following parameters have been applied during the therapy: constant mode of activity, the pressure of 2 bars, 10Hz frequency, the amount of strokes of 2000. The therapy was initiated with application of the transducer to the most painful area with 400 strokes, 2 bars, 5Hz, afterward, the therapy was extended on surrounding tissues of the muscles of forearm with 1000 strokes. The last series consisted of 400 strokes with 10Hz frequency. Patients during the therapy have not been the subject of other therapies.

Results

Before the initiation of the therapy, positive tests results were noticed in the majority of patients: Mill's test in 90% of patients, Maudsey's in 100%, Cozen's in 90%, chair test in 100% and palpation in 100% of patients. The level of pain intensity according to VAS was determined for 6.5cm and according to MEPS for 55.5 points which indicated low capacity of elbow joint (Tab. 1).

After the termination of the treatment, 60% of patients did not experience pain during palpation. The occurrence of positive functional tests results reduced by half. The level of pain intensity according to VAS was determined for 2.6cm and according to MEPS for 79.5 points which indicated significant improvement and very good capacity of elbow joint (Tab.2). Obtained results were statistically significant.

Tab. 1 The results of clinical evaluation before physical therapy in examined group of patients

	Palpation	Mill's Test	Maudsley's Test	Cozen's Test	Chair Test	VAS
1	+	+	+	+	+	7
2	+	+	+	+	+	5
3	+	+	+	+	+	8
4	+	+	+	+	+	7
5	+	+	+	+	+	5
6	+	+	+	+	+	7
7	+	+	+	+	+	4
8	+	-	+	-	+	6
9	+	+	+	+	+	10
10	+	+	+	+	+	6

Tab. 2 The results of clinical evaluation after physical therapy in examined group of patients

	Palpation	Mill's Test	Maudsley's Test	Cozen's Test	Chair Test	VAS
1	-	-	-	-	-	2
2	+	+	+	+	+	4
3	+	-	+	+	+	3
4	+	-	-	-	-	0
5	+	-	-	-	-	1
6	+	-	-	+	+	3
7	+	+	+	+	+	2
8	+	-	-	-	+	3
9	+	+	+	+	+	8
10	+	+	+	+	+	0

Discussion

In recent years, the increase of the amount of patients with chronic pain of lateral elbow region ("tennis elbow") has been observed. It is a result of environmental and civilization changes which influence the way of aggravation of upper limbs, shoulders and the whole trunk. The crucial role in the treatment of "tennis elbow" plays conservative treatment which includes, among others, physical therapy.

The aim of the study was to evaluate the efficiency of conservative treatment with the extracorporeal shock wave therapy in patients with "tennis elbow".

Although, the mechanism of this procedure has not been fully explained it is assumed that beneficial influence of shock wave therapy on "tennis elbow" treatment is probably connected with the micro-destruction. Strokes cause micro-tears of avascular or poorly vascularized tissues with simultaneous stimulation of revascularization through the release of local growth factors and mobilization of proper stem cells (Stokłosa 2009).

The study has been conducted among 10 patients. Physical examination included basic clinical tests, evaluation of pain by visual analogue scale and Mayo Elbow Performance Score recommended by other authors (Korabiewska et al. 2010; Franek et al. 2012; Król et al. 2012; McClure, Weinberger 2003; Stokłosa 2009).

In own material, in the group of patients treated with shock wave therapy, it was observed that the level of pain according to VAS established for 6.5cm after the treatment decreased to the value of 2.6cm. It proves the fact that applied treatment reduces the pain in patients with "tennis elbow".

Similar results have been obtained by Korabiewska et al. The group of 20 patients was treated with shock wave therapy. 4 procedures have been conducted with 3-4 days intervals between them with the following parameters: constant strokes in the number of 2000 with the pressure of 2 bars and 10Hz frequency. Examined patients before the treatment suffered from pain of 2-8 degrees of intensity and after the procedure the level of pain was 0-5 degrees. Comparison of the average values of particular parameters led to the conclusion that differences in the evaluation of pain before and after the procedures were statistically significant. Differences proved the reduction of the level of pain intensity and frequency as well as the decrease of analgesics intake and reduction of limitations in physical activity after applied procedures (Korabiewska et al. 2010).

Aforementioned study remains compatible to the results obtained from own material where all examined patients noticed the improvement in everyday activities observed in high values of MEPS. Before the initiation of the therapy, patients described the functionality of elbow joint as low, however, it improved significantly after the termination of physical therapy.

In another study, Franek et al. applied shock wave therapy in 10 patients performing 3 procedures with 1 week intervals. Before the initiation of the series of procedures and directly after its termination, patients evaluated the pain and strength of muscles responsible for flexion and extension of wrist as well as flexion of fingers. After the termination of the therapy, they observed statistically significant reduction of pain. Before the treatment, VAS was established for 5.9 cm and after the treatment it was 2.7 cm (Franek et al. 2012).

Marks et al., similarly, applied shock wave therapy in the area of the strongest pain. During the first session, each patient received 500 strokes and further 2000 strokes with 3 days intervals. Before every session, the intensity of pain had been examined using VAS. Statistically significant reduction of pain intensity according to VAS has been observed after each session and remained at the same level for 6 months after the end of therapy (Marks et al. 2005).

Basing on the conducted examinations it may be stated that application of shock wave therapy is an effective, non-invasive method of treatment of pain connected with "tennis elbow". Performed treatment provided to the significant improvement of patients health state.

The result of this study is similar to the results obtained by other scientists. Shock wave therapy is an effective, new method of pain treatment without any adverse effects (Dziak, Tayara 1999, Veneziano et al. 2007).

Presented research is the preliminary study. In further stages of conducted examinations, extension of examined group of patients and formation of comparable control group are recommended.

Conclusions

1. Extracorporeal shock wave therapy influenced the decrease of pain intensity measured by visual analogue scale (VAS).
2. The therapy improved the results of functional tests.
3. The therapy improved the functionality of elbow joint estimated by Mayo Elbow Performance Score (MEPS).

Bibliography

1. Duk A., Szyguła Z. (1997) Łokieć tenisisty – patomechanizm uszkodzenia, profilaktyka. „Medycyna Sportowa" 66: 15-19.
2. Dziak A., Tayara S. (1999) Urazy i uszkodzenia w sporcie. Kraków, Wydawnictwo Kasper.
3. Franek A., Kusz D., Durmała J., Król P., Wilk R., Detko E., Wnuk B., Dolibog P., Błaszczak E., Dolibog P., Błaszczak E., Dolibog P., Wiercigroch L., Taradaj J. (2012) Próba wykorzystania zogniskowanej fali uderzeniowej w leczeniu wybranych schorzeń ortopedycznych - doniesienie wstępne. „Fizjoterapia Polska" 2(4), 12: 147-158.

4. Gaździk T. (2000) Choroby stawu łokciowego. PZWL, Warszawa.
5. Korabiewska I., Sipko H., Lewandowska M., Białoszewski D. (2010) Ocena skuteczności leczenia falą uderzeniową i terapią skojarzoną pacjentów z tzw. łokciem tenisisty. „Acta Balneologica" Tom 52, 2(120): 76-83.
6. Król P., Franek A., Wiercigroch L., Porębska B., Franek E., Dolibog P., Dolibog P., Zinka W., Król T. (2012) Aktualny stan wiedzy na temat zogniskowanej i radialnej fali uderzeniowej w ortopedii i fizjoterapii. Cz.1. „Fizjoterapia Polska" 2(4), 12: 83-100.
7. Krushaara B.S., Nirschl R.P. (1999) Tendinosis of the Elbow (Tennis Elbow). Critical Features and Findings of Histological, Immunohistochemical, and Electron Microscopy Studies. „J Bone Joint Surg Am" 81: 259-279.
8. Marks W., Lasek J., Jackiewicz A., Lisiecka- Tyszko S., Gwoździewicz J., Stasiak M. (2005) Leczenie przewlekłych stanów zapalnych tkanek miękkich w okolicach struktur kostnych przy użyciu źródła zewnątrzustrojowych, niskoenergetycznych fal uderzeniowych nowej generacji - badanie prospektywne. „Kwart. Ortop" 3: 216-221.
9. McClure S., Weinberger T. (2003) Extracorporeal Shock Wave Therapy: Clinical Applications and Regulation. Clinical Techniques in Equine Practice: 358-367.
10. Pilecka K., Hagner W. (2004) Łokieć tenisisty: przyczyny, diagnostyka, sposoby leczenia, profilaktyka. „Kwart Ortop" 1: 22-27.
11. Plaatsman G.P., Kokosz M. (1997) Leczenie „łokcia tenisisty" jako zespołu. „Medycyna Manualna" 1(2): 3-6.
12. Ryngier P., Saulicz., Dworaczek G. (1999) Diagnostyka funkcjonalna oraz leczenie łokcia tenisisty. „Fizjoterapia" 7(3):52-55.
13. Stasinopoulos D., Stasinopoulou K., Johnson M.I. (2005) An Exercise Programme for The Management of Lateral Elbow Tendinopathy. „Br J Sports Med" 39: 944-947.
14. Stokłosa K. (2009) Fala uderzeniowa – podstawy teoretyczne i zastosowanie kliniczne. „Rehabilitacja w Praktyce" 1: 35-37.
15. Świerkot J., Marczyńska-Gruszecka K., Borysewicz K., Śmiechowicz H. (2008) Wybrane zespoły bólowe tkanek miękkich okołostawowych. Family Medicine & Primary Care Review, 10(1): 87-93.
16. Tylman D., Dziak A. (1986) Traumatologia narządu ruchu. PZWL, Warszawa.
17. Walaszek R., Kasperczyk T., Kużdżał A. (2005) Kompleksowy program postępowania fizjoterapeutycznego w zespole bólowym bocznego przedziału stawu łokciowego (tzw.łokieć tenisisty). „Fizjoterapia Polska" 5(4): 451-456.
18. Wittek R. (1999) Łokieć tenisisty – diagnoza i fizjoterapia. „Fizjoterapia" 7(1): 42-45.
19. Veneziano Ch., Matthew J., Nofziger J., Nirschl R.P. (2006) Anatomia i badanie fizykalne stawu łokciowego W: Ręka, łokieć, ramię. (red.) T.Sz. Gaździk. Elsevier Urban&Partner. Wrocław.
20. Vicenzino B., Cleland J.A., Bisset L. (2007) Joint Manipulation in The Management of Lateral Epicondylalgia: A Clinical Commentary. „The Journal of Manual & Manipulative Therapy": 50-56.

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Application of the PNF (Proprioceptive neuromuscular facilitation) method in the facial palsy

Zastosowanie metody PNF (Proprioceptive neuromuscular facilitation) w przypadkach porażenia nerwu twarzowego

Summary
District the facial palsy much is making it difficult for the sick person to function in the society. Asymmetry of the face, problems with the articulation, hampered accepting foods is only some of symptoms of this illness. The number of vexing long staying problems much is lowering the physical and mental state what next has the intense influence on the psyche of the sick person. Fortunately many possibilities a medicine of the 21st century is bringing which to us, allow for early reacting and the significant reduction of negative results in the course of this illness. Presenting the possibility is a purpose of the work of applying the PNF concept in the facial palsy. Results: In the facial palsy the kinesitherapy we should begin like earliest. Peculiarly in the application they will be useful here elements of the PNF concept.

Key words: PNF (Proprioceptive neuromuscular facilitation), facial palsy, physiotherapy

Streszczenie
Obwodowe porażenie nerwu twarzowego znacznie utrudnia choremu funkcjonowanie w społeczeństwie. Asymetria twarzy, problemy z artykulacją, utrudnione przyjmowanie pokarmów to tylko niektóre z symptomów tej choroby. Szereg dokuczliwych dolegliwości długo utrzymujących się znacznie obniża samopoczucie, co ma z kolei ogromny wpływ na psychikę chorego. Na szczęście wiele możliwości, jakie niesie nam medycyna XXI wieku, pozwala na wczesne zareagowanie oraz znaczne zmniejszenie negatywnych następstw w przebiegu tej choroby. Celem pracy jest przedstawienie możliwości zastosowania koncepcji PNF w porażeniu nerwu twarzowego. Wnioski: W porażeniu nerwu twarzowego kinezyterapię należy rozpocząć jak najwcześniej. Metoda PNF odgrywa bardzo ważną rolę na etapie rehabilitacji w porażeniu nerwu twarzowego.

Słowa kluczowe: PNF (Proprioceptive neuromuscular facilitation), porażenie nerwu twarzowego, fizjoterapia

Introduction

The district facial palsy causes lots of difficulties to the sick person especially in the society area. A facial asymmetry, problems with the articulation, hampered accepting foods are only some of symptoms of this illness. The number of vexing long staying problems much is lowering the frame of mind what next has the intense influence of the sick person psyche. Fortunately many possibilities, which bring to us the 21st century medicine, allow for early reacting and the significant reduction of negative results in the course of this illness.

The facial nerve is seventh from twelve pairs of cranial nerves. He contains motor, sensory fibres and little parasympathetic fibres. However in the majority part these are motor fibres, which are supplying the muscles of the face and the neck in nervous connections. He is supplying in felling way the auditory canal and the paracentral surface of the auricle. He is also moving information about the taste from 2 / 3 front of tongue. Parasympathetic fibres are allocated for glands and mucous membranes of throat, palate, the nasal cavity and salivary glands (Stems, Williams, 2013). (Fig. 1.)

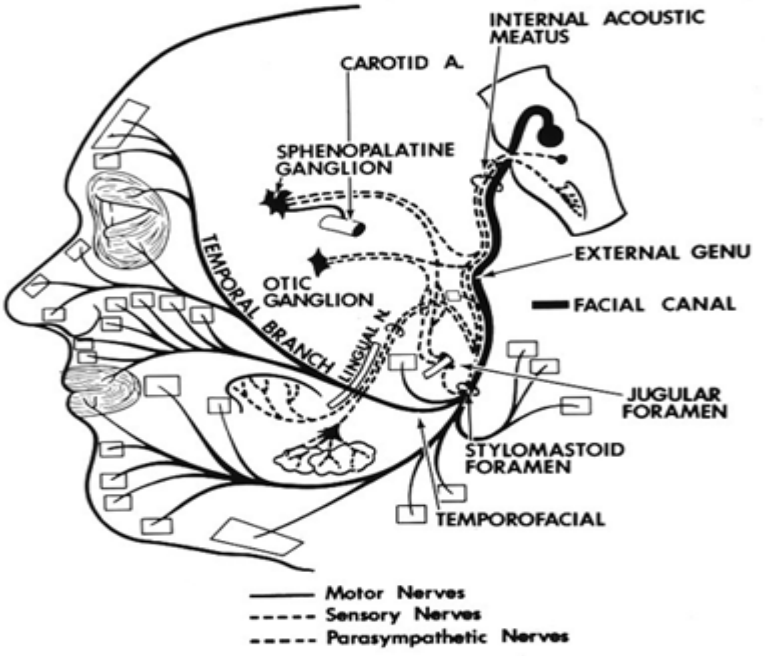


Fig. 1 Facial nerve

District paralysing of the facial nerve is characterized above all by a lack of the locomotion of muscles for the one side of the face (monoplegia facialis). As a result of this damaging the face of the sick person is becoming asymmetrical. It is reaching for smoothing skin wrinkles out on the ill side. Muscles correctly innervated half of the face are winning over the paralysed ones. Here drawing the tip of the nose aside and tormenting the account of mouth are characteristic on the ill side (Bakuła et al. 2002). Not-closing the eyelid, caused by muscle paralysis of the circular bow watch, is a biggest problem which can cause inflammatory processes of the dry cornea, and in consequence with her ulceration. Paralysis is most visible at face moves during the conversation. Only muscles on the healthy side are contracting and are pulling the mouth and the nose to it. This is reaching for disturbing the process of the secretion of saliva as well as for disturbing tasting in front 2/3 of tongue. It can also achieve the numbness of the smell. As the first manifestations in the examination sick persons are reporting pain behind the ear and loss of the taste. They have also problems in taking foods as well as oversensitivity to high sounds caused by injuring the stapes muscle which the inner ear is sheltering from high sounds. Establishing the kind of paralysis is very important, especially if this is central or district damage. If we are talking about paralysis located at the central nervous system level, manifestations are different from of the ones of district origin. It is also reaching to one side of carrying movements of muscles of the face, however it is regarding only the lower part of the facial nerve. An ability to kept frown is staying, and the process of the secretion of saliva and tasting isn't disturbed. It is happening this way therefore, because the innervation of muscles of the top of the face comes from both cerebral hemispheres (Bakuła et al. 2002).

Reasons for injuring the facial nerve can be of primitive or secondary coming. We can achieve primaeval injury in case of sudden cooling down the face. It can also be the inflammatory or allergic process, injuries to the temporal bone, the brain stem as well as the viral infection (Herpes Simplex) (Finsterer, 2008). Pathological processes however being in progress can be a secondary cause in the immediate vicinity of nerve, e.g. cancers, otitis media, shingles, parotitis (Byme, Chu, 2008; Peiteresen, 2002).

Very much at establishing the accurate diagnosis additional examinations are of help. Rtg, the computed axial tomography and the magnetic resonance are vivid basic researches. We can also carry out the electromyography which is checking the activity of muscles. However electroneurography is checking over the excitability and the speed of handing nerve impulses (Bahar et al. 2005; Bakuła et al. 2002). Also checking the hearing is an important examination. A scale of Pietruski and Hous'a and Brackmanna will also be useful in the assessment of the degree of damaging the activity of the VII nerve (Bożek-Sochacka et al. 2004; Brzoznowski et al. 2010).

Curing the facial palsy in the first contact consists in absorbing glucocorticosteroids and vitamins from the group B. However to results of the treatment is enjoying considerable influence time of beginning therapy, the sooner we will start treating the negotiations will be more favourable. It isn't possible here to forget about the education of the patient about the course of disease, but first of all about the prevention of complications. We should remember not to lead for the corneitis, by applying appropriate drops reducing drying the conjunctiva. It is possible for that purpose to apply also passive closing

the eyelid, or carrying an eyepatch. It is also essential in order to keep the face in the identical temperature, slowly to prevent to sudden cooler weathers and draughts. It is possible to raise the corner of the mouth by applying the relevant application with tape (taping). The patient should not sleep on the paralysed side in order not to stretch the skin and muscles. Physiotherapy is valuable supplementing the drug treatment. We should apply the local central heating in the form of thermal compresses or the Sollux lamp (blue filter). The warm weather is precipitating regenerations of the nerve. The electrostimulation leaning against the electro examination is also being recommended (Adamczak 2003; Huber et al. 2008). However the long conducted electrostimulation can lead the market to contractures of paralysed muscles. Galvanizations cathodal using the Bergoniego mask and the iontophoresis with the appropriate medicine prescribed by the doctor (Low et al. 2009). Therapy using changeable magnetic fields is bringing promising benefits to the low frequency in the form magneto of the stimulation (Cieślar et al. 2002; Mucha et al. 2006). Massage of paralysed muscles of the face, above all of muscle of the circular bow watch and the mouth should be conducted painlessly (Magiera, Walaszek 2003). However physical treatments or the pharmacotherapy won't replace the move conscious of the most important activity he is which alone of muscles for us. Therefore the kinesipathy is here very valid for the component on the way to full moving back oneself of symptoms of illness. The patient should alone in front of a mirror perform proper exercises which the physiotherapist will commission to him. Letting movements are very valid for it for reconstructing the correct function of muscles of the face on the side paralysed.

We are ranking among exercises which the patient alone can carry out e.g. whistling, blowing through the straw into the bottle with water, blowing balloon, stuffing the cheek with the tongue, frowning, pronouncing sound (e.g.: B, O, P, U), wide opening the mouth, baring teeth. The patient should perform these exercises several times per day. We can get very good effects during the individual work with the patient. Presence of the psychotherapist which exactly is discussing and showing exercises is helping and motivating the sick person. The patient knows how correctly to make a move, and in addition the psychotherapist can additionally stimulate the works of the muscles of the sick person. An enough already spread PNF concept is presenting such possibilities to us. This method enables to reconstruct the motor function of the patient by stimulating proprioceptors and exteroceptors of the body. PNF therapy perceives the patient as a whole, that is isn't dealing with only a malfunctioning body part but also is using healthy his parties. A fact that PNF is a completely painless and friendly method is a great plus for the patient. She is leading to the highest level of educating the sick person and to active his involvements in making plans for therapy and the further rehabilitation. On account of wide abilities of the influence, the PNF method is applied with patients with neurological problems but also at the orthopedic ward, of pediatrics, as well as at the orthotherapy (Kiebzak et al. 2006; Dominiek et al. 2009) (Fig. 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12).



Fig. 2 Raising eyelids is a task of patient (like at being surprised). The psychotherapist is combatting or support the movement. (musculus epicranius)



Fig. 3 Knitting one's brows is a task of patient. The psychotherapist is combatting or support the movement. (musculus corrugator supercilii)

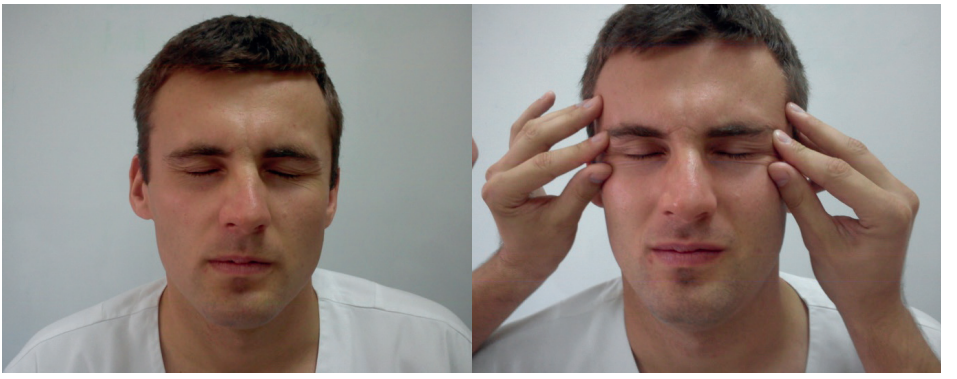


Fig. 4 Tightening eyes is a task of patient. The psychotherapist is combating or support the movement. (musculus orbicularis oculi)



Fig. 5 The patient task is to wrinkle the nose (kind of something evil-smelling). The psychotherapist is combatting or support the movement. (musculus nasali)



Fig. 6 The patient task is to smile. The psychotherapist is combatting or support the movement. (musculus risorius, musculus zygomaticus)



Fig. 7 Doing the small beak is a task of patient. The psychotherapist is combatting or support the movement. (musculus orbicularis oris)



Fig. 8 The patient task squinting is (as if the sun dazzled into eyes). Therapist's task is to counteract or assist in movement. (musculus orbicularis oculi)



Fig. 9 The patient task holding is with mouth tongue depressor. The psychotherapist is making rather small moves left and to the right with tongue depressor. (musculus orbicularis oris)

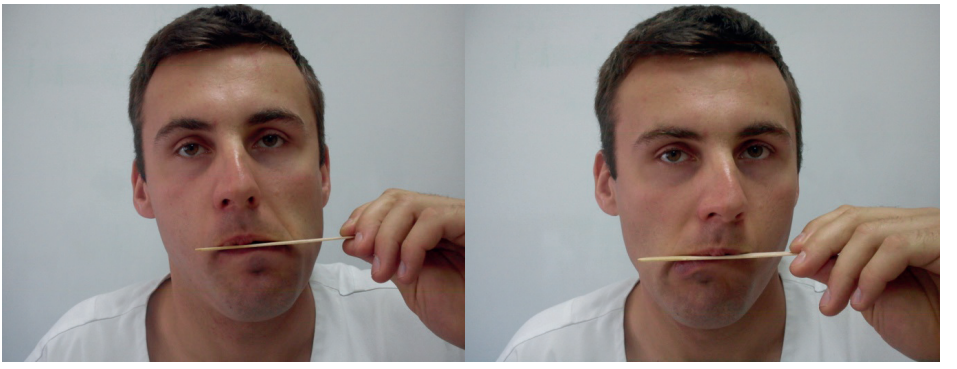


Fig. 10 Of patient transferring once is a task upper time of the lower lip in direction to the hand and back. (musculus orbicularis oris)



Fig. 11 Terapeut is drawing aside with tongue depressor upper lip on the ill side. Pressing the tongue depressor to teeth is setting the patient (move like at shaving the moustache off). (musculus orbicularis oris)



Fig. 12 The psychotherapist is drawing aside with tongue depressor lower lip on the ill side. Pressing the tongue depressor to teeth is setting the patient (move like at shaving the beard off). (musculus orbicularis oris)

Discussion

If a proper treatment is applied negotiations are rather favourable. The patient is coming back to the efficiency after about two months, however it is conditioned individually and depends on the cause of paralysis. Here an age of the patient is outweighing. Younger persons as a rule more quickly are coming back to the efficiency than elderly people. However Obrębowski and Pruszewicz are underlining, that if in the period of 2 first weeks manifestations of recovering, i.e. an improvement in the muscle tone, an appearance of trace active movements and an improvement in findings aren't observed, one should consider the surgical treatment (Obrębowski, Pruszewicz, 2001; Choi et al. 2013). Krukowska and others conducted the assessment of the impact of physiotherapy to the regeneration of the facial nerve. Excitabilities of the nerve are pointing at the being of indicating the rate of the accommodation, i.e. the evaluation based on the strength of the electric stimulus needed for provoking a cramp. It

enables the early evaluation of injuring the facial nerve and keeping up with his acrobatics, negotiations and optimum planning physiotherapy are facilitating sick persons with injuring the facial nerve. Amongst 70 patients were taken planned containing therapy exercises of facial muscles of the face, automatic massage (so-called face-taping exercise), manual massage, sollux, impulse magnetic field of the low frequency, laser biostimulation. An improvement was get amongst patients in the time from 2 up to six weeks of the treatment (Czernicki et al. 2010). Peitersen applied the neuromuscular re-education with persons with paralysing muscles of the face. The patient performed exercises recommended by him in front of a mirror from 5 to 10 times per day getting the improvement after 14 treatment days (Peitersen, 1982). Examinations conducted by Kiebzaka, in which he analyzed dynamics of the return of the function of facial muscles at children with symptoms of the facial palsy, were shown, that had get good results in the group where neurophysiological methods of Vojty streamlining were applied, PNF and Castillo-Morales'a. (Kiebzak et al. 2006).

Notifications of other authors are confirming the rightness of the associated drug treatment and the rehabilitation what is supporting optimal conditions of the regeneration of the nerve, reinerwację and return of the activity of the mime face (Matos 2011; Allufi et al. 2012).

Conclusions

1. PNF method plays a very important role on the rehabilitation stage facial palsy.
2. The facial palsy kinesiotherapy should be started as soon as possible.
3. The rehabilitation in the significant degree influences dynamics of the return of the activity of paralysed facial muscles.

Bibliography

1. Adamczak I. (2003) Ocena skuteczności postępowania fizykalno-usprawniającego w porażeniu nerwu twarzowego u dzieci. „Baln. Pol.", 1: 66-68.
2. Aluffi P., Baricich A., Cabrio C., Cisari C., Paggio R. (2012) Peripheral facial nerve palsy: how effective is rehabilitation? "Otol Neurotol.", 33(7): 1118-1126.
3. Bahar G., Feinmesser R., Nageris B., Popovtzer A., Oestreicher-Kedemy., Raveh E. (2005) Facial palsy associated with acute otitis media. Otolaryngol. Head Neck surg., 132: 327-329.
4. Bakuła S., Biernacka A., Deja A., Jabłońska-Brudło J. (2002) Fizjoterapia w porażeniu Bella. „Fizjoterapia", 10: 90-100.
5. Bożek-Sochacka A., Kwolek A., Pabis M., Zwolińska J. (2004) Postępowanie w obwodowym porażeniu nerwu twarzowego. „Post. Reh.", 4: 45-48.
6. Brzoznowski W., Czaczkowski J., Garsta E., Jabłońska-Brudło J., Kuczkowski J., Narożny W. (2010) Zaburzenie czynności nerwu twarzowego w ostrym zapaleniu ucha środkowego. „Ann. Acad. Med. Gedan.", 40: 55–63.
7. Byme PJ., Chu EA. (2008) Treatment considerations in facial paralysis. "Facial. Plast. Surg.", 2: 164-169.
8. Choi HJ, Choi SK, Rhee BA. (2013) Microvascular decompression for hemifacial spasm due to four offending vessels: a case report. "Turk Neurosurg". 23(2): 241-244.

9. Cieślar G., Krawczyk-Krupka A., Sieroń A. (2002) Zastosowanie pól magnetycznych w medycynie. Alfa medica-Press, Bielsko-Biała.
10. Czernicki J., Krukowska J., Woldańska-Okońska M. (2010) Wpływ fizjoterapii na regenerację nerwu twarzowego. „Fizjoterapia", 3: 3-14.
11. Dominiek B., Math B., Susan A. (2009) PNF w praktyce. DB Publishing.
12. Finsterer J. (2008) Management of peripheral facial nerve palsy. "Eur. Arch. Otorhinolaryngol.", 265: 743-752.
13. Huber J., Nowa S., Obrębowski A., Witkowska A., Zagłoba A. (2008) Badania neurofizjologiczne u chorych z uszkodzeniami włókien ruchowych nerwu twarzowego o różnej etiologii. „Nowiny Lekarskie", 77(1): 12–18.
14. Kiebzak W., Szmigiel C., Śliwiński Z., Zięba M. (2006) Porównanie koncepcji leczenia usprawniającego w uszkodzeniach nerwu twarzowego u dzieci. „Fizjoter. Pol.", 6: 22-26.
15. Low J., Reed A., Robertson V., Ward A. (2009) Fizykoterapia. Aspekty kliniczne i biofizyczne. Elsevier Urban&Partner, Wrocław.
16. Magiera L., Walaszek R. (2003) Masaż sportowy z elementami odnowy biologicznej. Biosport, Kraków.
17. Matos C. (2011) Peripheral facial paralysis: the role of physical medicine and rehabilitation. "Acta Med Port", 4: 907-914.
18. Mucha R., Pasek J., Sieroń A. (2006) Magnetostymulacja – nowoczesna forma terapii w medycynie i rehabilitacji. „Fizjoterapia", 4: 3-8.
19. Obrębowski A., Pruszewicz A. (2001) Laryngologiczne doświadczenia w leczeniu obwodowych porażeń nerwu twarzowego typu Bella. „Neurol. Neurochir. Pol.", 4: 79-85.
20. Pawełczyk M., Snarska-Radziejewska A. (1995) Ocena skuteczności rehabilitacji w samoistnych i pourazowych porażeniach nerwu twarzowego. „Otolaryng. Pol.", 19: 394-398.
21. Pietersen E. (1982) The natural history of Bell's palsy. "Am. Otol.", 4: 107-111.
22. Peitersen E. (2002) Bell`s palsy: The sponaneous course of 2,500 peripheral facial nerve palsies of different etiologies. "Acta Otolaryngol.", 549: 4-30.
23. Stew B., Williams H. (2013) Modern management of facial palsy: a review of current literature. "Br J Gen Pract.", 63(607): 109-110.

