Ożóg Piotr, Natański Dawid, Zukow Walery. The occurrence of back pain in physiotherapists. Journal of Education, Health and Sport. 2019;9(6):41-54. eISNN 2391-8306. DOI http://dx.doi.org/10.5281/zenodo.3236779
http://ojs.ukw.edu.pl/index.php/johs/article/view/69

The journal has had 7 points in Ministry of Science and Higher Education parametric evaluation. Part B item 1223 (26/01/2017).
1223 Journal of Education, Health and Sport eISSN 2391-8306 7

The authors declare that there is no conflict of interests regarding the publication of this paper.

Received: 05.05.2019. Revised: 25.05.2019. Accepted: 01.06.2019.

The occurrence of back pain in physiotherapists

Występowanie dolegliwości bólowych kręgosłupa u fizjoterapeutów

Piotr Ożóg[1], Dawid Natański[1], Walery Zukow[2]

1. Department of Physiotherapy, Collegium Medicum, Nicolaus University in Torun, Poland
2. Department of Spatial Planning and Tourism, Department of Earth Sciences, University of Nicholas Copernicus University, Torun, Poland

Abstract

Introduction: Back pain is one of the most common problems of the movement system. The physiotherapist's physiotherapist's long-term commitment to static body positioning and high-intensity motion, often also the height-weight divergence between the therapist and the patient, leads to the painful role of the patient.

The aim of the study: Determining whether physiotherapists suffer from back pain, what the nature of those ailments are, and how their seniority affects them. Determining whether the area of discomfort associated with regular sports or severe spinal injuries and the impact of sports on the intensity of pain.

Material: There were 35 participants (21 women and 14 men) - physiotherapist, aged 25-63 (mean 38 years).

Methodology: The survey questionnaire (questions on age, sex, height, weight, length of service, occupational specificity, spine pain, VAS scale and modified Laitinen questionnaire) were used in the study group.

Results: Statistical analysis revealed the incidence of pain in the spine and their dependence on length of service, the area of the most frequently reported pain and their nature. The impact of physical activity and previous injuries to the spine on the episode in which the pain was present was not shown.

Conclusions: Occupational physiotherapist is associated with chronic spinal-backbone ligament dominance, which may be related to the standing position of the work most commonly found in the study group. There was no relationship between the regular exercise of sport and the intensity of the pain experienced, as well as the dependence of the painful spine and sport or previous spinal injuries.

Key words: back pain, spine injury, physiotherapists

Streszczenie

Wstęp: Ból kręgosłupa to najczęściej występujący problemów układu