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Chapter II

Therapy and Mobilization of Disabled Persons

Terapia i aktywizacja osób z niepełnosprawnością

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The origins and development of occupational therapy workshops in Poland

Początki i rozwój warsztatów terapii zajęciowej w Polsce

Summary
The paper presents the process of creation and development of occupational therapy workshops in Poland, as well as their role in the rehabilitation of people with disabilities - participants of occupational therapy.
The first occupational therapy workshops were established in Poland in 1992. Occupational therapy workshop is an organizational and financial outpost, creating for people with disabilities who are unable to work the possibility of social and vocational rehabilitation of gaining or regaining the skills necessary for employment. The main goal of occupational therapy is to enable the participants to fully participate in normal life.
After 2006 there has been a marked decline in the number of start-up workshops, which is associated with a reduction in funding of their activities from PFRON's budgetary means to 90% of the cost.
The potential of the workshop in Poland would be used better if there were more vocational development and training centre. The vocational and social rehabilitation of people with disabilities has been statutory supported for twenty. But there was no proposed system for graduates of occupational therapy workshops, which means that only a very small number of them start their careers. But surely the participation in the activities of occupational therapy workshops has a positive influence on the participants, giving them a chance for a place in the society and, therefore, the role of workshops in the rehabilitation treatment in Poland cannot be overestimated.

Key words: occupational therapy workshops, disability, vocational and social rehabilitation, occupational therapy.

Streszczenie
Celem pracy jest przedstawienie procesu powstawania i rozwoju warsztatów terapii zajęciowej w Polsce, jak również ich roli w procesie rewalidacji osób niepełnosprawnych – uczestników terapii zajęciowej.
Pierwsze warsztaty terapii zajęciowej utworzono w Polsce w 1992 roku. Warsztat terapii zajęciowej oznacza wyodrębnioną organizacyjnie i finansowo placówkę, stwarzającą osobom niepełnosprawnym niezdolnym do podjęcia pracy możliwość rehabilitacji społecznej i zawodowej w zakresie pozyskania lub przywracania

umiejętności niezbędnych do podjęcia zatrudnienia. Głównym celem terapii zajęciowej jest umożliwienie uczestnikom pełnego udziału w normalnym życiu.
Po 2006 roku nastąpił wyraźny spadek liczby nowo powstałych warsztatów, co jest związane ze zmniejszeniem dofinansowania ich działalności ze środków PFRON do 90% kosztów.
Potencjał warsztatów, byłby lepiej wykorzystany gdyby w Polsce powstało więcej zakładów aktywności zawodowej. Przez dwadzieścia lat ustawowego wspierania rehabilitacji zawodowej i społecznej osób niepełnosprawnych nie doszło do wypracowania systemowej propozycji dla absolwentów warsztatów terapii zajęciowej, co powoduje, że tylko ich znikoma liczba podejmuje rocznie pracę zawodową. Jednak z pewnością uczestnictwo w zajęciach warsztatów terapii zajęciowej pozytywnie wpływa na uczestników, daje im szansę na należne miejsce w społeczeństwie i dlatego roli warsztatów terapii w systemie rehabilitacji w Polsce nie sposób przecenić.

Słowa kluczowe: warsztat terapii zajęciowej, niepełnosprawność, rehabilitacja zawodowa i społeczna, terapia zajęciowa.

Introduction

The Pope John Paul II has repeatedly stressed that it was "persons in any way impaired are particularly entitled to our respect, appreciation and love, and that the physical or mental health does not add or subtract anything from a person, what is more, the suffering can give it special rights against us"(Szostkiewicz 1991, p.100). The right to rehabilitation is certainly one of those special rights.

For years, the number of persons with disabilities in the world is increasing. This trend is also observed in Poland. This multitude of people with disabilities confront the societies with a task to adapt to their specific needs. Adaptation is the duty of every society, and the very important element is the rehabilitation of the disabled.

The paper presents the process of creation and development of occupational therapy workshops in Poland, as well as their role in the rehabilitation of people with disabilities - participants of occupational therapy.

The principle of full participation and equality of persons with disabilities in society can be realized only in the broad sense of rehabilitation. In the light of the Act of 27 August 1997 on the vocational and social rehabilitation of disabled persons (Journal of Laws of 2011, No. 127, item. 721, with further amendments) a rehabilitation of the disabled person is defined by a set of activities such as organizational, medical, psychological, technical, training, educational and social. They are necessary to achieve, with the active participation of disabled the highest possible level of functioning, life quality and social inclusion.

An important form of activity supporting the process of social and vocational rehabilitation in Poland, is the participation of people with disabilities in occupational therapy workshops. The Occupational Therapy Workshops its roots date back to the early 90s. The legal basis for their creation gave Act of 9 May 1991 "on employment and vocational rehabilitation of persons with disabilities" (Journal of Laws of 1991 No. 46, item. 201), and later the Ordination of Minister of Labour and Social Policy of 8 September 1992 on the creation, operation and financing of occupational therapy workshops (Journal of Laws of 1992, No. 71, item. 357).

The first occupational therapy workshop was established in Poland in 1992. In the early years the objective of these institutions was rehabilitation aimed at overall development of each participant, improvement of personal resourcefulness, psycho-social functioning and social adaptation (social inclusion). Therapy workshops functioned as a form of social rehabilitation. The source of funding was National Fund for the Rehabilitation of Disabled.

Discussion

The intention of the legislature was to organize occupational therapy workshops by sheltered work facility, which was meant to provide comprehensive rehabilitation through the close relationship of social rehabilitation of the disabled with an economic operator. The selection of participants for the workshops were made taking into account the abilities and negotiations in the rehabilitation process for regaining the ability to work. Despite the statutory requirement, only part of the sheltered work facility established occupational therapy workshops, but it started to grow much interest in this form of social rehabilitation of other actors, especially non - governmental.

Despite the fact that foundations of the system of rehabilitation in 1991 was assumed that the main initiators of the creation of therapy workshops would be sheltered work facility the 2008 structure units of the workshop was as follows:

- non-governmental organization - 65.3%
- local government (municipality, district) - 10.4%
- establishment of a social assistance - 7.6%
- religious organization - 6.3%
- sheltered work facility - 5.2%
- educational institution - 1.3%
- the employer open labor market - 0.9%
- health care facility - 0.4%
- another entity - 1.3% (Analiza ..., 2009).

The principles and objectives of the workshop began to undergo a significant change. According to the Ordination of the Minister of Labour and Social Policy of 30 September 2002 (Journal of Laws No. 167, item 2002 position 1376) occupational therapy workshop were to carry out tasks not only in the field of social rehabilitation and employment but aimed at the overall development and improvement of people with disabilities, including the increased workshop orientation for preparation of participants for work. Currently, the detailed rules for the operation of occupational therapy workshops are contained in the Act of 27 August 1997, "the vocational and social rehabilitation and employment of persons with disabilities, as amended (Journal of Laws of 2011, Nr.127,) and by the Ordination of the Minister of economy, Labour and Social Policy of 25 March 2004 on "Occupational Therapy Workshops" (Journal of Laws of 2004. No. 63). Occupational therapy workshop is organisationally and financially separate facility causing the disabled and unable to work the possibility of social and vocational rehabilitation for raising or restoring skills necessary for employment. (Ar.10a.paragraph 1 of the Act of August 27, 1997 "for vocational and social rehabilitation and employment of persons

with disabilities, as amended Acts. Laws of 2011, Nr.127). The workshops are day care centres, the duration of activities in the workshop is not longer than 7 hours per day and 35 hours a week. The activity of the workshop is non-profit. The income derived from the sale of products resulting from the work done by the participants during the course is allocated to cover the expenses related to their social integration. The workshops implement projects aimed at personal resourcefulness, stimulate the activity in a group and the ability to shape social roles. (Sobczyk, Sobótka 2011 p.46).

According to the article 10 section 3 of the mentioned above Act, treatment is carried out on the basis of an individual rehabilitation program, which defines;

1) form of rehabilitation

2) the scope of rehabilitation

3) the method and extent of learning ability to perform activities of daily living and personal resourcefulness as well as mental and physical fitness, and basic and specialized skills that enable participation in vocational training or work

4) cooperation with the family or carers

5) the planned effects of rehabilitation

6) the responsible for the implementation of the rehabilitation program.

The program committee consisting of workshop manager and experts ensure the correctness of rehabilitation process and implementation of the objectives of therapeutic workshop (Article 10 paragraph 4 of the mentioned Act).

The program committee not less frequently than once every three years make a comprehensive evaluation of the implementation of individual rehabilitation programs among participants, providing indications for the possible extension of the participation in the workshop, taking jobs or directing to appropriate support centre. The program committee of workshop individually qualify the participants considering their interests and abilities to determine the conduct with each participant. The therapy is conducted using appropriate methods of work, forms of activities and ways of their implementation in accordance with the main principles of working with people with disabilities.

A wide range of methods and techniques of occupational therapy can help you reach all of the participants, allowing them to express themselves, develop individual interests and talents, and also by reducing dependence on others, acknowledge their own usefulness. The basis of efficacy is primarily regularity of sessions, active participation of all participants and their subjective treatment (Kott 2002). Occupational therapy is a comprehensive intervention that focuses on enabling the beneficiaries (clients) to achieve a satisfactory level of functioning (Rogers 2005).

One of the form of rehabilitation is the occupational therapy – healing with work, performance, creativity. The main goal of occupational therapy is to enable participants to participate fully in normal life. The starting point is - the assumption that dealing with something meaningful improves mental and physical condition of a human, which is easier for them to return “to the society”. The aim of occupational therapy is to help achieve the maximum level of functional independence, higher levels of self-esteem through the development of skills, which level was reduced as a result of illness, accident or disability. (Perrin 2005). An important part of rehabilitation training workshop is the implementation of economical training, aimed at spending money, performing simple

math, counting the change, planning, purchasing products or items needed so they can make their own choices and manage means of payment. The participants may receive funding intended for the training in the amount not exceeding 20% of the minimum wage. The psychotherapy classes and physical rehabilitation, as well as activities in the field of culture, tourism and leisure are crucial in the whole process of rehabilitation.

The workshop participants may be legally persons with significant or moderate disability and they have to own a certificate of disability: an indication for occupational therapy.

The analysis of the activities of occupational therapy workshops conducted in 2008 shows that the main type of dysfunction occurring among participants were mental retardation, almost one-fifth are mental illnesses and the third in turn is musculoskeletal disorder (Fig. 1).

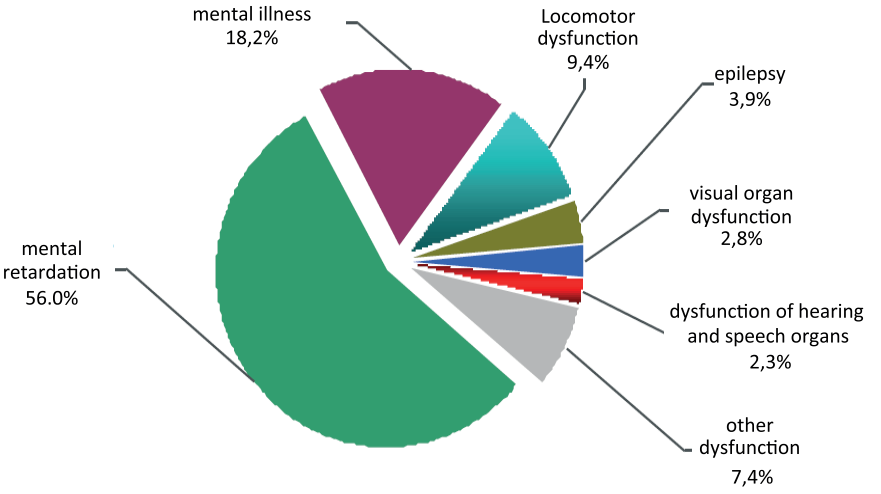


Fig. 1 The main type of dysfunction of participants occupational therapy workshops

Expenses, operations and costs resulting from an increase in the number of participants, are co-funded by National Fund for the Rehabilitation of Disabled (PFRON) and by the local government or other sources, which means solidarity in bearing the costs of development and operation of a workshop by PFRON and local governments. The procedure for the transfer of funds to the workshop stems from the ordinance of Council of Ministers of 13 May 2003 based on the algorithm of PFRON transfer to provincial and district governments (Journal of Laws No. 88, item. 808, as amended.). In accordance with Art. 68c. Act of August 27, 1997 for social and vocational rehabilitation and employment of persons with disabilities, as amended, the maximum grant from the PFRON operating expenses in 2006 amounted to - 100% of these costs, in 2007 - 95%, in 2008 and beyond the maximum grant from the Rehabilitation Fund, set at 90% of these

costs. Changes in the funding resulted, inter alia, the decentralization of tasks of public administration and local government willingness to engage in financing activities of the workshop, however, led to a significant reduction in the growth rate of the number of workshops in Poland after 2006.

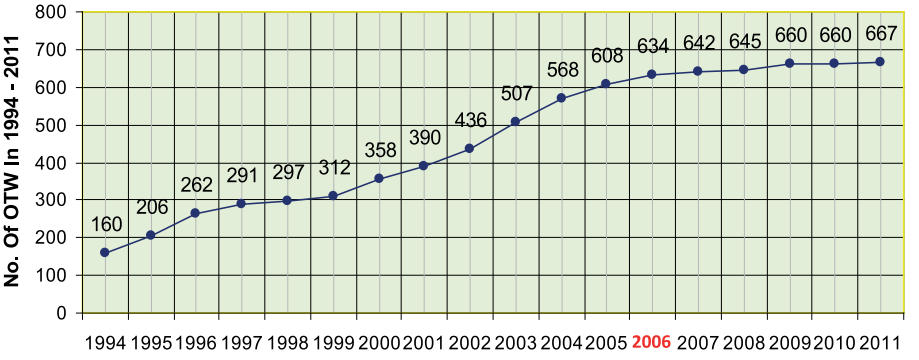


Fig. 2 Number of OTW between 1994 and 2011
(Source: based on PFRON data)

Presented in Fig. 2 and Tab. 1, the dynamics of changes in the number of workshops, shows a clear decline in growth after 2006, which was the last year in which PFRON 100% financed the activities of these institutions. In March 2013, according to data contained in the database of occupational therapy workshops, created under the project "Support Centre for Social Economy" carried out by the Foundation for Social and Economic Initiatives - Economic, have been 685 workshops. It can be assumed that in the coming years with the current legal environment, the falling trend of increase in the number of newly created workshop will be maintained.

Tab. 1 Number of OTW between 1994 and 2011

L. p.	YEAR	Workshops	
		No.	increase in %
1.	1994	160	0,0
2.	1995	206	28,8
3.	1996	262	27,2
4.	1997	291	11,1
5.	1998	297	2,1
6.	1999	312	5,1
7.	2000	358	14,7
8.	2001	390	8,9
9.	2002	436	11,8
10.	2003	507	16,3
11.	2004	568	12,0
12.	2005	608	7,0
13.	2006	634	4,2
14.	2007	642	1,1
15.	2008	645	0,5
16.	2009	660	2,3
17.	2010	660	0,0
18.	2011	667	1,1

Sources:

1. Information of the Polish Government on action taken to implement the resolution of the Sejm of the Polish Republic on 1 August 1997 Bill of Rights of Persons with Disabilities (Sejm nr.742 of 12 September 2012)
2. Audit Report on the Occupational Therapy Workshops. Comparative analysis of research conducted in 2003 and 2005 PFRON, Warsaw 2008
3. The analysis of occupational therapy workshops in 2008, the INDICATOR Marketing Research, Warsaw 2009.

Today, occupational rehabilitation system in Poland consists of four different roles, but mutually complementary elements:

– occupational therapy workshops (OTW),
– work inclusion institution (ZAZ),
– sheltered work facility (ZPCh),
– employer's open market operation (ORP).

The idea of complementarity of the system lies in the fact that each of its components should fulfil a different role in the rehabilitation process, and at the same time should be followed by "flow" of people with disabilities in the position of people at risk of social exclusion through different parts of the system, ie, OTW, ZAZ, ZPCh, until open labor market and full society integration (Majewski et al. 2007). At the core of this system is rehabilitation of people with disabilities, aiming to raise by them or restore them with the skills necessary for employment.

Occupational therapy workshops represent the type of social economy in which economic activity occurs, but it is rather marginal and is just one of the tools of rehabilitation of participants, the work for them has to be only one of the proposed forms of therapy. Certainly for people with disabilities the most important thing is the ability to take up paid work, but therapy workshops have no effect on a plan for its participants, the entity determines the potential hiring. Work inclusion institutions that had been the hope of finding work by graduates of occupational therapy workshops, but in practice did not meet expectations in due to the very low amount thereof, in late 2011, they operated only at no. of 65. This is because the creation and maintenance of ZAZ generates considerable costs, inadequate for the number of jobs, which in turn causes little interest in local development of these institutions. Unfortunately, over for 20 years of legal support professional and social rehabilitation of people with disabilities, we have not worked out the system proposed "sequel" to the participants of occupational therapy, which means that only the small number (less than 2%) take the job (Sobczyk, Sobótka 2011).

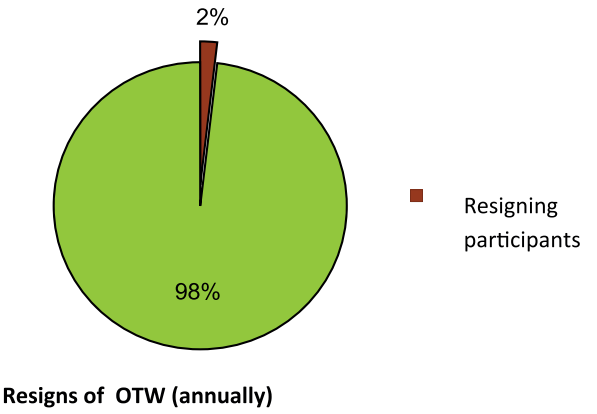


Fig. 3 The participants annually completing occupational therapy workshop – undertaking employment

Taking the index of number of workshop participants who undertook paid work, as a criterion for assessing the effectiveness of the rehabilitation process in the workshops, which often happens is biased, because this form of mobilization of people with disabilities is not provided with adequate legal instruments that would facilitate finding employment for people with disabilities, after a period of revalidation workshops. To increase efficiency in the field of occupational rehabilitation, you can refer to good practice in this area in the European Union.

An alternative to the low number of occupational therapy workshops created in Poland, may be increasing number of social cooperatives. The social cooperative combines the features of cooperative work and non-governmental charitable organization. It operates a two-fold:

– social - through vocational and social reintegration of its members,
– economical - by conducting business on the basis of joint work, the activities are subject to a non profit.

This attribute, which consists of combining the social and economical function causes that social cooperative becomes legally very attractive entity, from the point of view of social and vocational rehabilitation of people with disabilities, which on a large scale should be used in the process (Sobczyk, Sobótka 2011).

It also remains to be hoped that social cooperatives are an alternative to work inclusion institutions and in the future will become another important link in the process of hiring people with disabilities, graduate occupational therapy workshops, you should rely on their development. It would be desirable occurrence if the social cooperatives, became the place of implementation of the next phase of rehabilitation participants associated with the adoption of their employment.

We have had 20 years of creating and operating work of therapy workshops, centres to support the rehabilitation process in Poland. Workshops adjusting therapy and education targeted at people with disabilities, according to their individual needs, meet the law's people, to all-round development. The participation of people with disabilities in classes workshops for them is an important form of activity, increasing their sense of self-worth and usefulness, they can find their place in life and their rightful place in society.

"Nothing twice will happen," as Wislawa Szymborska wrote, and the past 20 years is yet history, we can still believe that next years will be fruitful and not without hope, for occupational therapy workshops, educational places yet so deeply rooted in the system of social rehabilitation and employment in Poland.

Results

1. Assumptions of social policy for people with disabilities in Poland, moving towards a comprehensive approach, taking into account their needs, physical, mental, social, inclusive.
2. Occupational therapy workshops by realizing the tasks related to social and vocational rehabilitation aimed at overall development and improvement of the efficiency necessary for the disabled person to an independent, autonomous and active life, have become an important link in the system of rehabilitation in Poland.
3. The potential of the workshop, it would be better used if the creation of a larger number of work inclusion institutions have increase.
4. Lack of system solutions on the proposal for graduates of therapy workshops allowing them to take up employment after a period of rehabilitation in workshops, makes only a small number of them find their place in a very difficult job market.
5. Workshops adjusting therapy and education targeted at people with disabilities, according to their individual needs, meet the law of the persons to comprehensive development.
6. Therapy workshops for the past twenty years of functioning in the area of rehabilitation of the disabled, have gained immense potential operators effectively in the social integration of people with disabilities.
7. Participation in the activities of occupational therapy workshops has a positive impact on participants, meet the need for acceptance, increase their self-esteem and utilities, rehabilitation and develop their interest in the creative possibilities it gives them a chance to achieve rightful place in society.
8. In the future social cooperatives are likely to become the next important link in the process of hiring graduates of occupational therapy workshops.

Bibliography

1. Analiza działalności warsztatów terapii zajęciowej w 2008 r. (2009) Centrum Badań Marketingowych INDICATOR, Warszawa.
2. Informacja Rządu Rzeczypospolitej Polskiej o działaniach podejmowanych na rzecz realizacji uchwały Sejmu Rzeczpospolitej Polskiej z dnia 1 sierpnia 1997 r. Karta Praw Osób Niepełnosprawnych (druk sejmowy nr.742 z dnia 12 września 2012 r.).
3. Kott T. (2002) Zajęcia pozalekcyjne i terapia zajęciowa z osobami o obniżonej sprawności umysłowej, Wyd. APS, Warszawa.
4. Majewski T., Miżejewski C., Sobczak W. (2007) Gmina a niepełnosprawność Krajowa Izba Gospodarczo – Rehabilitacyjna, Warszawa.
5. Perrin T. (2005) The role of occupational therapist. "Psychiatry" 4, 2: 93-94.
6. Raport z badania Warsztatów Terapii Zajęciowej. Analiza porównawcza badań realizowanych w 2003 i 2005 r. (2008) PFRON, Warszawa.
7. Rozporządzenie Ministra Pracy i Polityki Socjalnej z 8 września 1992 r. w sprawie zasad tworzenia, działania i finansowania warsztatów terapii zajęciowej (Dz. U. z 1992 r., Nr 71, poz. 357).
8. Rozporządzenie Ministra Pracy i Polityki Społecznej z dnia 30 września 2002 r. (Dz. U. z 2002 Nr 167 poz. 1376).
9. Rozporządzenie Ministra Gospodarki Pracy i Polityki Społecznej z dnia 25 marca 2004 roku w sprawie „Warsztatów Terapii Zajęciowej" (Dz. U. z 2004r. Nr 63).
10. Rozporządzenie Rady Ministrów z dnia 13 maja 2003 r. w sprawie algorytmu przekazywania środków Państwowego Funduszu Rehabilitacji Osób Niepełnosprawnych samorządom wojewódzkim i powiatowym (Dz. U. Nr 88, poz. 808 z późn. zm.).
11. Rogers SL. (2005) Portrait of occupational therapy. "Journal of Interpersonal Care" 19, 1: 70-79
12. Sobczyk M., Sobótka A. red. (2011) Spółdzielnia socjalna osób niepełnosprawnych, Poradnik Krajowy Związek Rewizyjny Spółdzielni Inwalidów i Spółdzielni Niewidomych, Warszawa 2011.
13. Szostkiewicz Z. (1991) Nauczanie Jana Pawła II w dekadzie ONZ poświęconej osobom niepełnosprawnym. „Problemy rehabilitacji zawodowej" 1-4: 100.
14. Ustawa z dnia 9 maja 1991 r. „o zatrudnieniu i rehabilitacji zawodowej osób niepełnosprawnych" (Dz. U. z 1991 r. Nr 46, poz. 201).
15. Ustawa z dnia 27 sierpnia 1997 r. „o rehabilitacji zawodowej i społecznej oraz zatrudnieniu osób niepełnosprawnych wraz z późniejszymi zmianami (Dz. U. z 2011r, Nr.127).

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Diagnosis, rehabilitation and education of children with cerebral palsy according to the concept of Conductive Education

Diagnoza, rehabilitacja i edukacja dzieci z mózgowym porażeniem dziecięcym w koncepcji Nauczania Kierowanego

Summary
It is estimated that ca. 60 thousand children are affected with CP In Poland. Due to the complexity, variety of symptoms and varying degrees of severity as well as multiplicity of coexisting disorders, it is necessary to surround every child suffering from CP with an appropriate complex care. Among many methods of improvement Conductive Education adopts a holistic approach to disabled children and their families by integrating therapeutical activities, with social and educational as well. It is a complete, multilateral response to the needs of children with CP. Multilateral diagnosis, along with the improvement of motor functions combined with simultaneous intellectual development and social life brings visible results. Description of multilateral diagnosis, education, rehabilitation, with a special regard to motor therapy in the concept of Conductive Education is the subject of this paper.

Key words: Child Cerebral Palsy, The System of Conductive Education, multilateral diagnosis, improvement, rehabilitation

Streszczenie
Szacuje się że w Polsce jest około 60 tysięcy dzieci dotkniętych dziecięcym porażeniem mózgowym. Ze względu na złożoność, różnorodność objawów i różny stopień ich nasilenia, a także wielość współistniejących zaburzeń konieczne staje się objęcie każdego dziecka odpowiednią kompleksową pomocą. Wśród wielu metod usprawniania System Nauczania Kierowanego przyjmując holistyczne podejście do dziecka niepełnosprawnego i jego rodziny integruje działania rehabilitacyjno-edukacyjno-społeczne. Stanowi pełną, wieloprofilową odpowiedź na potrzeby dziecka z mpd. Wielprofilowa diagnoza, usprawnianie funkcji ruchowych połączone z jednoczesnym rozwojem intelektualnym i społecznym przynosi widoczne efekty. Opis wieloprofilowej diagnozy, edukacji, rehabilitacji, ze szczególnym uwzględnieniem usprawniania ruchowego w koncepcji Nauczania Kierowanego jest przedmiotem prezentowanego artykułu.

Słowa kluczowe: dziecięce porażenie mózgowe, System Nauczania Kierowanego, wieloprofilowa diagnoza, usprawnianie, rehabilitacja

Introduction

Cerebral palsy (CP) was first described, in one of its many kinds, by an English orthopedist William John Little in the nineteenth century, and as a consequence, for a long time it was originally called by his name − "Little's disease". The name 'cerebral

palsy', which was accepted by the American Academy of Cerebral Palsy, was introduced in 1888 by W. Osler. In Poland, this term operates in the medical jargon since the proceedings of The Neurological Section of Child Care of the Polish Neurological Society, which took place in Gdańsk in 1965 (Mihilewicz, 2006).

Due to the enormous variety of symptoms and varying degrees of severity and multiplicity of coexisting disorders in cerebral palsy, there is a wide variety of different definitions and clinical divisions of CP used at large; accordingly there are different approaches to the therapy and rehabilitation of patients with CP. Unfortunately, establishing one universal definition of CP, classification of characteristic features, and therapeutical process of rehabilitation is still difficult.

In Europe the most widely used definition, drafted in 1993 in Ljubljana, defines CP as "an umbrella term covering a permanent, but changing with age, variety of motor and posture disorders co-existing with other symptoms (epilepsy, mental retardation, impaired vision, hearing, and speech) caused by a permanent brain damage occurring at an unfinished stage of development " (Kułakowska, 2003, p.269).

The damage of undeveloped brain causing CP can arise from a variety of reasons concerning the structures of the brain which regulate motor activity of humans (pyramidal tracts, extrapyramidal system, and cerebellum) and leads to numerous disorders pertaining to: speech and communication, sight or hearing, equanimity, level of mental development; and is, above all, the dominant cause of disharmony in the development of motor functions, resulting in kinetic dysfunctions, paresis, and asymmetries (Kluczyk , Wyrzykowska 2010).

Thus, a necessary early and in-depth diagnosis has to take place and a subsequent process of rehabilitation, learning, and education, containing the improvement of motor functions together with other areas, in accordance with the proven thesis that all areas of development of the central nervous system are subjected to simultaneous integration processes, which are intensely interactive, although spread in time.

Diagnosis, which is defined as "a recognition of the current state by ascribing a particular type and species to the causal and comprehensive explanation of this state, which determines its current phase in order to anticipate the further development" (Ziemski, 1973, p.68), is a process of active search for the information necessary for a decision and efforts to change the current status of psychosocial development. A good diagnosis should be: positive, prophylactic, therapeutical, comprehensive, and directing the process of assistance and correction of the development (Marcinkowska, 2005). Improvement is an essential element of a comprehensive therapy. According to Grossman the essence of rehabilitation of children with CP is to stimulate multi-development of all disturbed areas. Improvement is therefore a functional part of rehabilitation, leading to maximum independence in physical, social or professional area (Zabłocki, 1998), constituting active learning of all necessary tasks in life, according to age and psychomotor possibility (Król, 2010).

That is why the care over a disabled child makes sense insofar as it solves the problems over the entire period of maturation, i.e., up to 18 years of age and longer, and the process of improvement and rehabilitation is integrated similarly to the integration of the symptoms of the child. Thus, if symptoms pertain only to the kinetic movement of

the child with CP, physical rehabilitation can not be sufficiently effective. The process of improving the movement should entail education as well. Integration of three areas of therapy (treatment, rehabilitation and school education) in the form of integrated rehabilitation and education is the basis for the concept of Conductive Education.

Conductive Education is characterized by a holistic approach to children with disabilities and their families, and provides a complete, multilateral response to their complex needs (Król, 2001).

Description of multilateral diagnosis, education, rehabilitation, with a special regard to motor therapy in the concept of Conductive Education is the subject of this paper, in which specific issues will be presented in each of its parts, namely:

– Cerebral palsy among children,
– Conductive Education as a comprehensive approach to child therapy with cerebral palsy, a description of the diagnosis, rehabilitation, and education with regard to the improvement of motor development.

Cerebral Palsy among children

In Poland two-third of every 1000 living new-born infants are born with cerebral palsy (CP), it is estimated that ca. 60 thousand children are affected with this disability. However, presenting reliable data concerning the epidemiology, is problematic indeed because the direct diagnosis of cerebral palsy after birth is very difficult, and becomes possible only later, since it is very different for various forms of CP at particular periods of life of the child (usually ca. the first year of life).

Causes of cerebral palsy may be divided into three main groups, depending on the timing of:

1) intra-uterine infections of the central nervous system, birth defects of the brain, toxic damage to the fetus and fetal alcohol syndrome;
2) perinatal causes, including hypoxic-ischemic states of neonates born with periventricular leukomalacia and intraventricular ischemia usually associated with premature births;
3) postnatal causes, including head trauma, inflammation, meningitis and brain damage, occurring during its dynamic development (Bełza, 2010; Mazanek, 2003).

Clinical picture depends mostly on the development and maturity of the Central Nervous System at the moment of activation of harmful factors (Loska, 2005).

The infant brain is in the unfinished stage of development, which means that due to the capacity of the brain tissue and brain plasticity involving the possibility of diversification and adaptation of healthy areas of the brain to the stimuli coming from the environment, children can still learn certain psychomotor functions.

Damage in the Central Nervous System affects the motor system of the child, which, in turn, disturbs motor co-ordination, stability, and causes abnormal posture. Moreover, it causes incorrect muscle tone (intensified tautness - spastic reactions, or lowered - flaccidity), paresis (restraints of movement), palsy (complete paralysis), and involuntary movements (Loska, 2005).

The child with CP, apart from motor dysfunctions, has usually many additional medical problems. Most of them include: epilepsy, retardation, learning disability,

problems with attention span, and augmented motor activity, as well as speech impairment, dysphasia, bad hearing, and low vision, which have a neurological basis. Among orthopedic problems one can enumerate: scoliosis, dislocation of spine, articular contracture, asymmetry in the length of the limbs. Furthermore, children with CP have problems with communication, salivation, depression, frequent fractures, dental losses, and constipation (Loska, 2005; Mazanek, 2003).

Such complexity and variability of neuropathological cases, results in a multiplicity of maps of CP. Ingram's division is the most popular, because it is based mainly on the criterion of topography. It differentiates between the following clinical states: spastic hemiphlegia (hemiplegia spastica), spastic diplegia (diplegia spastica), bilateral hemiplegia (hemiplegia bilateralis), cerebellar, and extrapyramidal form.

Conductive Education

Conductive Education is one of the methods of therapy for children with cerebral palsy, in addition to such methods as Glenn Doman's method, SI (sensory integration), the PNF method, Bobath's, or Vojta therapy, etc. This method consists of a specially designed system of teaching children so that they can gain as much independence. Its author is a Hungarian physician and educator Andras Petö (Bełza, 2010). The system of Conductive Education, which combines rehabilitation, education, and social actions, is characterized by a holistic approach to handicapped children and their family, and constitutes a complete, multilateral answer to their special needs.

Multilateral improvement, in the Conductive Education system, deals with two-dimensional, parallel, integrated, and harmonized improvement of the following functions:

– neuromotor function (learning to move from place to place),
– self-reliant function (learning everyday activities – eating, putting clothes, and going to the toilet),
– communicative function (learning to speak, or non-verbal communication),
– intellectual function (learning the school curriculum) (Jagoda-Kordulska, 2003).

The aim of multilateral improvement in the system of Conductive Education is:

– broad development of children (based on actual functional evaluation), integrated education and rehabilitation of damaged psychomotor functions, as well as providing children with comprehensive care and realization of their needs according to the individual possibilities,
– supporting and directing the development of the child based on his individual potential in relation with the social, cultural, and natural circle,
– preparing children for school, or ensuring the implementations of school duty,
– attainment of ortofunction (optimal for the child's level of ability) in every disturbed sphere of functioning according to individual possibilities and needs,
– aspiring to the maximal individualization of children (Jagoda-Kordulska, 2002, 2003).

The system of conductive education taking care of the child with cerebral palsy at any age with appropriate complex assistance. The starting point of the therapy, rehabilitation, and education is the diagnosis, where therapy and rehabilitation evaluates, extends and modifies the initial diagnosis.

A very important role in diagnosis is played by the diagnostician. Thus, basic predispositions of the investigator include: theoretical knowledge, the ability of logical thinking allowing for a creative reasoning juxtaposing different information, the ability to observe and lead a conversation, and specific technical skills (the pool of available diagnostic techniques and the ability of adequate choice) (Wysocka, 2006).

Achieving a diagnosis of cerebral palsy is a difficult task. It becomes possible only when the child is about one year old, but greater certainty can be achieved when the child reaches 18-24 months. In the first year of child's life their brain undergoes intensive changes: the process of brain maturation, a modification of this process in prematurely born children, a few months of the evolution of early brain damage, functional changes due to the phenomenon of plasticity. Occurring processes may give a picture of transitional effects. It is not possible to predict a child's development with a 100% certainty. In making a diagnosis further medical tests such as: magnetic resonance imaging, cranial ultrasound scans are helpful and advisable.

Diagnosis is made by a team of specialists, which includes: a physician, a psychologist, a teacher, a speech therapist, a physiotherapist. Each team member looks at the child through the prism of their specialty, and then develop a diagnosis which emphasizes over and above the child's abilities. After conducting the diagnosis and consultations the team of specialists determines the best course of action for the child in question.

During the period of school maturity children with cerebral palsy attend the Centre on the basis of a referral from a GP and/or a neurologist. The diagnosis of a child begins with a visit to a doctor employed at the facility, who then conducts an interview and physical examination based on information obtained from parents and data from medical records (information from cards of hospitalization, rehabilitation camps cards). Physical examination consists of: the child's personal information, family interview, social interview, developmental history, description of the relevant hospitalization/surgery, history of treatment for specialized investigations.

Physical examination ascertains the type of CP, type of kinetic impairment, the gait pattern, and determines the scale of the adopted child's skill level in terms of: gross motor co-ordination – lower limb, and precise motor skills (grip pattern), features the wrist, hand and finger. It describes additional impairments connected with CP (e.g. sight, hearing, sphincter control, etc.). The final stage is an examination of joint mobility, muscle length, muscle tone, spasticity, and the description of standing and sitting positions, active movements / selectivity and orthopedic parameters (Olchowik, 2010).

Simultaneously, or after the medical examination, the diagnosis of a child is made by a team composed of a teacher, physiotherapist, psychologist, speech therapist. The work is coordinated by a team leader, who is usually a physiotherapist or a teacher.

The basis for the diagnosis of every specialist is an interview, observation of the child, and specialized examination pertaining to a specific area.

Educational diagnosis is made by a teacher on the basis of interviews and standardized tests, such as for example: the Inventory of H.C. Gunzburg to assess progress in social development (PPAC, PAC-1, PAC-2 depending on the level of mental disability), A Profile of Student Achievement (J. Kielin), A Questionnaire of Sensomotoric Development of Children (by Zbigniew Przyrowski), A Questionnaire of Sensory Risk Integration Disorder among infants and young children (10-12 months, 13-18 months, 19-24 months, 25-30 months) (by Georgia A. DeGangi), Clinical observation (by Zbigniew Przyrowski).

In addition, the child is observed during free play, self-service, contacts with peers, contacts with adults. It is important to focus on what incentives the child provides for oneself, what toys they prefer, whether they can handle basic operations and how they cope with them. Also, the auditory, visual, olfactory (preference of strong incentives, hypersensitivity for some stimuli), and how they react to different tastes.

Another specialist, who examines the child is a psychologist. The starting point for a psychological diagnosis is an interview with parents or the guardians of the child and observation of the child's behavior during free play, where special attention is paid to social contacts made by the child, establishing relationships, self-service skills, etc. Data necessary for psychological research is achieved by the use of standardized psychological tests. The selection of a test depends on the functioning of the child's: intelligence quotient, communication skills (verbal or alternative), motor skills. Tests used for psychological diagnosis include: Columbia Mental Maturity Scale, the Brunet-Lezine Psychomotor Development Scale, the Child Development Scale (DSR test), Leiter International Performance Scale, The Terman-Merrill intelligence scale.

It is possible to choose between two of the abovementioned methods in order to test a child. A subsidiary scale is the measurement of social competence according to B. Doll, which is used to indicate strong points of the child's functioning. The final psychological diagnosis is made in the course of several meetings with the child, and its evaluation is carried out once a year.

Due to the complexity and variety of speech disorders among children with CP the diagnosis of speech cannot apply standardized tests. Speech diagnosis, used in many centers of Conductive Education for children with CP, consists of the following stages:

– Interview with the child's parents
– A preliminary assessment of child's development and communication
– Getting to know the specialist documentation
– Speech examination

Among children who don't use verbal language, a selection of alternative methods of communication (AAC) is made, depending on the level of functioning of the child and his or her motor and intellectual skills. Speech diagnosis is a descriptive diagnosis, made once a year, according to the needs and the level of child's development.

Another specialist, who diagnoses the child is a physiotherapist. The basic tool of their examination are standardized tests:

– PEDI (Pediatric Evaluation of Development Inventory),
– GMFM (Gross Motor Function Measure) (Kluczyk, Wyrzykowska 2012).

Presented above multilateral diagnosis of a child with cerebral palsy, which is the basis adopted in the Conductive Education System of Polish rehabilitation model, assumes universality (availability), early integration, comprehensiveness and continuity.

The principle of continuity in planning is carried out by determining individual therapeutic long- and short-term goals, and changing programs of improvement, individualized daily schedule of therapeutic activities and advice for parents on days off from therapeutic classes.

Multilateral diagnosis prepared in accordance with the accepted principles is the starting point for the development by a team of therapists, individual therapeutic

education program (IPET) of a child with CP. The IPET, developed by experts in the System of Conductive Education contains the detailed description of the current state of achievements of the child, including the following areas: communication, self-handling, kinetic ability, cognitive functions, and social behavior. Recommendations for therapeutic work are determined by defining goals and objectives for various areas of life, activities, and ways of their implementation. Depending on the child's needs and specific objectives, the defined goals can be modified. The program is made available to parents who, after being introduced to its content make their own proposals for changes. Conclusions and recommendations for further work are an indication for individual therapists working with children suffering from CP, who are committed to continuous monitoring of the child's physical condition and constant modification of their program.

A group of children selected according to the speed of their work and their age is led by a special therapeutic team. The major leader, called in Conductive Education, "first conductor" should possess interdisciplinary knowledge from the medical field, psychology, pedagogy, physiotherapy and speech therapy. Other persons also participate in the courses, they are called 'second conductors'. Their role is to keep an eye over the children and help them in their work. Lessons, in Conductive Education, are called 'task series' (Jagoda- Kordulska, 2003).

Each child in the system of Conductive Education is covered by long-term rehabilitation and education program, which consists of: daily schedule, individual short- and long-term programs realized in a group, semi-annual and annual progress assessments, as well as evaluations and modifications. The curriculum covers all aspects of occurring dysfunctions, not only improving kinetic movement but also school, social, emotional, aesthetic and moral edification. Daily schedule includes time to do such basic things as standing, walking, writing and many other.

Some of the precisely developed series of classes, whose implementation is considered of great importance, are manual exercises, called classes of hands. Manual rehabilitation is a starting point for achieving functional independence. According to the creator of the Conductive Education therapy method, Andras Peto – manual improvement of children with CP is of paramount importance. Efficient hands (and senses) are the key to understanding the world. It is with the help of the hands that a child grasps, puts in his mouth different objects in order to find out more about them, then raises them up to watch them. By manipulating objects for their own use and according to their ability and stage of development, children perform various manual movements. A developing child uses his hands in most activities in life: eating, dressing, cleaning. It upholds the furniture while walking on its own. It uses them to deliver most of the various functions and tasks - turning pages, writing, playing the piano, touching another person, creating its own "works of art". Therefore, the development of dexterity is so valid and important. Improving manual function has an important place in the concept of rehabilitation in Conductive Education, which aims to devote as much time as possible (Król, 2010). There are no sets of ready-made programs and activities for children with a specific type of disorder in this series. The leader according to his or her own predispositions, capabilities and needs prepares them for the needs of each group and for each child, in accordance with the principle of individuality (Król, 2001, 2010).

The Conductive Education method does not require expensive equipment, it uses a specifically designed, good quality Petö furniture. Simplicity and scarcity of equipment in a room promotes greater concentration of children on the undertaken activities allowing for a better adaptation and memory. It is important that the child has the opportunity to focus on the person leading the course and the content offered by her such as play and movement exercises (Bełza, 2010).

In the System of Conductive Education teaching and rehabilitation belong to an integral whole. The motor improvement occurs with the development of cognitive, social communication and conducted by a team of specialists, and their proposed activities include all parallel areas of child development. Thus, any series of tasks in Conductive Education consists of a harmonious combination of educational and therapeutical purposes. While carrying out subsequent tasks in a series of motor tasks, a child has the opportunity to develop their cognitive capacities, strengthening the knowledge and skills, which had been the premise of educational agenda. Whereas in the educational activities a proper sitting position is the starting point for the correct implementation of a kinetic task. The schedule allows for a transfer of the abilities acquired in the classroom to different educational situations and in everyday life. Better memory and movement is achieved by communication and rhythm. Speech and rhythm facilitate recording and storing motor activity (Kułakowska, 2009; Król 2001).

According to the tenets of Conductive Education, the integration of cognitive, social, communicative, and kinetic development is supported by numerous forms of therapy. Among them there are:

- kinesipathy including neurophysiological methods: NDT-Bobath and PNF,
- diagnostics and psychological therapy,
- speech therapy,
- non-verbal communication
- sensory integration,
- educational therapy.

A special place in the process of improvement belongs to classical massage, Schantal's massage, Activity Programme Knill, the method of rehabilitation PNF, and the method of rehabilitation NDT.

The effects of the motor rehabilitation, such as learning of correct motor models, the inspection of the conduct, improving the manual functions, are being judged every 6 months by the staff of specialists. Depending on the progress and individual needs of the child new objectives are being created and an alteration of the curriculum is made (Kluczyk, Wyrzykowska 2010).

Conclusion

Conductive Education is a complete, multilateral response to the needs of children with CP and their families by integrating therapeutical actions together with educational and social skills. This complex approach, which is an asset of the Peto method, combines psychological, educational, medical and social therapy. Kinetic improvement takes place along with the development of cognitive, social, and communicative functions, and is

led by a team of specialists, who propose parallel activities including all areas of child development. In-depth diagnosis encompasses every sphere of impaired functioning described by a team of specialists on the basis of accurate and multilateral observation of the child, interviews and selected standardized tests. The work of the whole team enables a comprehensive approach to the child's wellbeing. Systematic cooperation of specialists creates the possibility of continuous operation, dependent on the emerging needs and current changes in the evaluation of therapy in the adopted program of rehabilitation. The child, therefore, is here a subject, and their capabilities, needs and skills in the complex conditions of diagnosis and process of rehabilitation constitute the basis for any further improvement.

Bibliography

1. Bełza M. (2010) Metoda Peto jako główna metoda pracy z dzieckiem z dziecięcy porażenie Mózgowy na podstawie doświadczeń Ingfield School. In: Aktualne problemy edukacji i rehabilitacji osób niepełnosprawnych w biegu życia. Ed. Z. Palak, A. Bujanowska, A. Pawlak Lublin. UMCS: 27-29.
2. Jagoda-Kordulska M. (2003) Założenia, podstawowe cele i zasady realizacji systemu Nauczania Kierowanego. W: System nauczania kierowanego w polskich placówkach edukacyjno-rehabilitacyjnych. Ed. M. Jagoda-Kordulska Zamość. Stowarzyszenie Pomocy Dzieciom Niepełnosprawnym „Krok za krokiem": 88-92.
3. Jagoda-Kordulska M. (2002) Cele i zadania wieloprofilowego usprawniania dzieci z mózgowym porażeniem dziecięcym w systemie Nauczania Kierowanego. In: Podstawy Nauczania Kierowanego. Przewodnik metodyczny dla pedagogów, fizjoterapeutów i rodziców dzieci z mózgowym porażeniem dziecięcym. Ed. M. Jagoda-Kordulska. Zamość. Stowarzyszenie Pomocy Dzieciom Niepełnosprawnym „Krok za krokiem" w Zamościu: 32-33.
4. Kluczyk M., Wyrzykowska D. (2010) The Improvement of Motor Development for Children with Cerebral Palsy based on the example of a Multiprofile Centre of Aid for Children with Cerebral Palsy in Białystok. In: Disability in society and medicine. Ed. S. Spisacka Biała Podlaska. PSW JP II: 119-140.
5. Kluczyk M., Wyrzykowska D. (2012) Wieloprofilowa diagnoza dziecka z mpd w terapii i rehabilitacji w systemie nauczania kierowanego. In: Wielość obszarów we współczesnej pedagogice specjalnej. Ed. Z. Palak Lublin. Wyd. UMCS: 311-319.
6. Król M. (2001) Podstawy Nauczania Kierowanego (metoda usprawniania dzieci z uszkodzonym mózgiem) - poradnik dla rodziców. Zamość. Stowarzyszenie Pomocy Dzieciom Niepełnosprawnym „Krok za Krokiem".
7. Król M. (2007) Co, jak, kiedy i dlaczego? Możliwości diagnostyki i terapii dzieci z wczesnym uszkodzeniem mózgu w wieku od 0 do 6 roku życia i wsparcia ich rodzin. Stowarzyszenie Pomocy Dzieciom Niepełnosprawnym „Krok za Krokiem".
8. Król M. (2010) Księga pytań i odpowiedzi. Mózgowe porażenie dziecięce. Gdańsk.

Wydawnictwo Harmonia.
9. Kułakowska Z. (2009) Zintegrowane usprawnianie dzieci z mpd - argumenty neuropediatry. „Sieć MPD. Biuletyn organizacji działających na rzecz osób z mózgowym porażeniem dziecięcym", nr 4: 3.
10. Kułakowska Z. (współpraca Konera W.) (2003) Wczesne uszkodzenia dojrzewającego mózgu. Od neurofizjologii do rehabilitacji. Wydawnictwo FOLIUM.
11. Loska M. (2005) Uczniowie z porażeniem dziecięcym. Warszawa WSiP.
12. Marcinkowska B. (2005) Wczesne wspomaganie dziecka niepełnosprawnością sprzężoną. In: Wczesne wspomaganie rozwoju dzieci z uszkodzonym wzrokiem z dodatkowymi niepełno sprawnościami. Ed. G. Walczak Warszawa. MENiS:16-22.
13. Mazanek E. (2003) Mózgowe porażenie dziecięce: problemy psychologiczno-pedagogiczne. Warszawa. Wydawnictwo Akademii Pedagogiki Specjalnej im. M. Grzegorzewskiej.
14. Mihilewicz S. (2006) Diagnoza oraz rehabilitacja dziecka z zespołem mózgowego porażenia dziecięcego (MPD) z głębokim uszkodzeniem słuchu. In: Psychologiczno-pedagogiczne problemy wspomagania rozwoju dzieci niepełnosprawnych. Ed. S. Mihilewicz Kraków. Impuls: 25-30.
15. Olchowik B. (2010) Z perspektywy lekarza Ośrodka. Niepublikowane materiały pokonferencyjne Podlaskiego Stowarzyszenia Pomocy Dzieciom z Porażeniem Mózgowym „Jasny cel" w Białymstoku: 3-5.
16. Wysocka E. (2006) Diagnoza psychopedagogiczna: podstawowe problemy i rozwiązania. Warszawa. Wydawnictwo Akademickie „Żak".
17. Zabłocki J. (1998) Mózgowe porażenie dziecięce w teorii i praktyce. Warszawa. Wydawnictwo Akademickie „Żak".
18. Ziemski S. (1973) Problemy dobrej diagnozy, Warszawa. Wiedza Powszechna.

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Creativity of persons with impaired eyesight as a therapeutic process
Twórczość osób z dysfunkcją narządu wzroku jako proces terapeutyczny

Summary
Creative work of persons with disabilities has therapeutic functions. Reception of art and its practical implementation gives an opportunity to express oneself, raises the value of one's own person, allows self-acceptance, and establishes contact with the social world. People who are blind and visually impaired, through art express their emotions, proving their outstanding abilities. Also, artistic creation gives a sense of power and agency, and is an important prerequisite for success on the road to self-realization. This paper shows the value of the arts for people with reduced vision and its compensatory role in psychological and social development of disabled persons. It also indicates directions of therapeutic interventions through art.

Key words: creativity, disability, rehabilitation, art, self-acceptance, personality, needs

Streszczenia
Twórczość osób niepełnosprawnych pełni funkcje terapeutyczne. Odbiór sztuki jak i jej praktyczna realizacja daje możliwość wyrażania siebie, podnosi wartość własnej osoby, umożliwia samoakceptację i kontakt ze światem społecznym. Osoby niewidome i słabo widzące poprzez sztukę wyrażają swoje emocje, udowadniają swoje ponadprzeciętne możliwości. Tworzenie daje również poczucie mocy i sprawstwa oraz stanowi ważny warunek sukcesu na drodze do samorealizacji. Niniejszy artykuł ukazuje wartość sztuki dla osób z dysfunkcją narządu wzroku oraz jej kompensacyjne znaczenie dla rozwoju psychospołecznego człowieka niepełnosprawnego. Wskazuje ponadto kierunki oddziaływań terapeutycznych za pomocą sztuki.

Słowa kluczowe: twórczość, niepełnosprawność, rehabilitacja, sztuka, samoakceptacja, osobowość, potrzeby

Introduction

Artistic creation of new dimensions that reflects the inner reality of the creator may be therapeutic. It relieves internal tensions, allows recovery from pathological thoughts, attitudes, motives; it also strengthens healthy personality. Furthermore, it teaches:

- independent action aimed at maintaining a distant target,
- openness to experience,
- courage to reveal one's distinctiveness,
- recognizing one's own strengths and abilities,
- courage to be creative and original that extends to many areas of life (Hryniewicka 2000a).
-

If successful, it enhances self-esteem, triggers a feeling of victory over oneself, especially over one's own inertia, as well as over an object, which thanks to efforts gradually approaches one's creative plan. In addition, it releases from neurotic problems, thus allowing to face adversity, drift, and help to struggle with real problems of life. Moreover, it maintains relative stability and serenity in the face of strong blows, deprivation, and frustration. Also, it has a very close relationship with formation of a creative attitude, without which it is difficult to solve complex problems arising from disability (Hryniewicka 2000b).

Cultural participation has a rehabilitative quality because it leads to intellectual and emotional activity in perceiving the world in terms of intellectual and emotional self-expression, and tangible transformation of the surrounding reality (Czerwińska 2004).

Art and culture can and should attain the following cultural, therapeutical, and psychological and social objectives of self-realization:

- mediation between the individual and society,
- organization of safe places of protection against violence and aggression,
- prevention of alienation of personal issues and problems,
- creation of a space of acceptance, support and sustainability,
- promotion of success and satisfaction (Dykcik 2003).

"Any proposed and preferred types of creative research used currently to stimulate enthusiasm and develop activity of the disabled in art therapy, music, theater, and dance, are at the same time both art and craft, work and play, and serve as internal source of increased developmental energy and enrichment of personal spirituality. Every type of art practice can arrouse spontaneous enthusiasm in achieving future goals, by triggering internal processes that can release huge energy of excitement" (Dykcik 2003, p. 15).

Art plays a huge role in everyone's life, but for people with disabilities it takes on new values. It gives an opportunity to transcend one's limits thus providing hope for success. It prevents stagnation, stimulates internal bodily forces to act, and creates a positive image of oneself. Art provides a platform for social interaction for people with disabilities with non-disabled persons, preventing discrimination and diminishing harmful stereotypes concerning the disabled.

The process of adapting to a situation of disability is often long and painful, both for the disabled and their nearest and dearest. This is accompanied by overcoming many obstacles, difficulties, and social stereotypes. One way of facilitating and easing this process is by way of artistic practice. Certainly, art should be used to rebuild natural conditions of life necessary to salvage not only biological but also spiritual harmony of human beings (Hryniewicka 2000a). "People take beliefs about their dignity on the basis of activity, e.g. directed at other people, or activity which is manifested in creative work. The possibility to be helpful for other people, and above all by way of creative work, shapes a sense of one's authentic value" (Kozielecki 1977, p. 17).

Research objectives and presentation of collected data

The purpose of this paper is to show the significance of creative activity among people who are blind or visually impaired from a therapeutic viewpoint, and to describe ways for the use of therapeutic Arts for people with reduced vision. The present work also includes numerous examples of creative activities of people with impaired eyesight as well as examples of initiatives aimed at facilitating encounters with art for them.

Vision plays a dominant role in human life. It is the source of about 80% of information coming from the environment. Ocular damage or partial loss of vision affects the functioning of the whole body in all spheres of human life, which consequently loses the most important way of understanding the outside world. The resultant impoverishment of cognitive processes pertaining to visual content needs compensation processes, including the areas of art as well. Dysfunction of the eye, contrary to popular opinion, does not limit forms of participation in the Arts. However, it raises the need to explore a variety of alternative ways of receiving art.

E. Jutrzyna (2003a) in his thoughts on the perception of music in terms of visual deprivation states the following theses:

- Visual deprivation complicates the process of "growing" of children to independent life. Therefore, the main cause of differences in their perception of the aesthetic sphere is a reduction of the needs of patients with impaired eyesight occurring as a result of difficulties in establishing and maintaining regular contacts and relationships with the surrounding social environment.
- Eye disorders predispose some difficulties during the perception of decoding and understanding of aesthetic information into accessible and understandable for visually impaired people language according to their cognitive – personal circumstances.
- Complex reconstruction process of compensation - correcting psychological well-being of blind or partly seeing children - involves the use of all non-defective modalities.
- Feelings, aesthetic imagination, arise not only during visual perception, but also perception involving participation of other senses. Therefore, the main direction of activities related to the reconstruction of the aesthetic sphere of compensation should be the development of a child in his ability to adequately receive, reflect in their awareness of the world around them by means of integrating activities of substitutional analyzers.

Dealing with different forms of art is a value that should be promoted and perceived by people with disabilities. Studies concerning cultural preferences of disabled youth, conducted by H. Żuraw (1996), show that they prefer the following areas of culture: literature, music, film, theater, painting, sculpture, and dance.

Among visually-impaired young people reading, sculpture, playing instruments, and singing are the most popular. Research points to intensification of reading among people who are blind and visually impaired. H. Żuraw (1996) states that reasons for this phenomenon can be traced back to:

- better dictionary performance of the described group,
- availability of reading, including larger volumes, thanks to the use of techniques that adapt reading for perceptive abilities of the group.

Blind people, who know Braille's alphabet fluently, can spend time reading books written in this way. The Central Library of this kind of books lends them on the spot or sends them to readers. A lot of people use audiobooks as well. The procedure for borrowing these books is the same as in the case of Braille's books (Kuczyńska – Kwapisz, Kwapisz 1996). Books can also be borrowed at the Multimedia Library Center in Laski and other libraries located in major Polish cities. A book borrowed from an Online Library Website on the screen has the appearance of an ordinary book - with illustrations, graphic chip pages, tables of contents, chapters, and placement of text on

pages. The text on the screen can be enlarged for the visually impaired, whereas as far as the blind are concerned contents of the book are also available through synthetic speech or the Braille's function (Samonek 2003). In words of one of the founders of the library's multimultimedia management web system - Piotr Brzoza, "the system enables cataloging and collection on a server publishing of rich media: e-books and magazines, audiobooks, audio recordings, and videos tailored to the needs and capabilities of visually impaired people; it ensures sharing of collected publications via the Internet in a way that does not conflict with the rules of the copyright law; it enhances management of readers' orders. It is supported by standard web browsers" (Szczepański 2003).

Many blind people not only read but also write; J. Kuczyńska – Kwapisz and J. Kwapisz state that "a particularly important place in this creative work pertains to literature, especially memoirs, but there are other genres as well, such as: epigrams, quips, aphorisms, legends, reports, stories, poetry, plays and many other. Polish Association of the Blind supports literary creative work by organizing competitions and printing interesting materials" (Kuczyńska – Kwapisz, Kwapisz 1996, p. 53).

R. Polaszek, who leads theater classes for partially or wholly blind children, points to a different area of culture. He claims that "theater is a comprehensive creative style whose appeal lies in the fact that it integrates different areas of expression - word, gesture, dance, movement, music, visual arts, which can have a positive impact on the personality of young people. Especially in the case of visually impaired young people, in whom there are deficits of visual stimuli, theatrical activities represent an opportunity to come "out of the shadows", as it were, and make possible other areas of perceptual awareness to become important" (Polaszek 2002, p. 110). Theater classes teach not only creative attitude, but also have a therapeutic aspect. Lack of self-esteem, complexes, personality disorders, stemming from the absence, or weakness, of family ties, hyperactivity, and other negative consequences of the failure of vision, constitute a challenge for the theater so that it could be a remedy for such ailments.

J. Kuczyńska – Kwapisz and J. Kwapisz (1996) indicate that many blind people achieve very good results in handicrafts, metalwork, and sculpture using various materials. For several years, the Polish Association of the Blind organizes open-air sculpture events for its members. With a little help blind people can also go to a theater, operetta, opera, cinema, or a concert. Some, who play different instruments, form bands, sing, belong to choirs or vocal groups.

Of all the Arts music thanks to its essential sounding nature is for blind and partially seeing people possibly the closest. It is distinguished from other forms of art due to particularly strong and direct impact on almost all aspects of human personality. It goes into people's perception through ears - a sense that is not deficient in any way by the impairment of the sight. Due to the fact that perception of musical art is not distorted by vision defects and it takes place thanks to the ear canal, visually disabled persons have a great potential for expieriencing music and can enjoy unlimited benefits from such encounter. Music therapy for persons with visual impairment is one of the varieties of art therapy, it deals with children, adolescents and adults, both blind and visually impaired. The aim of music therapy for persons with visual impairment is to prepare patients to function in the non-disabled community by supporting their personal development, correction, compensating for deficiencies occurring due to defects and developmental disabilities, as well as meeting their specific needs and expectations (Kataryńczuk – Mania 2005).

Blind people often surprise with their abilities and talents, performing various unique artworks. "Illustrious blind people enjoy respect and even admiration in society, which results not only from recognition of their talent and achievements, but also by acknowledging high effort that allowed them to overcome the barrier created by the disability" (Palak 1999, p.176). There is for example a well known blind woman who arranges compositions from dried flowers and plants that win many awards at organized exhibitions. Also, Stanislaw Hermanowicz creates stunning drawings; he amazes ordinary men as well as professional artists by the fact that as a totally blind man he makes very beautiful and technically diffcult works that are not smooth reliefs, and therefore not possible to verify with the touch (Kuczyńska – Kwapisz, Kwapisz 1996). The fact of disability reinforces the impact of such figures and their works, it moves the imagination of recipients, gives blind creators reliability, raises the fascination of encountering some impenetrable mystery of seeing the world in a different dimension than that which is given to a healthy man (Zawadzki, Zawadzka 2002).

However, an important issue, as E. Jutrzyna observes (2003c), is celebrating small, creative achievements of people with disabilities. A flower molded from plasticine or a simple pattern embroidered by a blind child may not be considered high art, but it certainly is a product of creativity and will have its own significant value to the person who creates it. It is possible to find many examples where a created product of a disabled person is considered from a standpoint of an outstanding work item, whereas their creative desire is not part of the assessment. In this way quite often people overthrow humanist values which are the basis of human existence. "Although not all creations deserve the title of outstanding works of art, certainly, given the accompanying effort put into their formation and overcoming one's own weaknesses, shortcomings and limitations, they nonetheless provide us with an opportunity to revise our judgments about existence, which has been recently dubbed as worthless" (Hryniewicka 2000b, p. 28).

If the act of creation results in a product valuable only for a creative entity that forms it, then the creative attitude itself becomes more important, i.e. the process of creativity. The value of such product will be measured by the sum of the experience invested in its making. The most important issue here is an act of creative exploration, creative expression of known content, which will culminate in the creation of new elements that had not previously existed. Therefore, the creator of Polish special needs education, Maria Grzegorzewska, considered creative work as one of the fundamental features of rehabilitation for persons with disabilities (Jutrzyna 2003c).

Hence, it is worthwhile to inculcate in blind and partially sighted people willingness to actively participate in cultural life, to educate them for creative dispositions and the ability to enjoy the arts (its forms and types) (Osik – Chudowolska 2003).

In creating expressive and impressionistic attitudes, invaluable role is played by different types of associations, foundations, and social movements in order to spread the idea of art as a form of integration of people with disabilities, supporting them in the development by organizing retreats, workshops, creative work, granting of scholarships that reproduce work in the form of greeting cards, calendars, books of poetry, collections of short stories and invitations to participate in numerous events with a range of not only local, but also at national, and international levels, such as exhibitions, festivals, reviews of artistic creativity (Hryniewicka 2000b).

A major role in meeting these needs play rehabilitation camps for people with artistic talents who want to learn different forms of cultural activity. Employed instructors not only lead specialized activities, arts and crafts, discover new talents, but also show the possibility of their development and encourage improvement of artistic skills (Biniakiewicz 1996).

Great possibilities of artistic reception for visually handicapped persons is made easier by modern technology, through which many things are possible that heretofore were considered as insurmountable barriers as far as blind people were concerned. One example is a unique in the country Touch Gallery established at the Museum of Art in Lodz. The intention of the developers is to create convex images of greatest painters and graphic artists of Polish and foreign origin. This is possible thanks to an innovative method which involves conversion of selected works of art by using a suitable computer graphics program, printed on a special bulging paper in different thicknesses, taking on a different texture (depending on the color) when subjected to heat treatment. This creates a vivid picture of the work of art, which also has a possibility of saturation of each color. This image must be somewhat simplified by eliminating many less important details, so that the picture can be more tactile. Reading these images is not easy and requires a lot of practice. However, according to the authors it produces excellent results. So far, the Touch Gallery has organized exhibitions that allowed blind people to read works of such artists as: Wladyslaw Strzeminski, Szymon Syrkus, Wacław Szpakowski, Edvard Munch, Stanislaw Fijałkowski, Jean Arp, Milan Grigar, Joana Holion, Henri Michaux and others (Korowajczyk 2002).

Another interesting form of contact for the blind and visually impaired with art are exhibitions, such as e.g. copies of historical glass exhibition, organized according to the needs and cognitive abilities of these individuals. All exhibits of that exhibition could be easily touched. Visitors had access to a description of the exhibits in Braille and plain print (Szczurek 2003).

Information about how art can be shown to blind and partially seeing children can be obtained by attending classes in the Silesian Museum in Katowice under the title "To Touch Art". During the sessions children learn in practice how a painting is made. Having this knowledge they watch later paintings with their own hands. Visually impaired people can see the original works and contrasting reproductions, devoid of details, but with intensely colored highlighted spots. Blind people learn the content of a painting by touching contour reproductions of the image in convex print. Touch-watching is accompanied by a work description. People with visual disabilities have an opportunity to compose their own image from earlier prepared requisites such as fabrics with different textures, dishes, fruit, and other miscellaneous things.

Lots of interesting exhibitions are organized by the Central Library of the Polish Association for the Blind in Warsaw. There are exhibitions of sculptures, paintings, drawings, prints, and photographs of artists both with and without disabilities. The Gallery also exhibits concerts and demonstrations of equipment facilitating daily operations of visually impaired people.

Despite a number of initiatives that attempt to bring the arts to people with sensory disabilities (examples of which I gave above), it is not always appreciated and still too little people with disabilities enjoy its benefits.

E. Jutrzyna (2003b) discusses the development of aesthetic needs of the blind and observes a strong downward tendency to lower its level, which may indicate that beauty and aesthetic values become less important and slowly dissappear from the lives of people with profound visual impairments. 90% of the disabled do not attend neither theaters, cinemas, concerts, exhibitions nor any other cultural events at all. Preponderance of mostly passive homely participation in culture over active outdoor is almost a rule. Research of M. Czerwińska (2004) shows that in the cultural life of visually-impaired the most popular are so-called easy-going cultural institutions (such as concerts, festivals). Participation in the so-called institutions of high culture (theaters, concert halls, museums, art galleries) is negligible. Another cause for concern is relatively low library attendance – considering the fact that it is a widely available institution. Research shows a low level of participation of blind people in cultural life, while at the same time being interested in culture and declaring wish to use offers of cultural institutions. This is confirmed by research of E. Skrzetuska, D. Osik – Chudowolska and A. Wojnarska (2002), who state that cultural life in the group of persons with disabilities is not too complex.

People with reduced vision, despite low participation in culture, give it a specific meaning, recognizing by the same token the role of culture in personal and social life. For the majority of respondents culture is important in terms of compensation and entertaininment, rarely - cognitively. Few people pointed to self developing and integrational features. People with severe ocular dysfunction more frequently than those with a moderate level see culture as helping acceptance of themselves and their disability (Czerwińska 2004).

Conclusions

Creative work plays a major role in the therapeutic process. The variety of its forms, strength and impact causes endless possibilities of influencing mental, physical, social, educational, etc. areas. However, the downward trend in the level of participation in cultural life and decreasing number of people who see the potential for art in rehabilitation, imposes the need to take measures to encourage visually disabled persons to actively participate in art therapy.

Based on the above considerations, the following directions of therapeutic interventions using art to people with reduced vision are to be made:

- Contact of visually impaired people with different types of art through participation in exhibitions, concerts, museum visits, meetings with artists, etc., should be available for the widest range of people.
- Opportunities for independent artistic activity should be provided. Active contact with different types of art will help to define oneself in the artistic realm.
- Stereotypical beliefs about total unavailability of certain forms of art for the blind and visually impaired must be overcome.
- There is a need to extend the set of means and methods of collection of art and acts of making art.
- Persons with visual disabilities should be enabled to present their artistic achievements. It will increase the knowledge of the non disabled members of the society as far as the abilities of disabled people are concerned, which may result in bringing about a plane

of acceptance, understanding, and mutual respect.
- There is a need to prepare those who are involved in the art of working with blind and partially seeing. Knowledge of their cognitive abilities, and ways of revalidation will allow to optimize contact with art.
- There is a need to organize meetings with blind artists to encourage people with disabilities to take creative actions, and to identify opportunities for overcoming their limitations.
- It is important to raise awareness that art should not be understood only in terms of creating great works. It is important to perceive the value of creativity in everyday activities that foster positive emotions and allow for self-realization.

Bibliography

1. Biniakiewicz B. (1996) Wspomaganie osób niepełnosprawnych w ich wszechstronnym rozwoju. „Roczniki Pedagogiki Specjalnej" t. VII: 17-23.
2. Czerwińska M (2004) Uwarunkowania partycypacji w kulturze osób z dysfunkcją narządu wzroku a potrzeba wsparcia społecznego. W: Aktualne problemy wsparcia społecznego osób niepełnosprawnych. Red. G. Kwaśniewska, A. Wojnarska. Wydawnictwo UMCS. Lublin 2004: 55-64.
3. Dykcik W. (2003) Aktywność w kulturze i sztuce podstawą edukacji i twórczego życia osób niepełnosprawnych. W: Sztuka w życiu i edukacji osób niepełnosprawnych. Red. E. Jutrzyna. Akademia Pedagogiki Specjalnej im. Marii Grzegorzewskiej. Warszawa: 9-18 .
4. Hryniewicka A. (2000a) O potrzebie kreacji w życiu dzieci niepełnosprawnych. „Szkoła Specjalna" nr 4: 180-185.
5. Hryniewicka A. (2000b) Rola sztuki w przełamywaniu tabu związanego z niepełnosprawnością. „Roczniki Pedagogiki Specjalnej" t. 11: 22-29.
6. Jutrzyna E. (2003a) Percepcja sztuki muzycznej a deprywacja wzrokowa. W: Sztuka w życiu i edukacji osób niepełnosprawnych. Red. E. Jutrzyna. Akademia Pedagogiki Specjalnej im. Marii Grzegorzewskiej, Warszawa: 21-41.
7. Jutrzyna E. (2003b) Problemy edukacji estetycznej dzieci z wadą wzroku w warunkach integracji. W: Integracja osób niepełnosprawnych w edukacji i interakcjach społecznych. Red. Z. Kazanowski, D. Osik – Chudowolska. Wydawnictwo UMCS. Lublin: 211-222.
8. Jutrzyna E. (2003c) Twórczość osób niepełnosprawnych w ujęciu aksjologicznym. W: Dorosłość, niepełnosprawność, czas współczesny. Red. K. D. Rzedzicka, A. Kobylańska. Oficyna Wydawnicza Impuls. Kraków: 205-213.
9. Kataryńczuk – Mania L. (2005) Metody i formy terapii sztuką. Oficyna Wydawnicza Uniwersytetu Zielonogórskiego. Zielona Góra.
10. Korowajczyk W. (2002) Galeria dotyku. „Pochodnia" nr 7: 12-13.
11. Kozielecki J. (1977) O godności człowieka. Czytelnik. Warszawa.

12. Kuczyńska – Kwapisz J., Kwapisz J. (1996) Rehabilitacja osób niewidomych i słabo widzących. Interart. Warszawa.
13. Osik-Chudowolska D. (2003) Rola pedagoga w realizacji wychowania estetycznego uczniów słabo widzących. W: Integracja osób niepełnosprawnych w edukacji i interakcjach społecznych. Red. Z. Kazanowski, D. Osik – Chudowolska. Wydawnictwo UMCS. Lublin: 223-233.
14. Palak Z. (1999) Wzajemne postawy i stereotypowe wyobrażenia młodzieży niewidomej i widzącej – w kontekście jej integracji. W: Rehabilitacja oraz edukacja dzieci i młodzieży z dysfunkcjami narządu wzroku. Red. J. Pilecki, M. Kozłowski. Wydawnictwo Edukacyjne. Kraków: 171-180.
15. Pichalski R. (1984) Uczestnictwo ludzi niepełnosprawnych w kulturze. Warszawa.
16. Polaszek R. (2002) O teatralnych zajęciach z dziećmi i młodzieżą słabo widzącą. „Szkoła Specjalna" nr 2: 109-111.
17. Samonek E. (2003) Multimedialna biblioteka. „Pochodnia" nr 6: 5-7.
18. Skrzetuska E., Osik – Chudowolska D., Wojnarska A. (2002) Poziom życia osób niepełnosprawnych w okresie transformacji ustrojowej w ich własnej ocenie. Wydawnictwo UMCS. Lublin.
19. Szczepański H. (2003) Piśmiennictwo w elektronicznej szacie. „Pochodnia" nr 6: 11-12.
20. Szczurek J. (2003) Dotykiem przez wieki. „Pochodnia" nr 6: 9-11.
21. Zawadzki R., Zawadzka D. (2002) Geniusz a kalectwo. W: Człowiek wobec ograniczeń – niepełnosprawność, komunikowanie, diagnoza, terapia. Red. Z. Tarkowski, G. Jastrzębowska. Wydawnictwo Fundacji Orator. Lublin: 65-78.
22. Żuraw H. (1996) Uczestnictwo kulturalne młodzieży niepełnosprawnej. Wydawnictwo Akademickie „Żak". Warszawa.

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Hippotherapy as a type of effective (self)rehabilitation among visually impaired children

Hipoterapia jako forma skutecznej (auto)rehabilitacji dzieci z wadą wzroku

Summary
The specificity of hippotherapy, as one of the alternative methods supporting the development of disabled children (in the study of visually impaired children), stems from moving beyond standard, conventional, cut and dried ways of interactive rehabilitation. While respecting the principle of subjectivity, personalization and integration it seeks to create proper conditions and circumstances for activation of the process of self-rehabilitation to take place – where children actively engage in the process of rehabilitation, learn responsibility for themselves and their own actions – and become co-creators of their own development. The key to active participation in hippotherapy – as studies suggest - is personal intrinsic motivation for participating in this process. The aim of this study was to diagnose the relationship that exists between the motivation of children with disabilities that participate in hippotherapy and the effective results of these activities (in the cognitive, social and physical areas).

Key words: visually impaired person, hippotherapy, self-rehabilitation, motivation

Streszczenie
Specyfiką hipoterapii jako jednej z alternatywnych metod wspomagania rozwoju dzieci niepełnosprawnych (w badaniach dzieci z wadą wzroku) jest wyjście poza utrwalone, konwencjonalne, schematycznie powielane sposoby oddziaływań rehabilitacyjnych. Przy respektowaniu zasady podmiotowości, personalizacji i integracji dąży się do tworzenia takich warunków i sytuacji, w wyniku których następuje uruchomienie mechanizmu autorehabilitacji – dzieci aktywnie włączają się w proces rehabilitacji, uczą się odpowiedzialności za siebie oraz własne działania – stają się współkreatorami własnego rozwoju. Kluczem do aktywnego udziału w hipoterapii – jak wykazały badania - jest ich wewnętrzna motywacja do uczestniczenia w tym procesie. Celem badań była próba zdiagnozowania związku, jaki zachodzi między motywacją dzieci niepełnosprawnych do uczestnictwa w hipoterapii a efektami uzyskiwanymi w wyniku tych zajęć (w sferze poznawczej, społecznej i fizycznej).

Słowa kluczowe: osoba z wadą wzroku, hipoterapia, autorehabilitacja, motywacja

Introduction

Over the last several years a change in the approach to disabled people has been observed, which emphasizes the principle of subjectivity, personalization, integration, and standardization. As a result, the consequent exploration of methodological innovation has enriched the practice of rehabilitation, which consists on the whole of various selections and applications of many different and specific forms, methods, and techniques of therapy and rehabilitation, which refer in essence to personalistic anthropology. Ther aim is optimal development of disabled people, by way of acquiring new experiences, strengthening their sense of autonomy and responsibility. Due to acknowledgment of individual disabled subject as a legitimate entity in rehabilitation, the aim is consequently to create particular conditions and circumstances to arise in order to enable the patient to recognize and develop their potential, agency, and independence. The desired outcome of the processes of rehabilitation is an optimal level of autonomy, the ability to help oneself, as well as right self-awareness of one's strengths and weaknesses. First and foremost, the focus is on one's own activity and self-rehabilitation (Obuchowska 1993). Self-rehabilitation thus becomes both a target and a means to all effective rehabilitation activities. "We strive for its rise, and then we strengthen, and develop it even further" (Kosakowski 1996, p.103).

The key to active, subjective, participation in the rehabilitation is an increase or maintenance of a high level of motivation in the individual to participate in this process. The importance of expanding the internal motivation of the individual in the process of rehabilitation has already been indicated by M. Grzegorzewska (1963; from: Eckert, 1995, p.146). She writes: "the action of expanding (...) highly increases the activity of a handicapped individual, their initiative, creativity, enthusiasm for work, the strength of will to overcome difficulties, and oftentimes the passion to fight them. This triggers the latent dynamic potential of the self, adds and multiplies it, and leads to increase in the overall well-being of individuals, allowing them to experience positive emotional states, even the strength of the dominants. (…) We shape the conditions for raising children so that it could affect their awakening to new principles of action, new motivations triggering a positive attitude instead of frustration". The action of expanding – aims at leading a disabled person to start working on their own. Indeed, it is an active involvement in the rehabilitation process. Thus, the condition for successful therapeutic and rehabilitative effects lies in the use of activating methods which enable the child to experience a need to make their own, as well as group actions, which are expected from them (Dykcik 2005, p.236).

Hippotherapy is one of alternative methods supporting the development of children with disabilities. Due to multifaceted impact (a possibility of obtaining simultaneous improvements in many areas of impaired functioning), it is classified among a group of methods in multilateral improvement. It is closely associated with other therapeutic methods of rehabilitation and fully benefits from their achievements. It is preferred when other possible therapeutic effects cannot be achieved by means of ordinary treatment. There are several kinds of hippotherapeutical exercises, which intermingle with each other and, by the same token, complement one another:

– physiotherapy on horseback – healing gymnastics on a horseback carried out during the ride by a physiotherapist,

- psycho-educational horseback riding - individual sessions with a therapist, teacher, special educator, or a psychologist, where the emphasis is on psychodidactic aspects of therapy,
- therapeutic horseback riding - activities aimed at improving the patient's communication with the outside world,
- horseback riding for disabled people - sport and recreation exercises in order to master the basics of riding, and even preparing some of them for participating in equestrian competitions,
- horse racing – apart from tourist, recreational, and cognitive values, they also create great opportunities for teaching and learning (http://www.hippika.net/index.php?tyt=4).

The uniqueness of hippotherapy stems from its essential naturalness, i.e. establishing interaction with a real animal – a horse, which as the object of interest has a great power of attraction. Usually, children are happy to participate in this kind of activity, and experience a lot of joy and satisfaction. In the presence of a horse they feel wholly accepted, since it does not show such negative attitudes as reluctance, impatience, and above all, does not judge their impairment (Strumińska 2003). Participation in hippotherapeutical activities enables a contact with nature and being in a new environment. It has an impact on the cognitive development by lowering levels of anxiety, increasing one's self-control, building social relationships, acquiring new motor skills, stimulating the child to take one's own initiative, and allowing for a better understanding of themselves and their abilities (Brzuchacz 2005; Heipertz-Hengst 1997; Michalski 2004; Strumińska 2003). This unique form of rehabilitation, during which a child naturally experiences one's own agency, joy of successful achievement, strengthens consequently their self-esteem and brings great satisfaction. As a result, powerful experience and emotions are triggered that motivate them for active participation in the exercises (Gąsiorowska 1997).

The benefits of participating in hippotherapy may be experienced by various people with different diseases or developmental disorders. Moreover, recently often many participants are blind and visualy impaired people.

Material and methods

The above considerations, although presenteed in a form of a general sketch, clearly show the uniqueness of hippotherapy as a form of rehabilitation, both in terms of its efficacy and intrinsic motivation of children to participate in it. Those two issues are closely related and therefore they have been tested with a formal procedure. The aim of this study was to diagnose the relationship that exists between the motivation of children with disabilities that participate in hippotherapy and the effective results of these activities. For this purpose it was necessary to determine 1) the level of motivation of the subjects for participating in the activities, its sources, conditions, as well as 2) the effects obtained in the cognitive, social and physical areas.

The study includes 30 children from 'Róża Czacka Educational Centre for Blind Children' in Laski (Poland) who attend hippotherapy provided by this resort. Among them the most numerous (46.7%) are students of secondary schools, one in three is a high school student (33.3%), one in five (20.0%) – goes to a primary school. Half of them are completely blind, the remaining 50.0% belongs to the category of low vision.

In the group consisting of 20 boys there is a slightly higher percentage of blind people (55.0%), and among 10 girls – there is a higher number pertaining to the category of low vision (70.0%). All children from the study live in dormitories at the Department for the Blind People in Laski.

The study was conducted using the method of diagnostic survey, which was subordinated to three techniques: interviews, document analysis, and grading scale. The empirical material was gathered on the basis of qualification charters of the participants in hippotherapy, a questionnaire interview with a hypnotherapist, and a scale questionnaire to test the effectiveness of hippotherapy (original design). Based on the interview with a therapist information concerning the following issues has been obtained: about changes that occured in the development of the blind and partially-sighted while participating in the hippotherapy, their level of motivation to participate in these activities, involvement in the execution of specific tasks, attitudes towards the animal, as well as participation in sports and the results obtained by some of the disabled respondents in horsemanship. The effectiveness scale questionnaire contains 18 statements about the results achieved by the studied children in three areas: cognitive, social and physical. The respondent's (hippotherapist's) task was to respond by ticking one of four given answers.

Statistical treatment of the research material were made using chi-square independence test.

Results

According to the underlying concept of study the gathered empirical analysis focuses on two interrelated issues, namely the motivation of visually impaired children to participate in hippotherapy and the results of attending the course of this form of rehabilitation.

The motivation of visually impaired children to participate in hippotherapy

The basis for determining the level of motivation of the children to participate in hippotherapy is information obtained from therapists. Their task was to determine the relationship manifested by children to participate in the activities, such as obeying therapist's commands, performing new exercises, accepting challenges with an increasing level of difficulty.

According to the empirical material most of the children (46.7%) manifest high level of motivation to participate in hippotherapeutical activities. The second largest group (43.3%) consists of children with a medium level of motivation. A low level of involvement was noted only among three people. It has been also that 2/3rd of all children with low vision belong to a group of people with a high level of motivation to participate in the hippotherapy, and only slightly more than ¼th of the blind. Consequently, the average level of motivation is twice as large among the blind (60.0%) than among partially sighted (26.7%) (Tab.1).

Tab. 1 The level of motivation of the blind and visually impaired children to participate in hippotherapy

Motivation level for the participation in hippotherapy	Type of visual impairment				Total	
	Blind		Low vision			
	N	%	N	%	N	%
High	4	13,3	10	33,3	14	46,7
Medium	9	30,0	4	13,3	13	43,3
Low	2	6,7	1	3,4	3	10,0
Total	15	50,0	15	50,0	30	100,0

For most respondents the main source of motivation is riding a horse and the possibility of experiencing physical exercise and sport (40.0%). In the case of almost every fourth child what mobilizes them to take part in the classes is satisfaction from achievements and learning new skills (sense of agency). For every fifth person the main motivating factor is the mere fact of approaching a horse and being able to take care for it. In relatively few cases (6.7%) the source of motivation to participate in hippotherapy is pointed out as the opportunity to relax, or maintain contact with other people.

It is worth noting that among the respondents there are some individuals who have achieved a certain success in sport. This is the case of 36.7% of children. More than half of them (54.6%) took part in social events, the remaining 45.4% - in high-level competitions, including 3 people in the Special Olympics, and 2 people in the Polish Championship in dressage for people with disabilities and the International Competition of disabled people in dressage. The mere fact of participating in sport events, and even more recognized successes (subjects won high scores in the competitions) without a doubt significantly increased their motivation to participate in hippotherapy.

The level of importance of hippotherapy for visually impaired children can be inferred from data showing the relationship between the frequency of participation in activities and the motivation of respondents to participate in them. The correlation of these variables (χ^2 (4, N=30) = 34,674) has been demonstrated at a statistically significant level (p=0.0008), and the coefficient C_{kor} is 0.50 indeed indicates a visible connection between them. Studies show that a higher level of motivation is manifested by those who use this form of rehabilitation twice or three times a week (75.0% - high level, 25.0% - average). Less optimistic data is recorded in the group of children who only participate in hippotherapy once a week. Most of them (52.4%) manifest average intensity of motivation to participate in classes; high motivation is noted among every third child. This group also has three children with a low level of motivation.

A similar situation is observed in the case of another variable, namely the duration of the hippotherapeutical course. The more time a week was spent on hippotherapy, the higher was their level of motivation to participate in this form of therapy. This correlation is particularly evident in the example with two extreme groups relative to each other, i.e. a 30 minutes-per-week participation in hippotherapy (20 children), and those for which the duration is longer, and lasts at least 1 hour (10 children). The first group has almost twice as large number of children with average motivation level (55.0%) than that with the high (30.0%) intensity. In addition, the group also includes persons (10.0%), which exhibit low

intensity of desire to participate in activities. On the other hand, the situation presented in the case of persons qualified as the second group is quite different. Among them there are four times more children with high (80.0%) than average (20.0%) level of motivation. This fact is also confirmed by the statistical analysis. The resulting chi-square (χ^2 (2, N=30) = 6,956) has reached statistical significant value at p=0.0309, while the ratio C_{kor} is 0.57, thus confirming a real link between the analyzed variables.

In light of the above data, the following question arises: Is there a relationship between the level of motivation of visually impaired children to participate in hippotherapy and their achievements in these activities?

Motivation and the effectiveness of hippotherapy

As can be seen from general calculations, the studied population bifurcates into two, comparable in terms of size, groups of people, namely with average (53.3%) and high (46.7%) levels of effective hippotherapeutical impacts.

The overall level of hippotherapeutical effectiveness consists of three areas: cognitive, social and physical (Fig. 1).

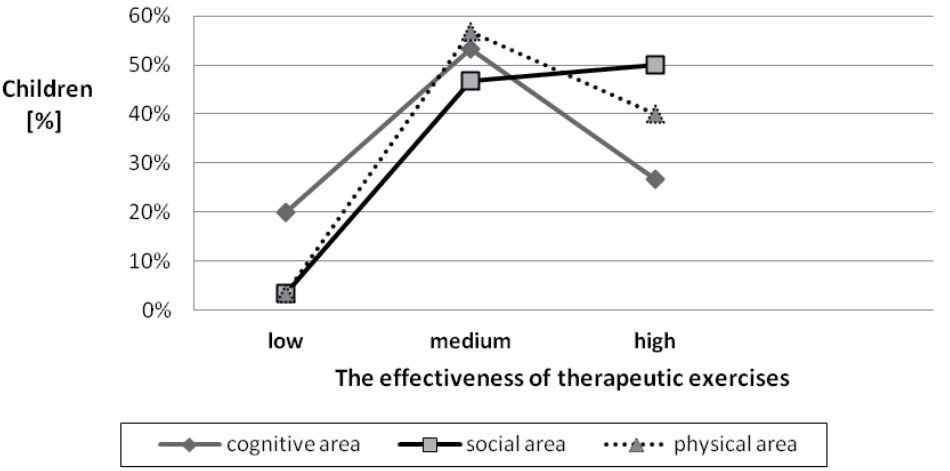


Fig. 1 The effectiveness of hippotherapy in the group of visually impaired children

Detailed analysis shows that the surveyed students achieve the best results in terms of social development. In the case of half of them they have been classified as high, whereas 46.7% - as medium. Only one child manifests low scores in this area. The hippotherapist characterizes the child in question as "locked in one's own world," who "often does not understand what other people say to them", "having great difficulty in initiating interpersonal contact".

The empirical material shows that the effectiveness of social co-operation among subjects consists of skills in team work, complying with social rules, and making social contacts. Further data obtained from the children as a result of participating in hippotherapy is associated with an increase in self-esteem and self-confidence. They also indicate an

increase in taking responsibility for themselves and other participants in the therapy (e.g. assisting colleagues in reaching the therapy and returning to boarding school), as well as taking care of the horses from therapeutic riding. As has been mentioned earlier, some of the children were involved in equestrian events, which is also important for their emotional and social development. Experiencing new situations arising in that respect, climate of competition, rivalry, the presence of the referees, the audience, etc. was for them a source of many experiences and emotions. It is also an opportunity to make new friends, cultivate friendship, and to overcome their own weaknesses and limitations. Achieved successes are a source of pride and joy, and a stepping stone to raising even further their social status among their peers.

Consequently, an attempt was made to further verify whether there is a significant relationship between the motivation of the children to participate in hippotherapy and the effects gained in the field of social development. To this end, an independent test of two variables was used – namely a chi-squared test. The obtained value χ^2 (4, N=30) = 21,909; p=0,0002, therefore demonstrates a significant association between the occurrence of the analyzed variables. The strength of association C_{kor} is 0.80, which indicates a strong positive relationship between motivation of visually impaired children to participate in hippotherapy and the effects obtained by them in the social sphere. Children with high levels of motivation achieve higher results than those with medium and low intensity of motivation to participate in hippotherapeutical activities. These relationships are illustrated by the Figure 2.

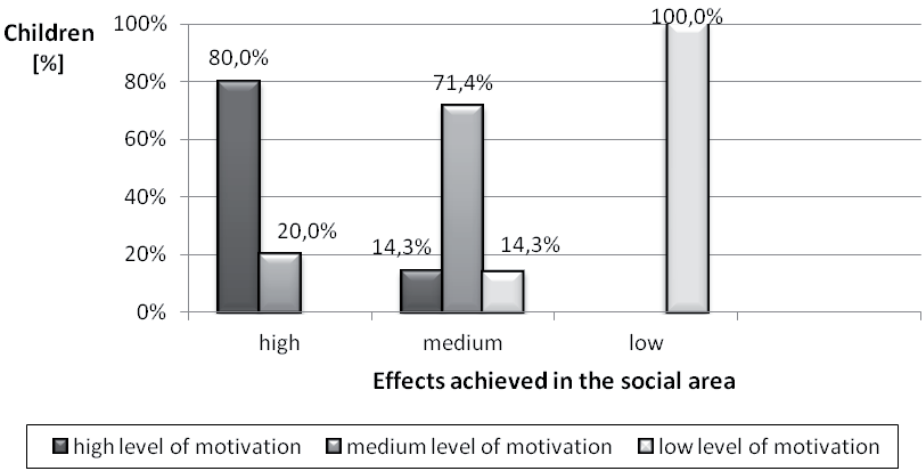


Fig. 2 The motivation of children with impaired hearing to participate in hippotherapy and the results achieved in the social sphere
χ^2=21,909, df=4, p=0,0002 – statistically significant differences,
C_{kor}=0,80 – strong relationship between the variables

The empirical results show that hippotherapy conducted under the supervision of a specialist has obvious advantages in terms of the physical area. This impact comes from the unique influence of horse movements on the functioning of human body. This notion is confirmed in the studied population of children with visual impairment. The results achieved by 56.7% of students classify at the medium level, in the case of 40.0% - high. Only two children (blind) achieved a low score in this area. They are not very physically fit, because of visible overweight. Despite poor progress in physical development, the possibility of movement during hippotherapeutical classes is very important to them for health reasons.

The most important effects of hippotherapy in the physical realm, indicated by the therapists are a better posture and improved position of holding one's head straight. Also they mentioned some positive changes in keeping the balance, and overall increase in muscle strength and performance, as well as improvements in large and small kinetic skills. The occasion for this sort of improvement are handling exercises performed on horseback, taking care of the horse, and handling of the reins while riding.

The best results in terms of physical development are observed in the group of children with a high level of motivation to participate in hippotherapy. More than half (57.1%) achieved high scores, while the rest 42.9%, turn out as average. Among the students with medium level of motivation there are twice as many individuals with avreage results (61.5%) than high-performance effects in the physical area. Their group also contains one child who obtained low results. The lowest results in physical development (low or medium) are manifested in the group with low interest in therapeutical activities.

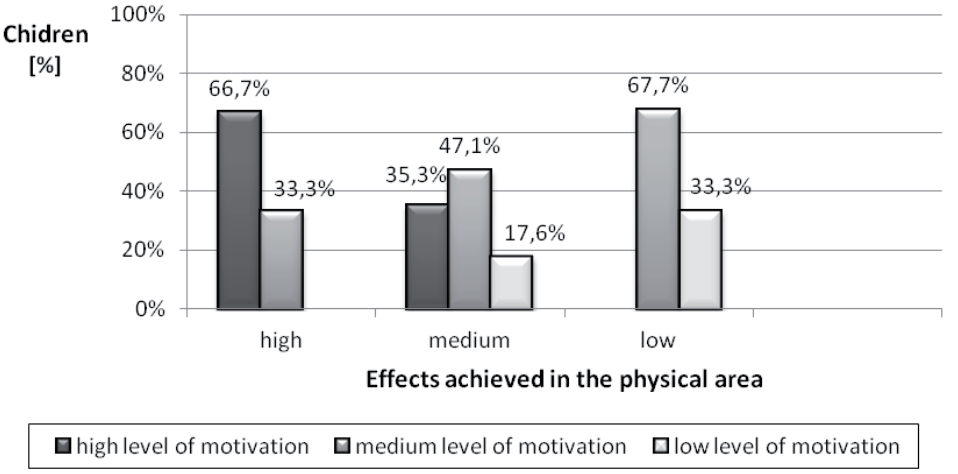


Fig. 3 The motivation of visually impaired children to participate in hippotherapy and the effects in their physical area
χ^2=9,5738, df=4, p=0,0483 – statistically significant differences,
C_{kor}=0,52 – visible relationship between the variables

The distribution of the presented percentages indicates the existence of a significant relationship between the level of motivation of the children to participate in hippotherapy and their results in terms of physical development. This fact is also confirmed by the statistical analysis. The resulting chi-square has reached statistical significant value at p=0.0483, while the ratio C_{kor} is 0.52, thus confirming a real link between the analyzed variables (Fig. 3).

The last group in the analysis pertains to results obtained during hippotherapy in the area of cognitive functioning. The research shows that the effectiveness of the respondents in this area is the lowest. Although a similar case was noted when physical condition was concerned, where the majority (53.3%) of children obtained average results, however, the percentage of subjects achieving high performance is only at 26.7%, while with low effects - up to 20.0%.

According to hypnotherapists one very important effect of hippotherapy pertaining to cognitive area is a better orientation in space among visually impaired children. Restricted freedom of movement is one of the most serious consequences of impaired eyesight, creating the largest and most visible barrier in one's life. The ability to move freely enriches the cognitive realm, allowing for new experiences and observations of many phenomena to arise spontaneously. Improving spatial orientation as a result of hippotherapy has also a psychological significance, due to the fact that self-locomotion enables individuals to feel the satisfaction from overcoming their physical inactivity. Another indicator of efficiency in the area of cognitive development is mastering riding skills and preparing a horse for the exercises. A special attention was also paid to increasing concentration, the development of tactile and auditory sensitivity, learning to make quick decisions, but also to enriching the knowledge about horses, horse riding, etc.

The synthesis of presented data shows that the best results in the cognitive field is obtained by the students with high motivation to participate in hippotherapy. They were classified either as high (50.0%) or moderate (50.0%) results. Children with average motivation 53.8% reached medium scores, whereas 38.6% - low results. A similar situation is found in the case of three people manifesting low will to participate in hippotherapeutical activities: two of them obtained medium, and one - low effects with respect to cognitive development.

Presented qualitative analysis, which is confirmed by the statistical analysis demonstrates a significant relation between the presence of motivation among visually impaired students to participate in hippotherapy and the results obtained by them in the cognitive field. The correlation of these variables has been demonstrated at a statistically significant level (p=0.0286), and the coefficient C_{kor} is 0.63 indeed indicates a strong connection between them (Fig. 4).

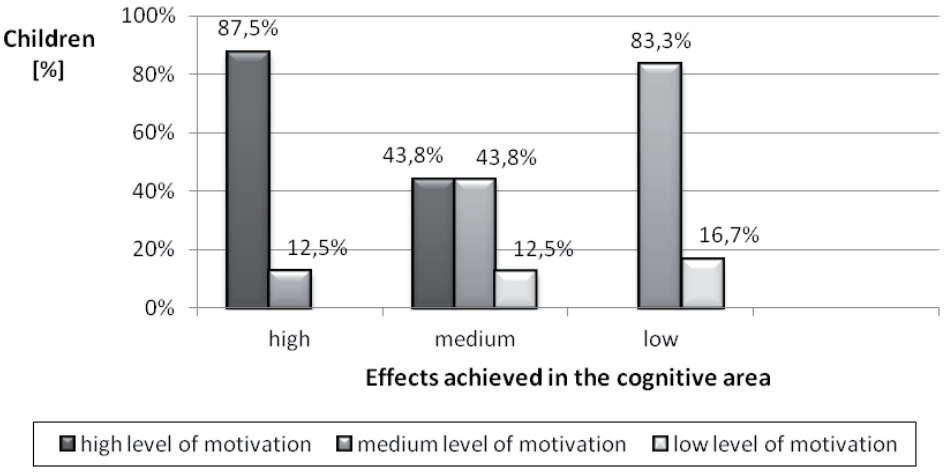


Fig. 4 The motivation of visually impaired children to participate in hippotherapy and their results achieved in the field of cognitive area
χ^2=10,825, df=4, p=0,0286 – statistically significant differences,
C_{kor} = 0,63 – strong correlation between variables

Conclusion

The presented overview of research confirms the validity of exploriation and using alternative solutions in the practice of rehabilitation. Indeed, hippotherapy is assuredly one to them. When organized properly it consequently brings often positive results in all aspects of development: physical, cognitive, and over and above social. A necessary condition for successful participation - as the study implies - is strong motivation of visually impaired children to participate in this form of rehabilitation. The willingness to participate in the classes is determined by many factors - the attractiveness of the course, possibility of experiencing positive sensations and emotions, but above all the experience of one's own sense of agency. Caretaking of a horse, riding a horse, and in some cases - participation in sport events are an invaluable source of pride and satisfaction. As a result, a mechanism of self-rehabilitaion comes about in a natural way - children actively participate in the rehabilitation process, they learn responsibility for themselves, their own actions - they become co-creators of their own development.

Bibliography

1. Brzuchacz M. (2005) Terapia psychomotoryczna małych dzieci z zaburzeniami i utrudnieniami w rozwoju psychoruchowym w hipoterapii. „Szkoła Specjalna" nr 4: 65-68.
2. Dykcik W. (2005) Pedagogika specjalna wobec aktualnych sytuacji i problemów osób niepełnosprawnych. Wydawnictwo Naukowe PTP, Poznań.
3. Eckert U. (1995) Rewalidacja dzieci z uszkodzonym słuchem. In: Maria Grzegorzewska pedagog w służbie dzieci niepełnosprawnych. Ed. E. Żabczyńska, WSiP, Warszawa: 136-149.
4. Gąsiorowska B. (1997) O hipoterapii. „Wychowanie w przedszkolu" nr 1: 49-52.
5. Heipertz-Hengst C. (1997) Jazda konna dla osób niepełnosprawnych. Państwowe Wydawnictwo Rolnicze i Leśne, Warszawa.
6. Kosakowski Cz. (1996) Podmiotowość i autorewalidacja w pedagogice specjalnej. In: Roczniki Pedagogiki Specjalnej. Ed. J. Pańczyk, Wydawnictwo WSPS, Warszawa, t.7: 99-108.
7. Michalski R. (2004) Hipoterapia w OSW dla Dzieci Niewidomych. „Szkoła Specjalna" nr 1: 37-42.
8. Obuchowska I. (1993) Dziecko niepełnosprawne w rodzinie. Zarys problemów. In: Sytuacja życiowa dziecka niepełnosprawnego w rodzinie. Ed. R. Ossowski R., Wydawnictwo Uczelniane WSP, Bydgoszcz: 11-24.
9. Strumińska A. (red.) (2003) Psychopedagogiczne aspekty hipoterapii dzieci i młodzieży niepełnosprawnych intelektualnie. Państwowe Wydawnictwo Rolnicze i Leśne.
10. http://www.hippika.net/index.php?tyt=4), [data dostępu: 15.02.2013].

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Sport of people with intellectual disabilities - a road to normalcy
Sport osób niepełnosprawnych intelektualnie - droga ku normalności

"Let me win,
but if I cannot win,
let me be brave in the attempt"
(the Special Olympics oath)

Summary
Sport is for many disabled people, including intellectual impairment, an opportunity to enter into normal social structures. Sporting activity allows a rediscovery of one's own potential, experience many positive emotions and sensations, and creation of objective image of one's self. As agents of particular actions and events disabled people experience their own subjectivity, acquire qualities and skills which enable independent - adequate to their needs and developmental opportunities - functioning among different levels of society. Also, in this way they naturally contribute to overcoming of mental barriers permeating the social environment, reducing stereotypical thinking about their place and role in society. A huge role in the dissemination of physical education and sport for people with intellectual disabilities in Poland is played by social organizations. The purpose of this publication is to present - for example Sport Association of Mentally Handicapped People "Special Olympics Poland", whose structures entail a sport section called "Cormorants" (one of 564 sections) - how important are grassroot civic initiatives in creating self-awareness of disabled people and in bringing about their social integration.

Key words: sporting activity, Non-governmental organizations (NGOs), people with intellectual disabilities, subjectivity, social inclusion

Streszczenie
Dla wielu osób z niepełnosprawnością, w tym intelektualną szansę na wejście w normalne struktury życia społecznego stanowi sport. Aktywność sportowa pozwala im na nowo odkryć własny potencjał, doświadczyć wielu pozytywnych przeżyć i wrażeń, ukształtować obiektywny wizerunek własnej osoby. Jako sprawcy pewnych stanów i zdarzeń doświadczają własnej podmiotowości, nabywają cech i kompetencji umożliwiających samodzielne – adekwatnie do ich potrzeb i możliwości rozwojowych – funkcjonowanie w różnych płaszczyznach życia społecznego. W naturalny sposób przyczyniają się również do przełamywania barier mentalnych tkwiących w środowisku społecznym, stereotypowego myślenia na temat ich miejsca i roli w życiu społecznym. Ogromną rolę w zakresie upowszechniania kultury fizycznej i sportu osób niepełnosprawnych intelektualnie w Polsce odgrywają organizacje społeczne. Celem niniejszej publikacji jest przedstawienie - na przykładzie działalności Stowarzyszenia Sportowego Osób Upośledzonych

Umysłowo „Olimpiady Specjalne Polska", w strukturach którego funkcjonuje sekcja sportowa „Kormorany" (jedna z 564 sekcji) - jak ogromne znaczenie mają oddolne inicjatywy obywatelskie w kreowaniu samoświadomości niepełnosprawnych i ich integracji społecznej.

Słowa kluczowe: aktywność sportowa, organizacje pozarządowe, osoby niepełnosprawne intelektualnie, podmiotowość, integracja społeczna

Introduction

The Polish Language Dictionary (Doroszewski, 1972) states: "normality / normal - according to the standard, as it should be, proper, adequate, usual, on average". Popular understanding of the term is found even on the internet in the discussion led on one of the online forums. The bottom line answer to the question "What is normalcy?" suggests the word "mediocrity": "Normal is someone who does not deviate from accepted standards of the community," "Norm, i.e. average. The word has a neutral connotation", "Normal is not standing out, it's being typical. On the one hand it is positive, however on the other, a negative phenomenon and depends on the point of view", "Normal may be someone original, but not in violation of general principles" (www.pytamy.pl/title czym_jest_normalność,pytanie.html).

It is true that people with disabilities are not very different from healthy people; they think, feel, have their own plans, dreams, aspirations, etc., like we all do. Unfortunately, in the public perception they are often stereotypically seen as other, weaker, inferior, worse. They do not fit the accepted standards, they are different because of musculoskeletal dysfunctions, sensory disorders, mental retardation, etc. The truth is that by seeing disabled people solely through the prism of their mental and physical limits, in fact, we manifest our own shortcomings, deficiencies, and weaknesses. In the name of accepted legal and social norms we usurp the right to judge others, giving them a stigmatizing label, "pigeonholing" them into the framework of accepted canons, being unaware of the fact that such attitude proves how far we as a society deviate from normality. We forget that the only common feature in all of us is that we are different indeed. Each of us has different intellectual, health, economic, physical, etc., features. Our natural endowment is important, but much more important is what we do with this potential, and how we use it for our own self-development. People with disabilities do not expect any special privileges, but solely ask for respect of basic rights of every citizen.

There are many examples of people who despite various limitations, be they mental, intellectual, physical, or social, live with passion, pursue a family life, work, achieve success in the field of culture, sport, etc. As one user on the Internet wisely said: "Everyone is unique, means that everyone is normal, normal is a person who is simply him or herself " Harlan Lane, in his book "The Mask Of Benevolence: Disabling the Deaf Community" (1996) gives an example of a deaf teenager who is reproved by his mother for not wearing a cochlear implant prosthesis and blurts out bitterly: "I am deaf. Let me be". We deal with a person who has a sense of self-identity and expects from others acceptance of his autonomous choices. This is because disabled individuals should not be adapted to existing conditions, but that the environment should be organized so that it can they may fully - to suit their needs and capabilities - participate.

The purpose of this publication is to present - for example Sport Association of Mentally Handicapped People "Special Olympics Poland", whose structures entail a sport section called "Cormorants" (one of 564 sections) - how important are grassroot civic initiatives in creating self-awareness of disabled people and in bringing about their social integration.

Subjectivity and social integration as a goal, and the condition of sport activities among people with intellectual disabilities

Sport as well as every physical activity is one of the most important aspects in the lives of people with intellectual disabilities. It is an essential area of rehabilitation in the healthy, psychological, and social dimension. Appropriately selected activity has a positive effect on the physical development as well as psychomotor performance.

Sport has also great therapeutic values: it relieves tension, reduces anxiety, improves internal controls. By way of sporting activities, aggression, anger, and conflict can be released. It is not only an attractive form of leisure, but also an opportunity to overcome one's weaknesses, limitations, and getting to know our own strengths and potential. Thanks to this individuals form an objective image of themselves, gain self-confidence and enhance their self-esteem. With succesful sport events they feel a surge of their own agency, learn self-discipline and responsibility. Sporting activities (recreational and competitive) are also an opportunity to visit various places, meet interesting people, make new friends. The individual feels more optimism and willingness to continue to work on their own. Group games also increase a sense of solidarity, create opportunity for integration, enable competition, and create a possibility to get to know one's personality (Puchalski 1985; Kasperczyk 1999; Szeliga 2004; Różański 2006).

By participating in sport people with intellectual disabilities not only overcome their weaknesses and limitations, but also contribute to social change in the image of people with intellectual disabilities. Such attitude shows that their weakness veils great strength, one needs only to see it and let it grow. Such power for many intellectually disabled people lies in sports practiced professionally or recreationally.

Organization of sports activities among people with intellectual disabilities in Poland - non-governmental sector

The Convention on the Rights of Persons with Disabilities (ratified by the President of the Republic of Poland in September 2012) in Article 30, Section 5 states:

In order to enable persons with disabilities to participate on an equal basis with others in recreational, leisure, and sporting events in the State, Parties shall take appropriate measures to:

(a) encourage disabled people to participate, as far as possible, in the mainstream sporting activities at all levels and promote their participation,
(b) ensure that persons with disabilities can organize and develop in the sporting and recreational field, and make opportunities to participate in such activities and by the same token, encourage provision, on an equal basis with others, of appropriate instruction, training and resources,
(c) ensure that persons with disabilities have equal access to sporting, recreational and tourist places (http://www.niepelnosprawni.gov.).

In Poland, there are two organizations involved in the promotion of sport for people with intellectual disabilities, which gives them the opportunity to participate in pastimes in the country as well as at well-known major national and international events.

One is a Polish Sport Society "Able Together", affiliated with the International Sports Federation for Persons with Mental Handicap (INAS – FMH). The aim of the organization is promotion and wide popularization of sports as an important factor in active recreation among children and young people with slight intellectual disabilities. The main directions of activity of the association are:

- organizing sports activities - recreational and therapeutic in special schools, educational centers, sports clubs working for the disabled and handicap cooperatives,
- publication and promotion of educational and training materials,
- conducting training for coaching staff,
- cooperating with social institutions for joint ventures,
- organization of sport rehabilitation,
- cooperation with the Polish Olympic Committee and the International Olympic Movement – IPC, INAS_FMH,
- organization of competitions at the national and international level (Maszczak, Jaszczur 1996).

Through the structures of the society, which finds players mainly in special schools, training and educational centers, there are local, regional and national competitions, and the Polish national team is involved (successfully) in international competitions (in accordance with the common rules on competitive sport for persons with disabilities). Sports included in the INAS - FMH program are: football, athletics, swimming, basketball, table tennis, cross country, and downhill skiing.

The Sports Association of Mentally Handicapped People 'Special Olympics Poland' is another sport organization which belongs to the most significant in our country. It is the official representative of the international organization of Special Olympics Inc. in Poland. It was established in 1990, as a continuation of the official program Special Olympics Poland – accredited since 1985 (in the years 1985 to 1990 being in the structures of the existing Company of Friends of Children 'T.P.D."). The main task of the organization is to provide year-round trainings and sport competition cycles (at the local, regional, national, and international level) for people diagnosed with intellectual disabilities, regardless of the degree of developmental dysfunction.

At the core of the Special Olympics is the belief that people with intellectual disabilities can - with right support and assistance - train, enjoy, and reap the benefits of physical, psychological, and social participation in sports adapted to their needs and abilities. The basic aims of Special Olympics are:

- to ensure that persons with mental retardation have the opportunity to participate in sporting competitions;
- creation of the Olympic atmosphere during competitions;
- to increase public awareness and knowledge about the capabilities of people with intellectual disabilities;

– to provide parents and family members of people with intellectual disabilities a possiblity to experience joy and pride of their pupils to participate in sports;
– to broaden the knowledge of coaches and players in the field of competition and sports at Special Olympics (http://www.olimpiady.eu/?ID=historia&ID2=4).

The progam of Special Olympics provides opportunity to participate in training and competition in 25 summer and 5 winter sports. It is available to all persons with intellectual disability, regardless of the degree of disability who are at least 8 years old. The aim of the organization is to help everyone take part in a competition, to experience one's maximum sport potential, joy, a sense of satisfaction in front of the audience, to establish friendships and motivate to further work on one's own. Therefore it is not an attempt to find a champion, because in light of the tenets each person competing in competitions is already a winner. Therefore, all participants are rewarded: for a place in the "top three" – they receive medals, for the next (from the fourth to eighth place) - ribbons or badges. Players who are disqualified or do not finish the competition are also rewarded in the form of ribbons or badges. Any national program may also include younger children (ages 5 - 7 years) in the training but they do not receive any official prizes (only badges for participation).

As a part of ongoing Special Olympics activity there are series of sports and educational programs aimed for a wider audience, not only the disabled, but also their families, non-disabled peers, teachers and all those who want to be actively involved in sports with disabilities, and as a result to promote social inclusion. The official programs are:

– Unified Sports – promoting sports activities of people with intellectual disabilities (Special Olympics Athletes) and healthy ones (Partners), who are in a similar age and skill level, through joint participation in team sports, training and in competition;
– The Motor Activities Training Program (MATP) – is a rehabilitation program designed for those with the lowest skills who can not take part in official training and sports competitions. This is the only way to integrate them into the Special Olympics as athletes, without the burden of compliance to specific provisions, rules, and rivalry;
– A Partner Section of the Special Olympics Program – its aim is to create a relationship of mutual respect and friendship between the players and partners. Thanks to this the participants are aware of their own self-esteem, social skills, courage, and above all willingness to participate in social life.

In recent times there other initiatives have been also implemented, such as for example:

– A Family Program - addressed to family members of people with intellectual disabilities,
– A program 'So Get Into It' - educational program aimed at teachers and young people with intellectual disabilities and able-bodied aged 6 - 18 years,
– A program 'Healthy Athletes' - it is addressed to doctors of different specialties,
– A program 'Young Athletes' - sports play program for children with intellectual disabilities betwee n the ages 2 - 7 years old for use in a family, kindergarten and early childhood education,
– A Volunteer Program, etc.

The supporting organization in the Special Olympics is The Law Enforcement Torch Run for Special Olympics.

The scale and scope of projects undertaken by the Special Olympics of Poland may be estimated from the following information: the organization currently has 18 regional offices, including 564 sections, which employs more than 1500 trainers to prepare more than 17000 players to participate every year in nearly 200 events during summers and winters (www.olimpiadyspecjalne.pl). Sections are created directly nearby special education centers, schools, nursing homes, day care centers, occupational therapy workshops, sheltered workshops, etc. One of them is the sports section, "Cormorants" working at the Special School in Augustów.

Environmental integration through sport - sports activities of the "Cormorants" section

The sports section "Cormorants" functioning in the structures of Special Olympics was founded at the Complex of Special Schools in Augustów initially bringing together 22 players aged 15 to 21 years with mental retardation in the moderate, severe and profound state. In subsequent years the group of participants was enriched by sections of primary school pupils, and then - as a result of changes in the provisions for Special Olympics - young people from 12 years of age. Currently the section has 68 players (53 students and 15 graduate schools), of which about 50 are covered by a systematic sport training during physical education classes and sports wheels.

For more than ten years of activity its sports profile was subject to permanent modifications. Originally providing canoeing, sailing, athletics, and motor activity training. In the following years new disciplines, such as swimming, table tennis, powerlifting, indoor hockey, soccer and boccia were added. With time, some of them have been abandoned, eventually focusing on the conduct of leading sports, two individual (swimming and canoeing), a team play (football), and a winter discipline – hockey hall. Players with lower capabilities are involved in motor activity training, boccia and athletics.

The all year-round schedule of work with children and young people is integrated into a series of systematic trainings, workshops, camps, sports and participation in meetings and events. During the winter break public workshops in swimming are organized for all willing to participate, directed mainly to people starting their adventure with sport in the Special Olympics. However, during the summer vacation students have the opportunity to participate in workshops with tourist canoeing. This is a perfect time for adjustment of already experienced players from the high-performance kayak tourism. Section representatives also raise their skills during sports camps (summer and winter) organized by a Podlasie branch. Players with profound intellectual disabilities develop their skills in individual classroom performances and in revalidation teams. The ability to check the progress made in this field is facilitated by being involved in motor activity training.

Exercise and effort in training athletes is reflected in their sports achievements: there are 154 gold winners, 201 silver, and 184 bronze medals, including the most prestigious, such as global and European Special Olympics Games. Currently, one of the athletes has qualified for the European swimming competition, which will take place in Antwerp in May 2013.

The scope of activities of the "Cormorants", in addition to working with youth, also includes organization of sporting events at a local, regional, and national level. It is also involved in organizing large-scale international projects (e.g. one of the trainers section belonged to the organizing committee of the European X Games, Special Olympics London 2010, he was a master of the podium ceremony).

Since its inception the section takes care of creating its own traditions and popularization of sports for people with intellectual disabilities in the local community. The expression of the integration efforts of the school community are numerous sporting events involving both section players, as well as other high school students. Regular events, such as "Keen on Swimming" (an event constituting a summary of learning to swim, covering an entire school community), The Augustów Day of motor activity (an event aimed at people with deep mental disabilities (MATP athletes), which is a summary of the results of rehabilitation through sports, in which fitter classmates serve as volunteers). Another event is the "White water rafting route of John Paul II", which is a summary of sports training and the end of the section, but also a reward for their participation. Students check their skills in water, keep safety in practice, sometimes even compete with each other. The culmination of each canoeing trip is a common bonfire. This is one of the most enjoyable forms of events organized by the school. It has educational and integration values, it also fosters openness and respect for other people. Other sporting events - held at the beginning and end of the year - are primarily informational in nature. They comprise of a variety of mini-games that integrate the whole school community, and the present the best athletes awards.

Another area of sports activity of the "Cormorants" is related to dissemination of physical culture and sports of people with intellectual disabilities in the local community. By organizing many interschool competitions (e.g. Christmas Swimming Cup meeting of Santa Claus) and regional events (e.g. Special Canoe Regatta Olympics, Special Augustów Olympics Football Tournament) and national (canoe races, boccia tournament, meeting in cycling), involving the local community, family, players, their friends, volunteers contribute to social change in the image of people with intellectual disabilities: as those who - in spite of some restrictions in development - can overcome, are worthy to fight, enjoy even the smallest achievements. It is also a great opportunity for parents of players to establish closer mutual contacts, shared experience of sporting struggle among their own children, their joys and successes. The organizers of events (mostly teachers from the Complex of Special Schools) take care of the climate event, their integrative nature, they invite to active participation in their local dance, vocal, groups etc.. The opening and closing ceremonies of the Special Olympics competition have special guests from Augustow authorities, who often also support the organization of events in the financial form. It is worth emphasizing that the activities of the "Cormorants" are social in nature, they constitute an expression of the dedication of the organizers, their dedication to the cause and the people who volunteer their time, work and show a lot of their good will.

Conclusion

For many people with intellectual disability sports are an opportunity to enter into normal social structures. By participating in exercises, training, sporting events, they experience the strength of their own subjectivity - become co-creators of their own development and bring about positive changes in public opinion. Such attitudes, determination, and above all optimism and sensitivity, break stereotypes permeating the society. This is an obvious fact to all those who at least once in their life have an opportunity to participate in sporting events which include people with intellectual disabilities. Unfortunately, lack of sufficient information concerning organized Special Olympics competitions or even synthetic reports from these meetings in public (local, national) media, not to mention broadcast major sporting events such as the Paralympics and Special Olympics, is a sign of the marginalization of this social group. People regret failures of disabled athletes, while denying themselves the opportunity to participate in this beautiful sport of the disabled, accompanied by a lot of positive impressions and emotions. It is surprising that such an important area of life to many people (healthy as well as disabled), namely sports, which as a concept ought to unite people, strengthen social solidarity is not fully exploited as far as breaking social barriers is concerned. In the face of inertia, which is manifested in the public and private media, great respect should be given to all the NGO initiatives, local communities that promote physical culture and sport for the disabled (including intellectually impaired). Thanks to such ventures ideals concerning subjectivity and integration of disabled people become real.

Bibliography

1. Kasperczyk T. (1999) Sport jako środek rehabilitacji. In: Sport w rehabilitacji niepełnosprawnych. Ed. J. Śliżyński, Polskie Stowarzyszenie Osób Niepełnosprawnych, Kraków: 39-41.
2. Lane H. (1996) Maska dobroczynności. Deprecjacja społeczności głuchych, (tłum.) T. Gałkowski, J. Kobosko, WSiP, Warszawa,.
3. Maszczak T., Jaszczur Z. (1996) Poradnik metodyczny. Polskie Towarzystwo Społeczno Sportowe „Sprawni-Razem". Wyd. PTSS „Sprawni-Razem", Warszawa.
4. Puchalski A. (1985) Rola i znaczenie sportu w kompleksowej rehabilitacji osób niepełnosprawnych. In: Sport osób niepełnosprawnych w różnych grupach wiekowych. Ed. J. Orzech, J. Sobiecka, Materiały z Ogólnopolskiej Konferencji Naukowo-Metodycznej Kraków 17-18XI 1983, Warszawa: 7-14.
5. Różański P. (2006) Zakres zainteresowań osób niepełnosprawnych wybranymi formami aktywności ruchowej. In: Aktywność ruchowa osób niepełnosprawnych. Ed. J. Migasiewicz, E. Bolach, Polskie Towarzystwo Walki z Kalectwem. Wrocław, t.2: 81-87.
6. Szeliga Ł. (2004) Rola sportu osób niepełnosprawnych w procesie rehabilitacji i integracji społecznej. „Sport niepełnosprawnych", nr 4: 29-32.
7. Doroszewski W. (red.) (1972) Słownik języka polskiego. PWN, Warszawa, (In:) http://www.pwn.pl/haslo/normalny [data dostępu: 10.03.2013]
8. http://www.pytamy.pl/title czym_jest_normalność,pytanie.html) [data dostępu: 10.03.2013]

9. Konwencja o Prawach Osób Niepełnosprawnych, (In:) http://www.niepelnosprawni.gov.pl/dokumenty-miedzynarodowe-/dokumenty-organizacji-narodow-zj/konwencja-o-prawach/ [data dostępu: 10.03.2013]
10. http://www.olimpiadyspecjalne.pl, [data dostępu: 14.03.2013]
11. http://www.olimpiady.eu/?ID=historia&ID2=4 [data dostępu: 14.03.2013]

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The level of self-esteem and social functioning of people with disabilities in a group of students

Poziom samooceny a funkcjonowanie społeczne osób niepełnosprawnych w grupie studentów

Summary
Disability as a lifelong human experience is a springboard for making subsequent assessments of one's self, in terms of positive or negative attitude. Self-evaluation as a form of self-consciousness becomes an important factor that influences social functioning of people with disabilities, including the nature of relationships with others and the efficiency of their actions. The aim of this study is to assess the level of self-esteem among students with disabilities and its connection to their relationships with other students.
The study includes 39 students with disabilities from the University of Białystok. In the study a Polish adaptation of the Rosenberg Self-Esteem Scale was used. Interpersonal relations were examined by way of interviews. The questions concerned: determining the position of a disabled person in a group of peers, their openness to convey problems and needs pertaining to disability, climate during the classes, feeling stressed in situations of speaking in front of the group, the group's reactions to statements in the classroom, the kind of participation activity in the classroom.
The average level of self-esteem, which is considered optimal for proper functioning presented 41.0% of the students. The remaining percentage has either low self-esteem 28.0%, or high 31.0%. Students with low self-esteem often encountered difficulties in establishing relationships in the group: 58.3%, said they are not very well-liked in the group, 75.0% did not communicate directly about their needs and have not asked for help, 66.6% met with lack of interest, and found their opinions being ignored; among 50.0% the activity in the classroom was low, or even very low – namely at 33.3%.
Conclusion: The majority of disabled students show mostly average or high level of self-esteem. Students who have low self-esteem exhibit at the same time difficulties in social functioning both in establishing positive relationships in a group and active participation in classes.

Key words: level of self-esteem, relations in a group of students

Streszczenie
Niepełnosprawność jako doświadczenie życiowe człowieka, staje się podstawą kształtowania oceny siebie - świadomej, pozytywnej bądź negatywnej postawy wobec własnej osoby. Samoocena, jako forma świadomości siebie, staje się ważnym czynnikiem, od którego zależy funkcjonowanie społeczne osób niepełnosprawnych, w tym charakter stosunków z innym ludźmi oraz efektywność działań. Celem podjętych badań była ocena poziomu samooceny studentów niepełnosprawnych i jej związku z relacjami w grupie studenckiej.
Badaniami objęto 39 studentów niepełnosprawnych Uniwersytetu w Białymstoku. Do badania samooceny wykorzystano polską adaptację skali SES M. Rosenberga.

Relacje interpersonalne badano za pomocą wywiadu. Pytania obejmowały: określenie pozycji w grupie, otwartość w komunikowaniu problemów i potrzeb związanych z niepełnosprawnością, klimat panujący podczas zajęć, odczuwanie stresu w sytuacjach ekspozycji wobec grupy, reakcje grupy na wypowiedzi podczas zajęć, poziom aktywności podczas zajęć.
Przeciętny poziom samooceny, uznawany za optymalny dla prawidłowego funkcjonowania, prezentowało 41,0% badanych studentów. U pozostałych ocena była niska – 28,0% lub wysoka – 31,0%. Studenci z niskim poziomem samooceny najczęściej przejawiali także trudności w nawiązywaniu relacji w grupie: 58,3 %, uważało, że są mało lubiani w grupie, 75,0% nie komunikuje bezpośrednio o swoich potrzebach i nie zwraca się o pomoc, 66,6% spotykało się z brakiem zainteresowania, ignorowaniem swoich wypowiedzi, u 50,0% aktywność podczas zajęć była niska, a nawet bardzo niska – u 33,3%.
Wnioski: Większość studentów niepełnosprawnych posiada przeciętny lub wysoki poziom samooceny. Studenci z niskim poziomem samooceny przejawiają jednocześnie trudności w funkcjonowaniu społecznym: w nawiązywaniu pozytywnych relacji w grupie i aktywnym uczestnictwie w zajęciach dydaktycznych.

Słowa kluczowe: poziom samooceny, relacje w grupie studenckiej

Introduction

Self-esteem is one of many forms of self-awareness. It allows knowing oneself, assessing one's needs and abilities as well as our behavior in relation to other people. It includes opinions concerning one's person and individual abilities (Vasta et al. 1995). According to Morris Rosenberg, self-esteem is a conscious attitude towards one's own person, positive or negative orientation toward oneself – its global assessment. It is a subjective construct, which is based on the assessment of self-esteem (Rosenberg 1989). Such understanding of self-esteem among adults is relatively permanent in nature, because it is a human trait, where 30-40% is partially genetically determined, subject to gradual or immediate changes during one's lifetime as a reaction to emerging events (Neiss et al. 2002). Self-esteem may be reflected in physical, mental, and social area. Evaluation is done by comparing oneself and one's possibilities with some patterns, such as: an ideal self, achievements of other people, or assessment expressed by the environment.

There is a high and low level of self-esteem; when there is a significant difference between the 'I ideal' and 'I real', i.e. between who one is and whom one would like to be, then the level of self-esteem is low. The subject with a high level of self-esteem may obtain results, which correspond to high requirements in relation to oneself. When results are weaker than expected, then there is a low level of self-esteem (Vasta et al. 1995). High level of self-esteem reflects a belief that one is a good and valuable person, not necessarily better than others, whereas low means that one does not fully accept oneself (Rosenberg 1989).

People with low self-esteem are constantly dissatisfied with themselves, they lack self-confidence, and have a sense of helplessness (Kulas 1986). It is observed among persons who acknowledge possessing lower capabilities than they actually have; consequently, they do not appreciate their skills and expect less than is necessary from others. Such situation may lead to underestimation of the level of expectations relating to future actions of people. This then creates a situation of anxiety instead taking any action and inhibits many activities (Dymek 1997).

High self-esteem is associated with satisfaction with oneself and one's own actions (Kulas 1986). Too high self-esteem is associated with a tendency to overestimate one's capabilities, assigning higher capacities than they actually are, resulting in taking actions that are beyond one's power. This can lead to frustration, feeling of disappointment, but may also have a motivating influence. Too high self-esteem means that people have too high expectations of what they deserve from life, which can lead to subsequent conflicts (Dymek 1997).

It is possible to specify a number of issues obstructing the emergence of a proper self-esteem among people with disabilities. The sole fact of being a disabled person is oftentimes difficult for many to accept. It is often associated with experiencing very strong emotions by the person, who feels a mixture of fear, anger, sadness and shame. People with disabilities are faced with an internal conflict: they love their body, but at the same time they hate it too because of the occurring damage. According to psychoanalysts, a discovery of some damage in one's body is equivalent to the experience of a severe psychological trauma (Krupnicka 1984). Major threats to the development of a proper self-esteem among people with disabilities are indicated by S. Kowalik (1999) as discriminatory practices occuring in their life. These include: shunning – avoidance of close and informal contacts with disabled people; devaluation - assigning by non-disabled people negative characteristics of the disabled and disseminating such views; delegitimization – when negative psychological attitudes of some people towards others become fixed in the form of socially relevant laws; segregation - physical isolation of the individual or whole groups of people from the society.

The aformentioned problems lead to the conclusion that many people with disabilities may be at risk of feeling less valueable, being someone worse, different, or doomed to be at the mercy of other people (Lis-Kujawski 2010).

Self-acceptance has a major impact on emotional human balance and is one of the factors determining social functioning of the individual (Reykowski 1992). Both high and low self-esteem have a negative impact on one's mental health (Ognińska-Bulik, Juczyński 2008). The level of self-assessment decides wheather a disabled person enters a particular group, but also influences the specificity of relations in that group, maintainance of satisfactory relationships with peers and performance of social roles in the group (Kulas 1992). Negative attitude towards oneself causes a similar attitude to other people (Ciekotowa 1988). The nature of relationships with others and the effectiveness of its actions depends on how people evaluate themselves (Kulas 1992). Studies provide ambiguous results on the subject in question. The research of R. Ossowski (1982) shows that self-image of disabled students compared to non-disabled students is underestimated. However, the study of Z. Palak (1994) shows that the level of self-acceptance of partially blind young people generally does not differ from non-disabled peers. The association level of self-esteem with social functioning is also not fully explained. It has been indicated that people with high self-esteem perceive themselves as more socially attractive and more popular (Battistisch et al. 1993), while people with low self-esteem claim that in their experiences there is a preponderance of negative relationships (Lakey et al. 1994). On the contrary, the research of Bishop J.A. and Inderbitzen A.M. (1995) has found that people with high and low self-esteem are equally liked by peers. Unfortunately, no such studies relate to people with disabilities.

The aim of this study is to assess the level of self-esteem among students with disabilities and its relationship with making interpersonal relationships among students.

Material and methods

The study involves 39 students with disabilities at the University of Bialystok. In the study group, there are people with different types and degrees of disability: namely 29 (74.4%) students have moderate disability and 10 (25.6%) a significant one, 16 (41.0%) are partially hearing, 12 (30.8%) patients have ocular dysfunction, and 11 (28.2%) people have physical disabilities. The students range in age from 21-24 years, medium age is 22.7.

The study uses a Polish adaptation of the Rosenberg Self-Esteem Scale. The Rosenberg Self-Esteem Scale is a tool for measuring the overall level of self-esteem, disclosed in self-report which is treated as a relatively permanent feature and not a temporary condition (Łagunai et al. 2007). In the questionnaire, respondents indicate their answers on a scale of four, resulting in a total score, which is a general indicator of the level of self-esteem; the higher the score, the higher the self-esteem. The second tool is a self constructed questionnaire concerning the relationships among students. Questions included the following issues: gauging a position in the group, openness to communication of problems and needs pertaining to disability, climate of the classes, the feeling of stress in situations of exposure in the group, the group reactions to statements in the classroom, the level of activity in the classroom.

Results

The average level of self-esteem, which is considered optimal for proper functioning, is noted among 41.0% of the respondents. Among the remaining students the score was either low self-esteem 28.0% or high 31.0%. Fig. 1 shows the results of the self-esteem among students.

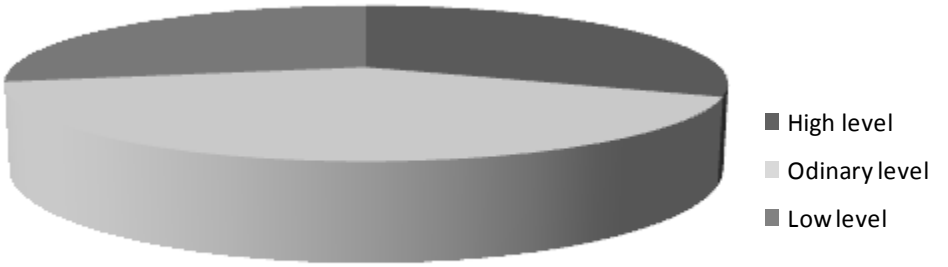


Fig. 1 Level of self-esteem among students

The following section provides an analysis of the relationships in the group, taking into account differences pertaining to the level of self-esteem.

Table 1 shows how different levels of students assess their position in the group.

Tab. 1 The level of self-esteem and the position in the group

Assessment of one's position in the group	Level of self-esteem						Total	
	Low		Medium		High		N	%
	N	%	N	%	N	%		
Very popular	0	0.0%	2	12.5%	7	63.6%	9	23.1%
Quite liked	4	33.3%	9	56.3%	4	36.4%	17	43.6%
Not popular	7	58.3%	4	25.%	0	0.0%	11	28.2%
Not liked	1	8.4%	1	6.2%	0	0.0%	2	5.1%
Total:	12	100.0%	16	100.0%	11	100.0%	39	100.0%

Pearson correlation r=1, p<0.001

Almost half of the students with disabilities place themselves in the average position of popularity – i.e. 43.6%. A similar number of students feels that they are very popular -23.1%, or not popular - 28.2%. There are also individuals who feel that they are not liked among the peers - 5.1%.

Most students with low self-esteem feel that they are not popular in the group – 58.3%, or that they are only quite liked on average – 33.3%. Definitely higher position is claimed by students with high self-esteem, who most often indicate that they are very popular - 63.6%, or quite liked – 36.4%. In the group with an average self-esteem scores are distributed more evenly, and dominate opinions that they are quite liked on average 56.3%.

Therefore, it can be noted that students with low self-esteem assess their position in relation to students in a completely different way, namely by far the lowest, than high self-esteem students, but also worse than students with moderate levels of self-esteem. It seems, therefore, that each level of self-esteem determines different self-positioning in the group: the lowest pertains to low self-esteem, an average to medium, and high level of self-esteem with high self-assessment.

Another issue for consideration is openness of students to communicate their problems and needs related to disability. Students were asked whether, in a situation where they need help they turn to friends or rather expect that it will be recognized without the need of verbal statements.

Tab. 2 Level of self-esteem and communication of one's needs

Communication of needs	Self-esteem level						Total	
	Low		Medium		High		N	%
	N	%	N	%	N	%		
Direct asking for help	3	25.0%	5	31.2%	9	81.8%	17	43.6%
Lack of direct asking for help	9	75.0%	11	68.8%	2	18.2%	22	56.4%
Total:	12	100.0%	16	100.0%	11	100.0%	39	100.0%

Pearson correlation r=1, p<0.006

Data included in Table 2 indicates that direct communication of their needs and asking for help is not common and moreover is difficult for most students with disabilities - 56.4%. Most often this applies to students with low self-esteem, among them as many as 75.0% do not communicate directly about needs and do not ask for help. At the same time students with moderate levels of self-esteem often do not ask directly - 68.8%. Only those with high self-esteem do not hesitate to ask directly when they have a problem. Apparently, the vast majority state that they directly and openly communicate their problems or needs - 81.8%.

It may be noted that by and large only students with high self-esteem are able to communicate openly issues related to disability, which is a rarity among students with both low and moderate levels of self-esteem.

Many situations are associated with direct participation in classes where it is necessary to speak in front of the entire group, have teamwork and related activities, or taking roles.

Students have assessed the way they feel about prevailing climate in the group during their speaking in the classroom and in the discussions. They were asked to specify the usual reception of their contributions in the classroom.

Tab. 3 The level of self-esteem and the response of the group to statements during classes

Group's reaction to statements	Self-esteem level						Total	
	Low		Medium		High		N	%
	N	%	N	%	N	%		
Interest, group support	1	8.4%	12	70.0%	6	54.5%	19	48.7%
Low interest, lack of feedback	8	66.6%	2	12.5%	2	18.2%	12	30.8%
Conflict of opinions, criticism	3	25.0%	2	12.5%	3	27.3%	8	20.5%
Total:	12	100.0%	16	100.0%	11	100.0%	39	100.0%

Pearson correlation $r=1$, $p<0.168$

Most often the students believe that their statements are of interest and meet with group's support, this applies to 48.7% of respondents. Other people usually meet with a lack of interest, falling on deaf ears - 30.8% or criticism from other members of the group – 20.5%.

The climate of support and interest of the students is felt most often by students with average level of self-esteem 70.0% and higher - 54.5%. However, students with low self-esteem often meet with lack of interest, or being ignored - 66.6%. Widespread criticism and differences of opinion, is seldom noted by the students, regardless of the level of self-esteem, although students with moderate levels of self-esteem are somewhat less concerned 12.5% than students with low self-esteem – 25.0%, and high – 20.5%. It seems characteristic that students with low self-esteem are often ignored, their statements do not inspire group response, while students with average and high self-esteem come across support and interest.

Appearance in front of a group is for many people a stressful situation. Some students are bothered even by the thought that this is going to happen soon. Students assessed whether and to what extent, speaking in front of a group is stressful for them. The results are shown in Table 4.

Tab. 4 The level of self-esteem and perceived stress in a situation of speaking in front of a group

Level of felt stress in a situation of speaking in front of a group	Self-esteem level						Total	
	Low		Medium		High		N	%
	N	%	N	%	N	%		
High	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Moderate	7	58.4%	4	25.%	0	0.0%	11	28.2%
Low	4	33.3%	9	56.2%	5	45.5%	18	46.2%
None	1	8.3%	3	18.8%	6	54.5%	10	25.6%
Total	12	100.0%	16	100.0%	11	100.0%	39	100.0%

Pearson correlation r=1, p< 0.001

In the opinion of the students, speaking in front of a group is not a particularly stressful situation; none of them feels high concentration of stress. Most assess their level as low - 46.2%. Also, other people often assess their situation as not stressful - 25.6%, while for 28.2% of the students it is moderately stressful. The most stressed while speaking in front of the group are people with low self-esteem, who often assess the situation as moderately stressful - 58.4%. People with moderate level of self-esteem often feel low level of stress - 56.3%, while those with high self-esteem usually indicate that the situation is not stressful for them - 54.5%, or slightly - 45.5%. It seems, therefore, that people with low self-esteem experience higher levels of stress than those with average or high self-esteem. However, in the case of people with low self-esteem stress level is usually moderately severe, whereas among individuals with average and high self-esteem it is slight or absent.

Students have also assessed their own participation in the classroom. The analysis in relation to the level of self-esteem is presented in Table 5.

Tab. 5 Self-esteem level and active class participation

Active class participation	Self-esteem level						Total	
	Low		Medium		High		N	%
	N	%	N	%	N	%		
High	0	0.0%	1	6.3%	5	45.5%	6	15.3%
Average	2	16.7%	5	31.2%	5	45.5%	12	30.8%
Low	6	50.0%	6	37.5%	1	9.0%	13	33.4%
Very low/none	4	33.3%	4	25.0%	0	0.0%	8	20.5%
Total:	12	100.0%	16	100.0%	11	100.0%	39	100.0%

Pearson correlation r=1, p< 0.001

Students usually evaluate their own activity during classes as average 30.8%, or poor 33.4%. However, in the group of students with high self-esteem it is often high - 45.5%, or average - 45,5%. Also, the activity of students with low self-esteem is usually low - among 50.0%, and even very-low in 33.3%.

It can therefore be observed that the subjects' activity varies in the classroom, namely more actively involved are students with high level of self-esteem, but seldom active are students with low self-esteem.

Discussion

The assessment of self-esteem among students with disabilities indicates that their level is usually average, which is considered optimal for their self-esteem (Heatherton, Ambady 1993). The problem of low self-esteem among students with disabilities applies only to some people in the studied group, namely about 1/4th. As far as high level of self-esteem is concerned the percentage is slightly bigger. Literature often emphasizes the problem of low self-esteem among people with disabilities, studies conducted by R. Ossowski (1992) show that self-esteem of disabled students when compared to non-disabled students is lower.

In fact, there is insufficient data stemming from lack of definite research that may determine the level of self-assessment allowing for confirmation of the results. Słomska B. et all (2012) evaluated a group of people with leg length discrepancy among students who underwent a complete treatment. Apparently, there was a prevalence of high scores in performance over average, with low recorded as well. However, the authors point out that their assessment of the level of self-acceptance was made at a time when patients had had significant improvement in their functioning and felt satisfaction from the treatment; hence, the results may be high. Due to a small size of the group of the students, any clear-cut proposals have not been put forth concerning the distribution of the results; yet, it can be noted that the problem of low self-esteem concerns only some part, perhaps even a minority of students with disabilities. Also, the presence of high (inflated self-esteem), which may have different consequences in their functioning among people with disabilities, is seldom noted. First of all, it poses a risk of overestimating one's abilities and by the same token making too optimistic plans for their activities (Dymek 1997).

The aforementioned results indicate that differentiation in the levels of self-esteem among students is reflected in their interpersonal relationships. Often they present their relationships in the group of students in the following way.

Students with low self-esteem: occupy low position in the group (being not popular), they can not and do not communicate openly about their problems and needs arising from illness, their statements are of little interest to the group, and they are ignored as a result. In a situation of having the floor before a group they feel fairly significant increase of stress (moderate level). Consequently, they do not engage actively in the course or activities (low or very low participation).

Students with moderate level of self-esteem: occupy an average position in the group (they are generally liked), they can not and do not communicate openly about their problems and needs arising from disability, their thoughts are of interest and support of the group, in a situation of speaking in front of a group they experience low stress intensity (at moderate level), they engage from time to time in the course activities (average or low activity).

Students with high self-esteem: occupy high position in the group (they are very well-liked), are able to communicate openly about their problems and needs relating to disability, their statements are of interest and support to the group, in a situation of speaking in front of the group they do not feel much stress, their participation is active or moderate in the course of the activities (high or average activity).

Łaguna et all (2007) indicate to early research data of M. Rosenberg (1965) in which 47% of people with high self-esteem were chosen at least twice as a leader in the group, 32% with medium level of self-esteem and 15% with low. Similar results were obtained to the question about who from the school group usually speaks. These studies are in a similar vein as the present study, because they confirm a connection between self-esteem and popularity in the group. It has been shown, however, that when people find themselves in a situation that one's ego is threatened, people with high self-esteem are liked less (Adams et al. 2000, from: Łaguna et al. 2007). Such a situation may be a climate of debate, marked by lack of support and harsh criticism. In fact, such situations are not too common, especially in relation to people with high self-esteem, and therefore are unlikely to significantly alter popularity of the persons.

To sum up the results of the research, it should be noted that students with low self-esteem are the most disadvantaged. Firstly, they low rate themselves, secondly, relationships in the student group seem to confirm their current thinking about their persons. Notwithstanding health problems, their impact on functioning and quality of life by disabled people, psycho-social effects of disability in the form of self-esteem and social relationships may constitute an important factor, which can also further develop in a negative direction. Indeed, disabled people with low self-esteem should be paid most attention from the point of view of the student support group. Otherwise they remain in a vicious circle of self-degradation, abandoning also active participation in the teaching process.

Students with high self-esteem are a group allowing mostly to recognize and better understand their needs and problems, which is an important factor in maintaining a good relationship with the environment (Adler et all. 2011). It is only possible to question whether their perception of a highly positive attitude on the part of students is real and fully adequate reflection of the situation. However, persons in question undoubtedly possess more opportunities to satisfactory performance and building self-confidence. They are able to derive from others what works best for them. Another problem pertains to negative effects of inflated self-esteem, which although is beyond the scope of this study is nonetheless worth paying attention.

Conclusions

1. Most students with disabilities have average or high self-esteem.
2. Students with low self-esteem at the same time exhibit difficulties in social functioning: in establishing positive relationships in the group and actively participate in classes.

Bibliography

1. Adler R.B, Rosenfeld L.B, Proctor R.F. (2011) Relacje interpersonalne. Proces porozumiewania się. Rebis, Poznań.
2. Battistich V., Solomon D., Delucchi K. (1993) Interaction processes and student outcomes in cooperative learning groups. "The Elementary School Journal" 94: 19-32.
3. Bishop J.A., Inderbitzen H.M. (1995) Peer acceptance and friendship: An investigation of their relation to self-esteem. "Journal of Early Adolescence" 15: 476–489.
4. Ciekotowa K. (1988) Samoocena a ocena uzdolnień intelektualnych studentów, Wyd. Politechniki Wrocławskiej, Wrocław.
5. Dymek M. (1997) Samoakceptacja drogą do sukcesu, Instytut Badań Edukacyjnych, Warszawa.
6. Heatherton T.F, Ambady N. (1993) Self-esteem, self-prediction, and living up to commitments, In: Self-Esteem: The Puzzle of Low Self-Regard. Ed. R.F. Baumeister, Plenum, New York: 131-145.
7. Kowalik S. (1999) Psychospołeczne podstawy rehabilitacji osób niepełnosprawnych, Warszawa.
8. Krupnicka J. (1984) Bereavement during childbood and adolescence. In: Bereavement reactions consequences and care. Ed. M. Osterweis, F. Solomon, M. Green, Washington, D.C. National Academy Press.: 99-141.
9. Kulas H. (1986) Samoocena młodzieży. WSiP, Warszawa.
10. Kulas H. (1992) Poziom samooceny a pozycja jednostki w grupie rówieśniczej. „Psychologia Wychowawcza" 3: 276-286.
11. Lakey B., Tardiff T., Drew J. B. (1994). Interpersonal Stress: Assessment and relations to social support, personality and psychological distress. "Journal of Social and Clinical Psychology" 13: 42-62.
12. Lis-Kujawski A. (2010) Moje „ja" i szkoła integracyjna: zjawiska ukrytego programu w nauczaniu, uczniów niepełnosprawnych, Oficyna Wydawnicza Impuls, Kraków.
13. Łaguna M., Lachowicz-Tabaczek K., Dzwonkowska I. (2007) Skala samooceny SES Morrisa Rosenberga– polska adaptacja metody. „Psychologia Społeczna" 2: 164–176.
14. Neiss M.B, Sedikides C, Stevenson J. (2002) A behavioural genetic perspective. "Eur J Pers" 16: 1–17.
15. Ognińska-Bulik N., Juczyński Z. (2008). Osobowość. Stres a zdrowie. Difin, Warszawa.
16. Ossowski R. (1982) Kształtowanie obrazu własnej sytuacji i siebie u inwalidów wzroku w procesie rehabilitacji. WSP, Bydgoszcz.
17. Palak Z. (1994) Właściwości samooceny uczniów niewidomych In: Człowiek niepełnosprawny-problemy autorealizacji i społecznego funkcjonowania. Ed. M. Chodkowska, Wyd. UMCS, Lublin, s. 141-151.
18. Reykowski J. (1992) Osobowość. In: Psychologia. Ed. T. Tomaszewski, PWN, Warszawa: 115-185.

19. Rosenberg M. (1989) Society and adolescent self – image. Revised edition. Middletown, CT: Univeristy Press, Wesleyan.
20. Rosenberg, M. (1965) Society and adolescent self-image. New York: Princeton University Press.
21. Słomska B., Pilarz E., Niedzielski K. (2012) Analiza samooceny u pacjentów z nierównością kończyn w postrzeganiu własnej osoby po zakończonym leczeniu metodą Ilizarowa. „Polish Orthopedics and Traumatology" 77: 47-52.
22. Vasta R, Haith M,M, Miller S. (1995) Psychologia dziecka. WSiP, Warszawa.

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Chapter III

Relaxing Techniques

Techniki relaksacyjne

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Relaxation teacher in the opinion of students of relaxation techniques specialization

Nauczyciel relaksacji w opinii studentów specjalności techniki relaksacyjne

Summary
Several years ago, the precursors of relaxation seen the need to implement it to schools, because it determines the comprehensive development of pupils, ensures calmness and concentration. More and more institutes in Poland offer to acquire skills of relaxation teacher, including Wroclaw Academy of Physical Education, which created the first Postgraduate Studies of Relaxation Techniques, Postgraduate Studies of Psychosomatic Yoga Practice, and Specialization of Relaxation Techniques in Recreation. This paper aims to identify the attributes of a good relaxation teacher in opinion of students of that specialization. We specify the criteria for evaluation (author's evaluation sheet ONR-9) in our opinion useful in the evaluation of relaxation teachers' work. We also investigate on what level of practical skills are students graduating from Relaxation Techniques in Recreation specialization.

Key words: relaxation, teacher, competence, evaluation criteria, students of Academy of Physical Education

Streszczenie
Już kilkadziesiąt lat temu prekursorzy relaksacji widzieli potrzebę wdrażania jej do szkół, gdyż warunkuje ona wszechstronny rozwój podopiecznych**,** zapewnia odprężenie, spokój i koncentrację. Coraz więcej ośrodków w Polsce oferuje zdobywanie kompetencji nauczyciela relaksacji, w tym Wrocławski AWF, jako pierwszy tworzący Studia Podyplomowe Technik Relaksacyjnych, Studia Podyplomowe Psychosomatycznych Praktyk Jogi, czy Specjalność Techniki Relaksacyjne w Rekreacji. Niniejsza praca ma na celu wskazanie cech, jakimi powinien charakteryzować się dobry nauczyciel relaksacji zdaniem studentów kształcących się właśnie w tym zakresie. Wyszczególniamy również kryteria oceny (autorski arkusz oceny ONR-9) naszym zdaniem przydatne w ewaluacji pracy nauczyciela relaksacji oraz badamy, na jakim poziomie umiejętności praktycznych znajdują się studenci kończący specjalność Techniki Relaksacyjne w Rekreacji.

Słowa kluczowe: relaksacja, nauczyciel, kompetencje, kryteria oceny, studenci AWF

Introduction

It would take long to enumerate the benefits of relaxation to modern humans. Just like in the areas in which we could use positive its impact, especially for the well-being and health considered in positive terms (Kulmatycki, Torzyńska 200). Currently, psychologists

use the beneficial effects of relaxation training to support psychotherapy, doctors apply it in the treatment of somatic diseases, coaches of competitive athletes introduce a dose of mental and relaxation training (Siek 1990; Kulmatycki 2012). Over thirty years ago, in the book Function of The Relaxing Exercises in the Modern Process of Education, Andrzej Szyszko-Bohusz postulated the need to implement atmosphere of peace, relaxation and concentration into the curricula of schools and universities. He believed that they determine a comprehensive personality development of students. Already then, the scientific and technological revolution had a significant impact on human lifestyle, making changes such as haste, increased tension, neurosis, unproductive energy dissipation, in consequence leading to disproportionate frustration and loss of joy of life (Szyszko-Bohusz 1979). The precursors of relaxation in education such as William James and Annie Payson Call saw a huge potential of "rest training" (Zielinski 2011). Their demands for change in the lifestyle and functioning of modern human are still valid. Almost one hundred years ago, the need for implementation of relaxation to pedagogy was seen, yet relaxation surpasses the walls of schools and universities in very small steps (Kulmatycki 2007; Urbańska et al. 2012). It is also noticed by Teml, who believes that relaxing exercises should be found in schools as "shaping the personality of the student and stimulating the learning process, so the school could become more humanistic" (Teml 1997, p. 7). Students of specialization Relaxation Techniques in Recreation that are undergoing an apprenticeship training in primary, lower secondary and upper secondary schools confirm that only a small percentage of teachers know and use any relaxation exercises. Many of them excuse themselves with curriculum overload and the lack of time to introduce such content. Perhaps the reason also lies in the lack of competence to carry out relaxation activities. Optimistic is the fact, that in Poland we can find more and more places offering education for relaxation teachers, opportunity to gain skills and experience in this field. As first in Poland, Academy of Physical Education in Wroclaw in 2007 created Postgraduate Studies of Relaxation Techniques. June this year, students of the fifth edition of these studies will defend the diploma. In 2010 Postgraduate Studies of Psychosomatic Yoga Practice were established and the third group of full-time and part-time students began studies in the fall semester of 2012 on specialization Relaxation Techniques in Recreation. We are happy about the great interest in the issue of relaxation and the growing number of competent people involved in it. Unfortunately, still there are few places providing job for relaxation coaches. In Wroclaw there is just one commercial institution that offers its customers a passive relaxation. We realize that it is a specific form of group work that requires adequate preparation, but we encourage also those teachers and lecturers who do not have formal preparation to reach for the benefits of relaxation. The following paper by identifying characteristics of relaxation teacher and specifying evaluation criteria will indicate these aspects, which teacher preparing to perform relaxation should pay attention to. Teacher should know the different groups of relaxation exercises (Kulmatycki, Torzyńska 2012). The proposed criteria, rated on a seven-point scale (where 1 means not satisfied and 7 maximum satisfaction) evaluation sheet ONR-9 will be listed and ranked in the results and conclusion.

The aim of research is to identify assessment criteria relevant to evaluate work of relaxation teacher and illustrate the profile of a person using relaxation techniques in their work. We believe that the increasing need to introduce relaxation techniques to

schools, universities, and a growing group of people who are competent to carry out such activities determine the need for evaluation tools to measure their work. This raises the question of whether anyone can be a teacher of relaxation.
Research questions:

1. What characteristics should a teacher of relaxation have?
2. At what level of practical skills are students of the second year Relaxation Techniques in Recreation specialization?
3. Which of the criteria proposed by the authors are most relevant for the future teacher of relaxation techniques?

Material and Methods

Fifty full-time students and twenty part-time students of the second year of postgraduate Tourism and Recreation took part in the research. It was the students' free choice that they happened to be on the Relaxation Techniques in Recreation specialization. During the second and third semester they had the opportunity to have contact and practice passive and active forms of relaxation on subjects such as: Relaxation Massage, Psychosomatic Hathayoga Exercise, Relaxation in water, Jacobson's Progressive Training, Body Awareness Exercise, Relaxation Forms of Movement Expression. Two terms of studies consists of about 90 hours of lectures on the history of relaxation techniques and stress issues, as well as 200 hours of practical exercises. The subjects mentioned above were conducted by different people, which allowed contact with various styles of teaching and probably gave an opportunity to form an opinion on the profile of a good relaxation teacher. The survey was conducted during the fourth semester of 2012/2013, during the obligatory course Relaxation Techniques Methodology. At the beginning of the semester, students were asked to specify the attributes, which they believed a teacher of relaxation should possess. We received replies from 55 people. In addition, during the semester students were required to conduct prepared by themselves a 20-minute relaxation exercise session and each of them was evaluated by the other participants with evaluation sheet ONR-9. The size of the groups varied in subsequent sessions (depending on attendance). After a few weeks of contact with the criteria proposed by the authors, students were to choose the two most important.

Results

During the research 37 students prepared and conducted relaxation exercise sessions. On average, each session was evaluated by 18 people. Analysis of the data from the 674 ONR-9 sheets shows that students got on average 5.5 points, taking into account all the questions. The average values on the scale of 1 to 7 points awarded for each criterion are shown in Fig. 1.

These values range from 5.3 points to 5.7 points. According to the students the best performed tasks were "personal organizing for the classes" (5.73) and "organizing of the group for the classes". "Personal predispositions" were assessed at 5.59 points. Evaluation of the questions on "general impression", "passing instructions for classes", and "explanation of aim and stages of the classes" were close to the overall average 5.5 points. Somewhat less appreciated was "control over classes" getting an average of 5.4 points. The lowest rated were "teaching predispositions" (5.34 points) and a "summary of classes" (5.3 points).

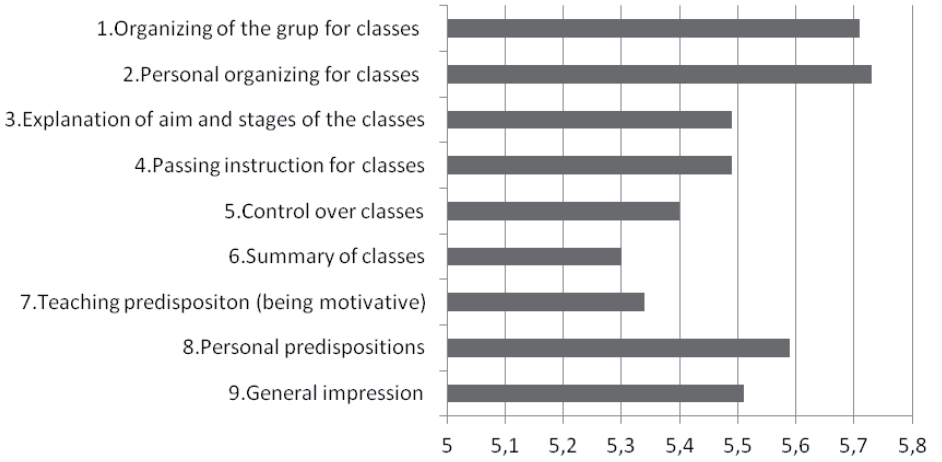


Fig. 1 Average values in the assessment of relaxation exercises sessions prepared by the students according to given criteria

Students had a choice of the two most important criteria from the nine given (Fig. 2).

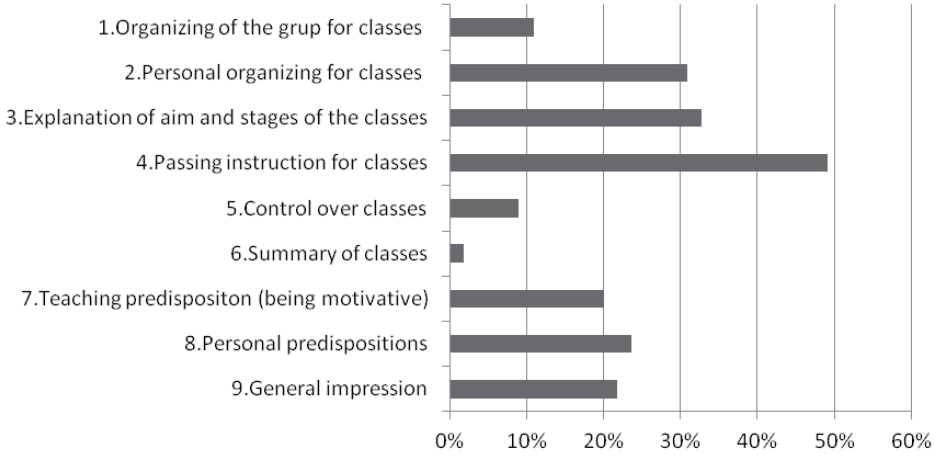


Fig. 2 Percentage of two most important criteria in the relaxation teacher evaluation chosen by the students from ONR-9 sheet

Almost half of the group (49.09%) as the most important criterion while evaluating a teacher of relaxation indicated "passing instructions for classes". At the forefront of the work of relaxation teacher is a proper voice disposition. The way of modulating the voice, intonation, suggestive narration are of great importance, since it is voice that introduces participants into the state of relaxation, especially during passive relaxation. To a large extent, teacher's calmness and lack of stress manifest in their voice, which

helps to generate a welcoming atmosphere. The second criterion defined as the most important was "explanation of aim and stages of classes" (32.72%). Skillful explanation of the purpose and stages of the course is necessary, as it provides the person undergoing relaxation direction of work and a relative sense of security. Please remember that in the relaxation, which is a process of getting into the state of being relaxed, superior is the very process and not the aim itself. Slightly less students have chosen as the most important criterion "personal organizing for classes" (30.90%). It follows that in the opinion of students relevant teacher's preparation for classes, the use of additional materials, props, and teaching aids is important while evaluating the relaxation teacher. The next criteria chosen by nearly one-fifth of students were: "personal predispositions" (23.63%), "general impression" (21.81%) and "teaching predispositions" (20.00%). While evaluating personal and teaching predispositions, the input of work done by a teacher has the slightest effect – to a large extent these are the attributes conditioned by the character of a person. Among all nine, these are the criteria most difficult to develop. However, the overall assessment of feelings seems to be the most subjective and often determined by the factors far away from factual evaluation, such as sympathy or antipathy towards the teacher, positive or negative attitude to the chosen technique, and not infrequently it is dictated by the well-being of the subject that day. Almost 10% of students pointed "control over classes" and "organizing of the group for classes" as important criterion. Only 1.80% chose "summary of classes" as an important criterion in the evaluation of relaxation teacher. In this case the choice of students could have been dictated by the lack of sufficient skills in their own relaxation sessions, which is confirmed by the average note they gained at this point. It is in the sixth point that received the lowest score 5.3 (Fig. 1). Skillful summary of the relaxation classes, relevant commentary and asking questions guiding to the feelings that might have accompanied the participants is a very important part of each session. To enable participants to verbalize their experiences, provide the space for discussion about the positive and negative feelings from the experience of deep relaxation substantially complete the session. However, these are the skills that come along with experience in conducting such sessions and are also proportional to the time spent on teacher's own practice.

The correlation coefficients of each questions with the last criterion proposed by our list of sheet ONR-9 "general feeling" are within the range of the weakest correlation $r=0.61$ with Q. 3 and the strongest $r=0.80$ with Q. 8. Thus, most of the values in the range of high correlation. Correlations of two criteria: teaching predisposition and personal predisposion have reached similar maximum values.

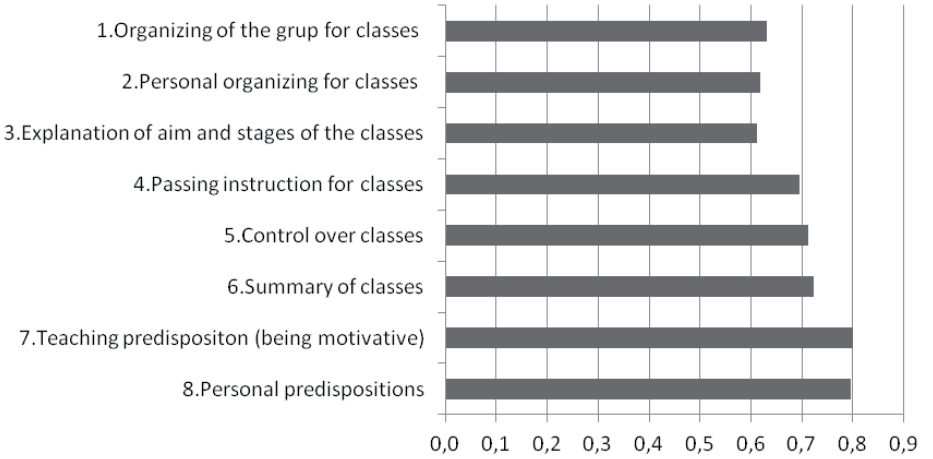


Fig. 3 The correlation coefficient of each question from ONR-9 sheet with a "general feeling" (question 9)

Table 1 shows the list of characteristics that relaxation teacher should possess according to the students of Relaxation Techniques in Recreation specialization. Students could indicate any number of attributes. We did not try to group these features, but to combine them in ranges of most common choices only.

Tab. 1 Characteristics of relaxation teacher in the opinion of students on Relaxation Techniques in Recreation specialization

No.	Teacher's characteristics	Percentage range
1.	– Inner peace – Self-controlled (controlling emotions) – Open to people – Indulgent – Helpful – Objective – Appropriate tone of voice (calm voice)	=>30%
2.	– Patient – Disciplined – Friendly – Kindly – Warm – Creative	=>20<30%

3.	– With theoretical and practical knowledge – Communicative – Full of positive energy – Maintaining good contact with the group – Cheerful, smiling – With a proper diction – Professional	=>10<20%
4.	– Neat appearance – Controlling the environment, orderly – Focusing attention – With a sense of humor – Self-confident – Not making fun of students – Intelligent – Attentive – Consistent – Tolerant – Incentive – Body conscious – Skillfully taking criticism – Eloquent	<10%

Discussion

"In the complex conditions of the present reality, which is constantly changing towards to development, personality of the teacher must be open and engaged, seeking and capable of self-creation" (Tchorzewski 1999, p.23, cited by Lewandowska-Kidoń 2007, p.192). Autocreation requires self-determination from the teacher, which "shall be based on self-knowledge and self-experience" (Tchorzewski 1999, p.23, cited by Lewandowska-Kidoń 2007, p.192). Regular relaxation training promotes learning about ourselves, thus the first and inexorable task of the relaxation teacher reaching for the relaxation techniques is his own experience and the many hours of relaxation and associated symptoms firsthand. Own practice will provide internal peace as well as appropriate control over emotions.

Siek believes that the speed of relaxation learning increases with participation in group activities under the guidance of a "good teacher" (Siek 1990). However, he does not specify how should this good teacher be characterized. In the literature we can find a lot of information about the competence of the teacher at all. Many authors have attempted to divide them and rank. However, there is little discussion about the profile and the additional competences, which should have relaxation teacher or teacher from other areas but reaching for relaxation in their work. Many relaxation techniques are mild in character and practicing it individually or under the supervision of unqualified teachers we should not be afraid of the negative effects, but more of the lack of results (Vickers, Zollman 1999). According to Grochmal, the instructor while teaching relaxation "explains the differences between tense and relaxed muscle and gives verbal instructions suggesting the accumulation of relaxation process" (Grochmal, 1979, p.230). The book Theory and Methodology of Relaxation in Relaxing and Focusing Exercises contains only a brief mentioning of the general remarks

about relaxation technique, in which a few sentences are devoted to individual teachers. Among others, Grochmal suggests that the voice of the instructor should have pleasant sound, and instructions were uttered eloquently and clearly. He also believes that "moves, posture and behavior of the instructor should be characterized by kindness, calmness and composure in every move" (Grochmal, 1979, p.230). When we look at the features listed in the Table 1 mentioned by respondents, we can easily find there the qualities mentioned by Grochmal. According to majority of respondents, inner peace and self-control should be a primary, most visible feature of relaxation teacher. The authors of the book "Progressive relaxation training", a guide to progressive relaxation, hope that therapists and teachers reaching for this method will not use it in a mechanical way ("robot-like way") or devoid of emotional involvement. They point out to establish cooperation with the "client" and secure their trust (Bernstein et al. 2000).

Conclusion

It is hard for us to answer the question of whether anyone can be a good teacher of relaxation. In this work we wanted to draw attention to the characteristics of relaxation teacher and the most important aspects when conducting relaxation training sessions. The results of the research about relaxation sessions carried out by the students are optimistic. They show that theoretical and practical skills acquired during studies are satisfactory. Students received on average 5.5 points in seven-point scale. The lowest score was obtained for "summary of classes" and selection of that criterion as less important in the relaxation teacher evaluation shows the lack of sufficient experience of respondents. However, we should not ignore this element in the relaxation training, as communicating outside the experiences in the relaxation training leads to exploration of the natural state of relaxation. The most important criteria in evaluating teachers relaxation provided by the students allowed to rank them in the following order:

1. Passing instructions for classes
2. Explanation of aim and stages of the classes
3. Personal organizing for classes (props, materials)
4. Personal predispositions (atmosphere during classes)
5. General impression (all aspects)
6. Teaching predispositions (being motivative)
7. Control over classes (time, corrections, set of exercises)
8. Organizing of the group for classes (set of places, teaching aids)
9. Summary of classes (remarks, questions, comments).

The most important proved to be a skillful passing instructions to exercises and this is the first that we point out to teachers. Despite different abilities, everyone is able to develop appropriate voice disposition. It is important that the instructions are passed at a comfortable volume, spoken clearly, with the changeable and not monotonous intonation. From the observation, often for the first time carried out by the students of relaxation, results that the biggest problem they have is giving instructions too quickly. It happened commonly that the envisaged relaxation time shortened by a few minutes. In the face of stress in front of the public students had lost all sense of time running between spoken suggestions.

Suitable personal organizing for the classes, preparing relaxation scenario tailored to meet the needs of participants, taking into account the level of advancement or group integration, interweaving forms of passive movement with right amount of exercise can be a challenge for the teacher of relaxation. Even more that at the beginning of getting accustomed to the world of relaxation it may encounter resistance from the participants. Factors influencing the process of relaxation, such as mindfulness and introspection are not accompanied by modern human every day. So it is worth to diversify relaxation sessions with additional materials, props, music, and with small steps bring participants closer to focus on themselves. Preparation of the scenario of the classes and session will surely help to carry out classes efficiently. Prepare an outline of classes or sessions will help to carry out activities efficiently and foremost it will enable to explain the aim and stages of the classes. This is especially important for beginning teachers. On the other hand, in such a subtle area as relaxation the teacher should be open to changing plans depending on the disposal of the participants and unforeseen circumstances (noise, group too numerous, the lack of proper equipment).

The result of the correlation of various criteria with question 9 "general impression" (Fig. 3) directs the summary toward the teaching and personal predispositions. We recorded the strongest correlation of these two criteria with the general feeling of students participated in the relaxation sessions. Taking into account many years of experience and the above results, we conclude that even the best-prepared script, organization of the group and control over it will not produce for the teacher climate and atmosphere convenient to isolate participants from the outside world stimuli and to experience complete relaxation.

Bibliography

1. Bernstein D.A., Borkovec T.D., Hazlett-Stevens H. (2000) New Directions in Progressive Relaxation Training: A Guidebook for Helping Professionals. Greenwood Publishing Group, Greenwood Press.
2. Grochmal S. (red.) (1979) Teoria i metodyka ćwiczeń relaksowo-koncentrujących. Państwowy Zakład Wydawnictw Lekarskich, Warszawa.
3. Kulmatycki L. (2007) Emocje i stres. [w:] B. Woynarowska, (red), Edukacja zdrowotna, PWN, Warszawa: 403-422.
4. Kulmatycki L., Torzyńska K. (2009) Biomedyczna i holistyczna koncepcja zdrowia. Ujęcie humanistyczne [w:] K. Ferenz, S. Walasek (red nauk.) Człowiek w środowisku społecznym. Zeszyty Wydziału Humanistycznego. Kolegium Karkonoskie: 99-108.
5. Kulmatycki L. (2012) Miejsce technik relaksowo-koncentrujących w sporcie. (The place of relaxation-concentration techniques in sport) [w:] J. Supiński (red), Psychologia w sporcie. Wydawnictwo AWF Wrocław, nr 37: 38-47.
6. Kulmatycki L., Torzyńska K. (2012) Five groups of relaxation techniques strategies for therapist – a practical application. [w:] B. Bergier (ed.) Social and Health Related Aspects of Physical Activity, Institute of Health. Państwowa Szkoła Wyższa, Biała Podlaska: 75-84.

7. Lewandowska-Kidoń T. (2007) Kompetencje nauczycieli szkoły współczesnej. W: Bartkowicz Z., Kowaluk M., Samujło M. (red.), Nauczyciel kompetentny – teraźniejszość i przyszłość, Wyd. UMCS, Lublin.
8. Siek S. (1990) Treningi relaksacyjne. Akademia Teologii Katolickiej, Warszawa.
9. Szyszko-Bohusz A. (1979) Funkcja ćwiczeń odprężających w nowoczesnym procesie kształcenia, Zakład Narodowy im. Ossolińskich, Wrocław.
10. Teml H. (1997) Relaks w nauczaniu, Wydawnictwo Szkolne i Pedagogiczne, Warszawa.
11. Urbańska A, Kulmatycki L, Syrynt A. (2012) Selected relaxation techniques introduced during physical education classes and ability to deal with stress among female students of schools above the junior high level in Wrocław. [w:] B. Bergier (ed.) Social and Health Related Aspects of Physical Activity, Institute of Health. Państwowa Szkoła Wyższa, Biała Podlaska: 85-93.
12. Vickers A., Zollman C. (1999) Hypnosis and relaxation therapies. "British Medical Journal" November 20; 319(7221): 1346–1349.
13. Zieliński P. (2011) Relaksacja w teorii i praktyce pedagogicznej. Wydawnictwo im. Stanisława Podobińskiego Akademii im. Jana Długosza w Częstochowie, Częstochowa.

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Is progressive muscle relaxation effective in alleviating psychophysical disorders?

Czy progresywna relaksacja mięśni jest skuteczna w łagodzeniu dolegliwości psychofizycznych?

Summary
Contemporary medicine requires holistic approach to the patient. The more and more attention is paid to involve patients in the process of alleviating symptoms, including psychological aspects of the disease. Conventional methods are supplemented with additional activities as becoming popular relaxation, both physical and mental. This paper covers 20 source materials on the application of this method in various fields of medicine. The objective of this paper is to evaluate the effectiveness of progressive muscle relaxation as an supplementary method in alleviating psychophysical disorders.

Key words: progressive muscle relaxation, mental and physical disorder

Streszczenie
Współczesna medycyna wymaga holistycznego podejścia do pacjenta. Coraz powszechniejsze staje się angażowanie chorego w proces łagodzenia dolegliwości, z uwzględnieniem aspektów psychologicznych choroby. Konwencjonalne metody uzupełniane są o dodatkowe działania, m.in. progresywną relaksację mięśni wg Jacobsona. Poniższe opracowanie obejmuje 20 materiałów źródłowych, dotyczących zastosowania w/w metody w różnych dziedzinach medycyny. Celem pracy jest ocena skuteczności wspomnianej metody w dolegliwościach psychofizycznych.

Słowa kluczowe: progresywna relaksacja mięśni, dyskomfort psychofizyczny

Introduction

A modern approach to the treatment of various medical disorders requires a holistic attitude. In addition to surgical and pharmacological interventions, more and more attention is paid to the possibilities and abilities of patients, in order to activate them in the recovery process. Involving patients in the process of alleviating symptoms, including psychological aspects of the disease, is becoming increasingly common. Conventional methods are supplemented with additional activities as becoming popular relaxation, both physical and mental. Undoubtedly, one of the key techniques constituting a fundamental tool in alleviating psychological and physical stress is progressive muscle relaxation.

Material and methods

Progressive muscle relaxation is increasingly used as a supplement to the healing process in both psychology and medicine (Bertish et al. 2009). The objective of this study was to analyze the possibility of using PMR and its effectiveness in various areas of mental and physical discomfort. This is a review paper which synthesizes the research papers describing different areas in which progressive muscle relaxation has been used. To select useful source materials the database, Pubmed, was used, and the key words were: progressive muscle relaxation, relaxation according to Jacobson, psycho-physical discomfort, pain, psychosomatic ailments.

In the holistic care of patients, some alternative practices, are more likely to be used.

The method which is becoming very popular is relaxation, both physical and mental. Undoubtedly, one of the fundamental tool in alleviating psychological and physical stress is progressive muscle relaxation. The author of the method was Edmund Jacobson (1888-1983), an American physician, who conducted research on the chemical and electrical nerve conduction in the muscles, and showed that physical relaxation largely affects mental relaxation. The essence of the method is alternating controlled tension and relaxation of different muscle groups. As a result of its regular use, a new habit, i.e. the ability to relax automatically muscles, is acquired (Payne 2005).

These methods are intended to strengthen the capacity of the mind to influence the functioning of the body. Each disease is an extremely stressful phenomenon, therefore all methods reducing discomfort are gaining in popularity. Among the diseases and disorders in which PMR is most commonly used are pain, hypertension, asthma, insomnia, and mood disorders such as, for example, anxiety and depression (De Berry 1981)

Among different areas of medicine, cardiac diseases are those which are believed to have an important psychological factor. Even the term psycho-cardiology is being used (Sobczak et al. 2011). Due to this phenomenon it is possible to supplement the treatment with psychological activities which have an obvious impact on physical functioning of patients. This view seems to be shared by the team Sheu et al., who analyzed the effect of progressive muscle relaxation on hemodynamic parameters in patients with hypertension. A 4-week program including daily practice of relaxation at home resulted in an immediate reduction in heart rate (an average of 2.35 beats/min), systolic blood pressure (5.44 beats/ min.) and diastolic blood pressure (3.48 beats/ min.). The effectiveness of training was long-lasting, as once the trial had finished, the reduced pressure and heart rates were maintained (Sheu et al. 2003).

Psychological and physiological factors as well as cardiac effects in ischemic heart disease were the subject of Witheb and Dixhoorn's studies. Analysis of the impact of various lengths relaxation training, including progressive muscle relaxation showed that among physiological parameters resting heart rate decreased, heart rate during activity increased, as well as exercise tolerance and the HDL cholesterol level, too. Psychological factors also improved. The anxiety level as a state was minimalized, and so was the intensity of depression, also the incidence of cardiac events (arrhythmia and myocardial ischemia) was lower (Dixhoorn, Whiteb 2005).

Attempts to evaluate the effectiveness of relaxation, based on PRMs in patients with an acute phase after myocardial infarction were undertaken by Lowe et al. They com-

pared two experimental groups, one used the Feldenkrais Method and the other progressive muscle relaxation, and a control group. Both interventions were assessed as subjectively effective in improving physical well-being and the quality of life declared as compared with the control group, although the results were not statistically significant (Löwe et al. 2002).

Ability to cope and relieve the discomfort associated with respiratory diseases was verified by Freedberg et al. They found that progressive muscle relaxation according to Jacobson was an intervention that was increasing the patient's sense of control over the intensity of the symptoms associated with asthma. These results suggest that the use and effectiveness of that kind of relaxation is a way of coping with fear in the case of patients with its high and moderate intensity (Freedberg et al. 1987).

Another common respiratory disease characterized by a high level of anxiety and symptoms of shortness of breath, limiting comfortable functioning is COPD - chronic obstructive pulmonary disease. Studies conducted on a group of patients with COPD who underwent a four-week program to learn and practice PRM showed that this method was effective in relieving anxiety, shortness of breath, reducing heart rate after each session, and only the breathing rate per minute remained lower at the end of the study (Renfroe 1988).

The occurrence of various disorders are also associated with mental and physical diseases affecting the motor system, e.g. rheumatic diseases. Scandinavian researchers present an example of patients suffering from rheumatic arthritis who underwent a 10-week training of progressive muscle relaxation (Lundrgen, Stenström 1999). The study examined the scale of the quality of life dependent on health, the state of muscle function, feelings of pain and physical activity during disease. As a result of participation in the program, patients declared greater self-efficacy and more frequent activity. Their range of movement improved as well as the muscle function of upper limbs six months after the training program. One year after the training program there was no change. The authors suggest that the 10-week program provides short-term effects in individuals taking part in it.

Comparison of cognitive-behavioral therapy, which can include PMR, with standard treatment was conducted in patients with rheumatoid osteoarthritis (Leibing et al. 1999). The following parameters were checked: pain (intensity and emotional reactions), psychological symptoms, coping strategies, and activities undertaken during the illness. The improvement was achieved in the strategies of coping with pain, emotional stability, also the motor impairment was reduced.

Osteoarthritis is a common disease among the elderly, giving many unpleasant sensations of pain and functional limitations. In his study Baird examined frequency of pain and mobility limitation in female patients suffering from degenerative arthritis who participated in a progressive muscle relaxation program with visualization. After completing the 12-week relaxation program, in the experimental group there were a reduction in pain intensity and an increase in the subjects' mobility, while in the control group there were no significant changes (Baird 2004).

Since older people suffer from many ailments, they feel great psycho-physical and social stress. This issue has been the subject of de Berry's analysis. A group of women

aged between 65 and 84 years were divided into two groups: one participating in a 10-week training program of muscle relaxation, and the other was a control group. The factors selected for study were: anxiety, perceived muscle tension, sleep disorders and headaches. The final survey which took place 10 weeks after the end of the analysis showed a significant improvement in the verified factors (De Berry 1981).

Rheumatic disease is accompanied by changing emotional states, depression, sleep disorders, eating disorders, fatigue, lack of concentration and decisiveness. Holistic treatments for this condition include in addition to pharmacological interventions, a number of psychological measures, as well as progressive muscle relaxation.

The importance of psychological intervention in rheumatic disease was emphasized by Astin et al. Numerous variables were checked: pain symptoms, coping strategies, functional disability, mental and self-efficacy; all of them improved significantly after the application of progressive muscle relaxation (Astin et al. 2002).

Neurology is another area in which the effectiveness of progressive muscle relaxation has been studied, and where actually it is applied. One of the studies included patients with idiopathic Parkinson's disease: it compared two methods of relaxation - massage and progressive muscle relaxation. In the first group stress hormone levels significantly decreased, whereas sleep quality and daily activity improved. Among the analyzed factors in the group with muscle relaxation, both the dopamine level (paradoxically, the disease is characterized by low levels of dopamine) and the level of the stress hormone, i.e. epinephrine, increased, which means that some patients could perceive their participation in relaxation training as stressful (Hernandez-Reifa et al. 2002).

In other studies, also carried out in patients with Parkinson's disease, it has been found that behavioral therapy which may include progressive muscle relaxation led to improvement in the efficiency and reduction in the postural muscles gait in patients with moderate disease (Müller et al. 1997).

The disease interferes with both physical and mental functioning. The aim of the study was to evaluate the effect of relaxation, as a component of neuropsychological rehabilitation program, on possible reduction in mental health and behavioral disorders, as well as possible improvement in the assessment of cognition in people with Alzheimer's disease (Suhr 1999). Common disorders are irritability, agitation or anxiety. The results show a significant improvement in mental functioning, lower incidence of behavioral problems, improvement in memory and in language fluency, that is determinants of cognitive state. The authors indicate the usefulness of this type of intervention for people with mild to moderate dementia.

Research in the field of psychiatry has been the a objective of Milrod's et al studies, who compared the effectiveness of psychodynamic psychotherapy and progressive muscle relaxation in a group of patients with panic attacks participating in a 12-week program. The results demonstrated the prominent role of psychotherapy in reducing the incidence of symptoms (Milrod et al. 2007).

Progressive muscle relaxation is also used in the case of schizophrenia (Wen-Chun Chen et al. 2009). According to Chen Wen-Chun, the relaxation is a potentially effective method reducing anxiety in people with schizophrenia. Effectiveness depends on the mental state of patients and duration of the intervention.

Undoubtedly, one of the most difficult experiences for patients is pain associated with the disease. The applicability of progressive muscle relaxation and visualization as a means of soothing the intensity of cancer pain was studied by Kwekkeboom et al. For both types of interventions the levels of pain and the stress related to it diminished, and at the same time the sense of control over symptoms increased. In addition, the subjects who underwent a guided imagery declared a greater imaginative ability, more positive expectations and fewer comorbid symptoms than in the group practicing PMR (Kwekkeboom et al. 2008).

The use of progressive muscle relaxation to relieve the non-cancer pain has been the subject of Viljanen's et al. research. They verified the effectiveness of progressive muscle relaxation in reducing chronic neck pain. Subjects underwent two interventions - dynamic muscle training and muscle relaxation. Rated variables were associated with the range of motion, pain intensity, disability of the cervical part of spine, and ability to work. In none of the three groups - dynamic muscle training, relaxation and control - there were no significant changes in the analyzed factors, although those who underwent muscle relaxation reported a slight improvement in the range of motion, especially flexion-rotation and lateral cervical spine. None of the performed interventions significantly influenced the status and functioning of the patients (Viljanen et al. 2003).

Discussion and conclusions

Modern medicine requires a multidimensional patient care. Medical interventions are not limited to surgical or pharmacological actions, but extended with approaches involving the participation of the patient to relieve pain in the recovery process, including psychological components. A meta-analysis performed in this study concerned the use of progressive muscle relaxation according to Jacobson in a variety of disease entities, in the years 1982-2012. Most of the cited articles do not present the method as an isolated technique used in a variety of diseases, but as co-existing with other measures of psycho-physical dimension, such as music therapy and cognitive-behavioral therapy (Baird 2004; De Berry 1981; Astin et al. 2002). Flaws in the studies are due to the classification of PMR. Some authors claim that this activity is a component of cognitive-behavioral therapy (Leibning et al. 1999), others treat it as a behavioral approach (Müller et al. 1997) and some other sources compare all these methods as different actions (Astin et al. 2002).

Another controversial issue is effectiveness. Some papers report high efficacy and long-lasting effects of progressive muscle relaxation. Others have doubts due to insufficient duration of studies (Wen-Chun Chen et al. 2009; De Berry 1981; Lundgren, Stenström 1999). It seems obvious that taking advantage of the possibilities and involving patients in the recovery process and pain alleviating therapies are promising perspectives. Therefore the problem requires further study and analysis, which should include more precise classification of measures, selection of the subjects and the length of experiments.

Bibliography

1. Astin J., Becker W., Soeken K., Hochberg M., Berman B. (2002) Psychological Interventions for Rheumatoid Arthritis: A Meta-Analysis of Randomized Controlled Trials, Arthritis & Rheumatism (Arthritis Care & Research) Vol. 47, No. 3, June 15: 291-302.
2. Baird C. (2004) A pilot study of the effectiveness of guided imagery with progressive muscle relaxation to reduce chronic pain and mobility difficulties of osteoarthritis. "Pain Management Nursing" Volume 5, Issue 3: 97-104.
3. Bertisch S., Wee C., Phillips R., McCarthy E. (2009) Alternative Mind-Body Therapies Used by Adults with Medical Conditions. "Psychosom Res." 66(6): 511–519.
4. De Berry S. (1981) An Evaluation of Progressive Muscle Relaxation on Stress Related Symptoms in a Geriatric Population "The International Journal of Aging and Human Development" Volume 14, Number 4: 255-269.
5. Dixhoorn J., Whiteb A. (2005) Relaxation therapy for rehabilitation and prevention in ischaemic heart disease: a systematic review and meta-analysis. "European Journal of Preventive Cardiology" Vol. 12 no. 3: 193-202.
6. Freedberg PD, Hoffman LA, Light WC, Kreps MK. (1987) Effect of progressive muscle relaxation on the objective symptoms and subjective responses associated with asthma. "Heart & Lung: the Journal of Critical Care" 16(1): 24-30.
7. Hernandez-Reifa M., Fielda T., Largiea S., Cullena C, Beutlera J., Sandersa C., Weinerb W., Rodriguez-Batemanb B., Zelayab L., Schanberc S., Kuhnc C. (2002) Parkinson's disease symptoms are differentially affected by massage therapy vs. progressive muscle relaxation: a pilot study. "Journal of Bodywork and Movement Therapies" Volume 6, Issue 3: 177–182.
8. Kwekkeboom KL., Wanta B., Bumpus M. (2008) Individual Difference Variables and the Effects of Progressive Muscle Relaxation and Analgesic Imagery Interventions on Cancer Pain "J Pain Symptom Manage." 36(6): 604–615.
9. Leibing E., Pfingsten, M., Bartmann U., Rueger U., Schuessler G. (1999) Cognitive-Behavioral Treatment in Unselected Rheumatoid Arthritis Outpatients "Clinical Journal of Pain" Volume 15, Issue 1: 58-66.
10. Löwe B., Breining K., Wilke S., Wellmann R, Zipfel S., Eich W. (2002) Quantitative and Qualitative Effects of Feldenkrais, Progressive Muscle Relaxation, and Standard Medical Treatment in Patients After Acute Myocardial Infarction. "Psychotherapy Research" Volume 12, Issue 2: 179-191.
11. Lundgren S., Stenström C. (1999) Muscle Relaxation Training and Quality of Life in Rheumatoid Arthritis: A randomized controlled clinical trial. "Scandinavian Journal of Rheumatology" Vol. 28, No. 1: 47-53.
12. Milrod B., Leon A., Bush F., Rudden M., Schwalberg M., Clarkin J., Aronson A., Singer M., Turchin W., Klass ET., Graf E., Teres JJ., Shear MK. (2007) A Randomized Controlled Clinical Trial of Psychoanalytic, Psychotherapy for Panic Disorder "Am J Psychiatry" 164: 2.
13. Müller V., Mohrl B., Rosin R., Pulvermüller F., Müller F., Birbaumer N. (1997) Short-term effects of behavioral treatment on movement initiation and postural control in Parkinson's disease: A controlled clinical study. "Movement Disorders" Volume 12, Issue 3: 306-314.

14. Payne R. (2005) Relaxation Techniques. A practical Handbook for the Health Care Professional, Elsevier
15. Renfroe KL. (1988) Effect of progressive relaxation on dyspnea and state anxiety in patients with chronic obstructive pulmonary disease. "Heart & Lung: the Journal of Critical Care" 17(4): 408-413.
16. Sheu S., PhD, Irvin B., Huey-Shyan L., Chun-Lin M. (2003) Effects of Progressive Muscle Relaxation on Blood Pressure and Psychosocial Status for Clients with Essential Hypertension in Taiwan. "Holistic Nursing Practice" Volume 17, Issue 1: 41-47.
17. Sobczak M., Kasprzak J., Drygas W. (2011) Psychokardiologia - wprowadzenie do nowej dziedziny naukowej (Psychocardiology - introduction to a new scientific discipline). „Kardiologia Polska" 69, 8: 838–843.
18. Suhr J. (1999) Progressive Muscle Relaxation in the Management of Behavioural Disturbance in Alzheimer's Disease, Neuropsychological Rehabilitation. "An International Journal" Volume 9, Issue 1: 31-34.
19. Wen-Chun Chen, Hsin Chu, Ru-Band Lu, Yuan-Hwa Chou, Chung-Hua Chen, Yue-Cune Chang, O'Brien PA., Kuei-Ru Chou (2009) Efficacy of progressive muscle relaxation training in reducing anxiety in patients with acute schizophrenia. "Journal of Clinical Nursing" 18: 2187–2196.
20. Viljanen M., Malmivaara A., Uitti J., Rinne M., Palmroos P., Laippala P. (2003) Effectiveness of dynamic muscle training, relaxation training, or ordinary activity for chronic neck pain: randomised controlled trial. "BMJ" Vol. 327, 30.

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Prospect of relaxation technique as a complementary chronic pain treatment. A systematic review in 2007-2012

Możliwości zastosowania relaksacji, w uzupełniającym leczeniu bólu przewlekłego. Przegląd badań w latach 2007-2012

Summary
Common phenomenon of chronic pain is accompanied and determined by the physiological, psychological and social disturbances, decreasing the quality of life. That is the reason to lead multidimensional chronic pain treatment. Not only conventional methods are applied, also alternative, including relaxation. The aim of this study was to evaluate the effectiveness of relaxation techniques in non-cancer, chronic pain intensity reduction. This study includes a review of 16 articles published in Medline data base in past 5 years (2007-2012), considering the impact of relaxation techniques on chronic pain level in adults. Results indicate different attitudes, concerning alternative methods in chronic pain treatment. It is necessary to lead further, more precise researches to set its efficacy.

Key words: non-cancer, chronic pain management, relaxation technique

Streszczenie
Mechanizmy towarzyszące powszechnemu zjawisku bólu przewlekłego i determinujące obniżenie jakości życia to zaburzenia fizjologiczne, psychologiczne i społeczne, dlatego największą skutecznością charakteryzuje się interdyscyplinarne podejście do opisywanego zjawiska. Oprócz konwencjonalnych metod leczenia coraz powszechniej stosowane jako uzupełniające są metody alternatywne, do których zaliczamy m.in. relaksację. Celem pracy była ocena skuteczności relaksacji w obniżaniu natężenia bólu przewlekłego, nienowotworowego, na podstawie dostępnego piśmiennictwa naukowego w bazie danych Medline. Dokonano przeglądu 16 prac, dotyczących zastosowania technik relaksacji w łagodzeniu przewlekłego bólu nienowotworowego u osób dorosłych, opublikowanych w ostatnich 5 latach (2007-2012). Źródłem materiałów była baza Medline i wyszukiwarka Pubmed. Przegląd prac wskazuje na istnienie zróżnicowanych postaw wobec zastosowania alternatywnych metod w procesie leczenia bólu i wymaganym jest przeprowadzenie bardziej precyzyjnych badań, celem oceny ich skuteczności.

Słowa kluczowe: ból przewlekły nienowotworowy, techniki relaksacji

Introduction

Pain is the most common symptom associated with certain diseases. According to the definition of the International Society for the Study of Pain (IASP), "pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described as a failure/damage" (Diener, Maier 2003) Emphasis was placed on what the patient feels, sees and describes, without prejudging the mechanism that causes the pain or the duration thereof. In other words, it can be assumed that pain is what the patient calls pain. The pain that lasts a long time, more than three months, despite the healing of the tissues or is associated with a long-term disease process is called chronic pain. In contrast to acute pain it loses its warning function, and thus it becomes incomprehensible and the disease itself, affecting all the aspects of human life.

Similar mechanisms occur in all patients suffering from chronic pain, which lead to the quality of life reduction: physiological, psychological and social disorders. They depend on the duration and intensity of pain rather than its cause.

The priority in the treatment of chronic pain is primarily a maximum reduction of pain and minimal side effects and minimal invasiveness. Therefore, the most effective therapy is characterized by the interdisciplinary combination of pharmacological and non-pharmacological treatments.

Among non-pharmacological, complementary methods, special attention should be paid to different relaxation techniques, increasingly used as a supplement to psychotherapy and physiotherapy.

Relaxation comprises all the methods which aim at obtaining the state of physical and mental slowdown, so called "state of relaxation". Relaxation training and exercises develop habits of entering into a state of mental and physical relief, reducing physical and mental tension, or generating the process of demobilization, i.e. reduction in the body's response to fight or escape. One of the most well-known definition of relaxation therapy was introduced by Herbert Benson in his research on a meditating group (Benson et al. 1974). Regardless of the term used the state of relaxation is opposite to stress and tension associated with the phenomenon of chronic pain.

Material and methods

Out of numerous papers on alternative methods of pain relief available in the MEDLINE database, 16 papers published in the last 5 years (2007-2012) were selected for the study. All of them presented and compared the effects of relaxation techniques on pain intensity for chronic non-malignant pain in adults. Multidisciplinary pain management programs with elements of psychological intervention, which includes relaxation became standard procedures (Reese, Mittag 1974).

Results

One of the most common phenomena in the modern world, often resulting from psychosomatic disorders is low back pain. The relationship between meditation and pain intensity was studied by Morone et al. In the group of 30 patients, over 65 years old, suffering from chronic lumbar spine pain, underwent 8-week meditation training, which consisted of 4 sessions per week, each lasting on average of 30 minutes. 48% of respondents reported they had reduced the amount of pain medication (Morone et al. 2008).

Other authors emphasize the effectiveness of relaxation techniques as a component of cognitive-behavioral treatment of chronic back pain (Reese, Mittag 1974; Tan et al. 2009). The test parameters were the intensity experienced in conjunction with stress and emotional response. As a result of the applied multi-faceted treatment, pain intensity was significantly reduced, strategies for coping with it improved, self-confidence and the number of positive beliefs increased while negative attitudes and the level of depression and anxiety decreased.

According to Lillefjel et al., a multidisciplinary rehabilitation program is also indicated for chronic musculoskeletal pain. 143 patients underwent a five-week program involving exercises to strengthen the muscles of the whole body, and relaxation. The intensity of the 100-point pain VAS at baseline had an average of 77.3, and after 5 weeks of training 74.1. These results were verified 52 weeks after the first test, during which the patients continued participation in training, but at a lower frequency-three times a week. The VAS values for intensity of pain remained unchanged and amounted to 74.1. After another 52 weeks, during which the training consisted of an hour a day, once a week, the results showed a further reduction in pain intensity to 66.7 on the VAS scale (Lillefjel et al. 2007).

A common ailment that requires a multi-faceted treatment is the tension headache. According to Rosen, it seems to be very important to understand the pain coping strategies of the patient, because that makes it possible to prepare an appropriate treatment plan and to maximize its effectiveness. In these studies, relaxation training appeared to be effective in reducing the pain and discomfort associated with disturbances (Rosen 2012) .

The need for multi-faceted care of chronic pain patient was emphasized by Erlenwein et al. 50% of people suffering from pain, in addition to conventional pharmacological treatment, required such procedures as: psychological and psychiatric care (11.1%), physiotherapy (19.2%) and supporting methods, such a progressive muscle relaxation or TENS (20.2%) (Erlenwein et al. 2012).

Chronic pain is also common in person suffering from rheumatic diseases. Zautra et al compared the effects of cognitive-behavioral therapy with mindfulness meditation. Besides the two experimental groups there was a control group taking part only in the educational program. The authors studied both physical and psychological impacts, as well as biochemical interventions on people with rheumatic disease. Those involved in cognitive-behavioral therapy declared increased self-efficacy in controlling pain and reducing levels of interleukin (substances occurring in inflammatory rheumatic diseases which increases the intensity of pain). In both experimental groups, strategies for coping with pain improved compared with the control group. Among those with chronic depression, practicing meditation, the most significant change was observed in the positive affect, as well as in the reduction in joint tenderness (Zautra et al. 2008).

The need to include an interdisciplinary treatment program in other rheumatic diseases was suggested by Suman et al. A program with such a cognitive-behavioral therapy helped to reduce the intensity of pain, as well as the number of painful areas of the body in patients with fibromyalgia. These effects persisted up to a year after completion of the program (Suman et al. 2009).

The effectiveness of MBSR (Mindfulness Based Stress Reduction) conducted among persons with chronic disease symptoms was confirmed by Rosenzweig et al. The study included people with diverse locations of pain that accompanies osteoarthritis, migraines, back and neck pain, and fibromyalgia. MBSR turned out to be the intervention improving most the quality of life in patients affected by degenerative disease, whereas in patients with headaches the intervention had a lesser impact on beneficial changes in the pain intensity and quality of life; while in patients with fibromyalgia had the smallest impact on psychological stress (Rosenzweig et al. 2010).

The effectiveness of complementary methods in chronic, non cancer pain treatment was also evaluated for other illnesses. The study on the effectiveness of self-hypnosis and progressive muscle relaxation in reducing the intensity of pain and limitations caused by pain included patients with MS and suffering from chronic pain (Jensen et al. 2009). The analysis showed that the most effective form of dealing with pain was self-hypnosis. In contrast to this group, the other one taking PMR recorded no significant pain relief. In both groups the respondents expressed a desire to continue to learn methods of pain relief and test their effectiveness.

Progressive muscle relaxation, along with other components of the cognitive-behavioral approach has proven to be highly effective in relieving pain in people infected with HIV and suffering from AIDS (Cucciare et al. 2009). The analysis showed that the greater was the intensity of the pain and distress, the more significant was the reduction of symptoms in patients treated with this method.

Ussher and al. verified immediate effects of the application of the MBSR program which included the body scan in patients with chronic, nonmalignant pain. Every day the subjects performed twice the body scan under different conditions: in the clinic and the home. The comparison was made with a control group who listened to recordings about natural history. Before and after the completion of each trial the prevalence of pain and stress associated with it as well as the ability to perform everyday activities, and the likelihood of the disorder of social relationships caused by pain. The trials in the clinic showed a significant difference between the experimental and control groups in the parameters associated with pain relief, and in the home there were no significant differences between the analyzed factors in both groups (Ussher and al. 2012). The summary of data in Table 1.

Tab.1 Relaxation techniques in chronic pain treatment (a systematic review in 2007-2012)

	Authors	Title	Source	Characteristic of the group	Factors analyzed	Method	Results
1	Cucciare MA, Sorrell JT, Trafton JA.	Predicting response to cognitive-behavioral therapy in a sample of HIV-positive patients with chronic pain	J Behav Med. 2009Aug; 32(4):340-8	HIV patients with chronic pain	Pain intensity, level of anxiety	Progressive muscle relaxation, positive reconceptualiza-tion	The higher pain intensity and related anxiety the greater reduction in symptoms as a result of using methods
2	Erlenwein J, Schlink J, Pfingsten M, Petzke F.	Clinical pain consultation. Profiles of clinical pain consultation and requirements for management of complex pain patients in inpatient care,	Schmerz. 2012 Dec; 26(6):692-8.	Patients with chronic pain	Evaluation of the need for diverse care of patients with pain	Interventions: pharmacological, psychological, psychiatric, physiotherapy and complementary-progressive muscle relaxation, TENS	The most effective was a multi-faceted care, which in addition to conventional methods: pharmaco-therapy, physiotherapy included psychological interventions
3	Green SM, Had-jistavropoulos T, Hadjistavropou-los H, Martin R, Sharpe D.	A controlled investigation of a cognitive behavioural pain management program for older adults	BehavCognPsychother. 2009Mar; 37(2):221-6	Elderly with chronic pain	Pain intensity, coping strategies, appraisals and	Cognitive-behavioral therapy	Pain intensity decrease, relaxation as an adaptive coping strategies, fewer maladaptive strategies,
4	Jensen MP, Barber J, Romano JM., Molton IR, Raichle KA, Osborne TL., Engel JM, Stoelb BL., Kraft GH, Patterson DR., A.	Comparison of Self-Hypnosis Versus Progressive Muscle Relaxation in Patients With Multiple Sclerosis and Chronic Pain	Int J ClinExpHypn 2009 April; 57(2): 198-221	Patients with MS suffering from chronic pain	To evaluate the efficacy and preference methods chosen by patients	self-hypnosis, progressive muscle relaxation	the most effective form of pain management:s elf-hypnosis ;the PMR use: no significant decrease in pain intensity; both groups of respondents expressed a desire to continue to learn and test methods of pain relief.

5	Karp JF, Shega JW, Morone NE, Weiner DK.	Advances in understanding the mechanisms and management of persistent pain in older adults	Br J Anaesth. 2008 Jul; 101(1):111-20.	Older people with chronic pain, nonmalignant	Evaluation of factors affecting individual application of pain relief methods	Mindfulness meditation	The use of psychological interventions were considered to optimize mental functions of the elderly
6	Lillefjel M., Krokstad S., Espnes G.A	Prediction of function in daily life following multidisciplinary rehabilitation for individuals with chronic musculoskeletal pain: a prospective study,	BMC Musculoskeletal Disorders, 2007;8:65	143 patients with musculo-skeletal, chronic pain	impact of an interdisciplinary program on pain intensity	5-weekprogram of exercises to strengthen the muscles of the body and relaxation	The intensity of the100-pointpain VAS at baseline had an average of 77.3, and after 5 weeks of training 74.1. The re-analysis was performed 52 weeks after the first study, during which patients continued to participate in the training, but less frequently-3 times a week. The intensity of pain VAS remained unchanged and amounted to 74.1. After another 52 weeks (an hour a day, once a week), the results showed a further reduction in pain intensity y for 66.7VAS.
7	Morone N., Greco C., Weiner D.K.	Mindfulness medita-tion for the treatment of chronic low back pain in older adults: a randomizes con-trolled pilot study	Pain,2008;134:310-319	30 patients over 65year, suffering from chronic lumbar pain	The impact of meditation on pain intensity	8-weekmeditation-training:4 sessions per week, each last-ing on average of 30 minutes	48% of respondents claimed the reduction of the amount of pain medication
8	Norelli LJ, Harju SK.	Behavioral approaches to pain management in the elderly	ClinGeriatr Med. 2008May; 24(2):335-44	Older people affected by chronic pain	Analysis of age, social and cultural conditions in the perception of pain	Behavioral therapy	Authors recognize the multi-faceted, interdisciplinary treatment program, including behavioral approach as effective method in reducing pain intensity

9	Ndao-Brumblay SK, Green CR.	Predictors of complementary and alternative medicine use in chronic pain patients,	Pain Med. 2010Jan; 11(1):16-24.	5750 patients with chronic pain	Patient preferences and the socio-cultural factors vs. use of relaxation	Acupuncture, relaxation, biofeedback, manual techniques	Most common used methods were: acupuncture (8%), manual techniques (25%), relaxation (13%). Most white women selected relaxation (13%)
10	Rosen NL	Psychological issues in the evaluation and treatment of tension-type headache.	Curr Pain Headache Rep. 2012Dec16(6):545-53. doi: 10.1007/s11916-012-0301-z.	Chronic tension headaches	To evaluate the efficacy in the treatment of pain and pain-related disorders	Relaxation training, cognitive behavioral therapy, biofeedback, mindfulness training	Psychological interventions supporting conventional methods of treatment appear to be effective in reducing pain and disability
11	Rosenzweig S, Greeson JM, Reibel DK, Green JS, Jasser SA, Beasley D.	Mindfulness-based stress reduction for chronic pain conditions: variation in treatment outcomes and role of home meditation practice,	J Psychosom Res. 2010Jan;68(1):29-36.	133 patients of integrative medicine center, with pain affected by osteoarthritis, fibromyalgia,migraines	Physical pain, mental symptoms, quality of life	8-week MBSRprogram	MBSR has proven to be most effective in improving the quality of life in patients with osteoarthritis
12	Suman AL, Biagi B, Biasi G, Carli G, Gradi M, Prati E, Bonifazi M.	One-year efficacy of a 3-week intensive multidisciplinary non-pharmacological treatment program for fibromyalgia patients,	ClinExpRheumatol. 2009Jan-Feb; 27(1):7-14.	25 women with fibromyalgia	The level of pain intensity. Touch tenderness and soreness, level of depression, biochemical factors	3-week intensive program, including exercise and cognitive-behavioral therapy	Reduction in pain and depression intensity
13	Tan EPG., Tan ESL., Beng-Yeong Ng.	Efficacy of Cognitive Behavioral Therapy for Patients with Chronic Pain in Singapore	Ann Acad Med Singapore 2009; 38:952-9	Chronic low back pain patients	the intensity of pain and the pain-related stress and emotional factors.	Relaxation as part of a cognitive-behavioral therapy	significant reduction in pain intensity; improvement in pain coping strategies, increase in: self-confidence, positive beliefs; decrease in: negative ones and the level of depression and anxiety

14	Turk DC, Swanson KS, Tunks ER.	Psychological approaches in the treatment of chronic pain patients--when pills, scalpels, and needles are not enough,	Can J Psychiatry. 2008Apr; 53(4):213-23	Chronic pain patients	Evaluation of the effectiveness of the methods used individually and complex-collective analysis	Relaxation, meditation, visualization, hypnosis, biofeedback	Studies have shown that the most effective is the use of cognitive-behavioral methods, which integrate most of these methods
15	Ussher M, Spatz A, Copland C, Nicolaou A, Cargill A, Amini-Tabrizi N, McCracken LM.	Immediate effects of a brief mindfulness-based body scan on patients with chronic pain.	J Behav Med. 2012	Chronic, noncancer pain patients	Analyzed the prevalence of pain and pain-related stress, the ability to take everyday activities, the probability of disorders in social relations caused by pain; comparative study - trials in the clinic and the home	The body scans part of the MBSR program-psychophysical stress reduction; the control group listened to the recordings on natural history.	In the clinic the study showed a significant difference between the two groups -in the parameters reducing pain; in the home there were no significant differences between them.
16	Zautra AJ, Davis MC, Reich JW, Nicassario P, Tennen H, Finan P, Kratz A, Parrish B, Irwin MR.,	Comparison of cognitive behavioral and mindfulness meditation interventions on adaptation to rheumatoid arthritis for patients with and without history of recurrent depression	J Consult Clin Psychol. 2008 Jun; 76(3):408-21	Rheumatic, chronic pain patients	Comparison of different interventions; the impact they have on the psychological and bio-chemical state of patients with rheumatic disease	Cognitive-behavioral therapy, mindfulness meditation, education in the control group	In the group of cognitive–behavioral therapy the sense of self-efficacy for pain control raised and the level of interleukin decreased; In both groups (the cognitive-behavioral approach and meditation) - pain coping strategies improved compared to the control group. In the group with chronic depression, practicing meditation, the most significant change was positive affect, and reduction of joints tenderness

Discussion and conclusions

Treatment of chronic pain patients, for whom the duration of the phenomenon becomes incomprehensible and disease in itself is a challenge for modern medicine. The interdisciplinary approach to treatment requires supplementing the conventional methods, such as pharmacotherapy, with complementary ones. Out of numerous alternative methods therapists most commonly use: relaxation and biofeedback (13%) and the method of handling (manual therapy, osteopathy) (24%) (Ndao-Brumblay, Green 2010; Green et al. 2009). The authors also point out to the factors determining the use of methods of supporting treatment, e.g. racial, cultural, and gender. For example, African-Americans are less likely to use relaxation and biofeedback than Caucasian people, and gender diversity indicates that women are more likely than men to select relaxation.

Age is an important factor in determining the perception of pain. Chronic pain poses many difficulties in treatment, due to significant psychological components, increasing the dimension of the problem. A particularly important aspect is the pain relief in the elderly, as they may suffer from cognitive impairment. Thus the selection of appropriate methods that can reduce the intensity of pain becomes increasingly important (Karp et al. 2008). Age and related disorders (cognitive impairment-dementia), cultural and social factors are determinants of pain perception, and thus the effectiveness of different therapies. The complexity of the phenomenon of chronic pain and the importance of the inclusion of behavioral methods in its mitigation are presented in the analysis of Norelli and Harju (Norelli, Harju 2008).

Turk et al. suggest a need to implement a psychological approach, which includes elements of cognitive-behavioral perspectives of patients and such techniques. These authors point out to the difference between the outlook of patients-their attitudes, expectations, beliefs, which according to them are more important than the techniques that tend to strengthen their sense of control and efficiency, thus minimizing the passivity and dependence. At the same time they emphasize the importance of interdisciplinary pain management programs that include components of mental, physical and social factors (Turk et al. 2008).

The review of the available literature shows some positive effect of relaxation on the level of chronic pain and the need to implement alternative therapies to the standard treatment. The discrepancies in the assessment of the effectiveness of relaxation methods to reduce the pain intensity may indicate a non-uniform methodology of the tests, which should contain strict criteria for selecting groups of subjects, use of research tools and specific systematic of research. In order to create a certain pattern of the interdisciplinary chronic pain treatment process, it is necessary to conduct further, more specific studies, including a greater number of criteria.

Bibliography

1. Benson H., Berry JR., Carol MP. (1974) The relaxation response, “Psychiatry” 37: 37-46.
2. Cucciare MA, Sorrell JT, Trafton JA. (2009) Predicting response to cognitive-behavioral therapy in a sample of HIV-positive patients with chronic pain. “J Behav Med.” 32(4): 340-348.

3. Diener H., Maier Ch. (2003) Leczenie bólu, zespoły bólowe- metody postępowania, U&P Wrocław: 6-7.
4. Erlenwein J, Schlink J, Pfingsten M, Petzke F. (2012) Clinical pain consultation. Profiles of clinical pain consultation and requirements for management of complex pain patients in inpatient care. "Schmerz" 26(6): 692-8.
5. Green SM, Hadjistavropoulos T, Hadjistavropoulos H, Martin R, Sharpe D. (2009) A controlled investigation of a cognitive behavioural pain management program for older adults. "BehavCognPsychother." 37(2): 221-6.
6. Jensen MP, Barber J, Romano JM., Molton IR, Raichle KA, Osborne TL., Engel JM, Stoelb BL., Kraft GH, Patterson DR. (2009) A Comparison of Self-Hypnosis Versus Progressive Muscle Relaxation in Patients With Multiple Sclerosis and Chronic Pain. "Int J ClinExpHypn." 57(2): 198–221.
7. Karp JF, Shega JW, Morone NE, Weiner DK. (2008) Advances in understanding the mechanisms and management of persistent pain in older adults. "Br J Anaesth." 101(1): 111-120.
8. Lillefjel M., Krokstad S., Espnes G.A. (2007) Prediction of function in daily life following multidisciplinary rehabilitation for individuals with chronic musculoskeletal pain: a prospective study. "BMC Musculoskeletal Disorders" 8: 65.
9. Morone N., Greco C., Weiner D.K. (2008) Mindfulness meditation for the treatment of chronic low back pain in older adults: a randomizes controlled pilot study. "Pain" 134: 310-319.
10. Ndao-Brumblay SK, Green CR. (2010) Predictors of complementary and alternative medicine use in chronic pain patients "Pain Med." 11(1): 16-24.
11. Norelli LJ, Harju SK. (2008) Behavioral approaches to pain management in the elderly. "ClinGeriatr Med." 24(2): 335-44.
12. Reese C., Mittag O. (1974) Psychological interventions in the rehabilitation of patients with chronic low back pain: evidence and recommendations from systematic reviews and guidelines "Study of Interpersonal Processes" Vol. 37(1): 37-46.
13. Rosen NL. (2012) Psychological issues in the evaluation and treatment of tension-type headache. "Curr Pain Headache Rep." 16(6): 545-53.
14. Rosenzweig S., Greeson JM., Reibel DK., Green JS., Jasser SA., Beasley D. (2010) Mindfulness-based stress reduction for chronic pain conditions: variation in treatment outcomes and role of home meditation practice. "J Psychosom Res." 68(1): 29-36.
15. Suman AL., Biagi B., Biasi G., Carli G., Gradi M., Prati E., Bonifazi M. (2009) One-year efficacy of a 3-week intensive multidisciplinary non-pharmacological treatment program for fibromyalgia patients. "ClinExpRheumatol." 27(1): 7-14.
16. Tan EPG., Tan ESL., Beng-Yeong Ng. (2009) Efficacy of Cognitive Behavioral Therapy for Patients with Chronic Pain in Singapore. "Ann Acad Med Singapore" 38: 952-959.
17. Turk DC, Swanson KS, Tunks ER. (2008) Psychological approaches in the treatment of chronic pain patients - when pills, scalpels, and needles are not enough. "Can J Psychiatry" 53(4): 213-223.

18. Ussher M., Spatz A., Copland C., Nicolaou A., Cargill A., Amini-Tabrizi N., McCracken LM. (2012) Immediate effects of a brief mindfulness-based body scan on patients with chronic pain. JBehav Med.
19. Zautra AJ., Davis MC., Reich JW., Nicassario P., Tennen H., Finan P., Kratz A., Parrish B., Irwin MR. (2008) Comparison of cognitive behavioral and mindfulness meditation interventions on adaptation to rheumatoid arthritis for patients with and without history of recurrent depression. "J Consult Clin Psychol." 76(3): 408-421.

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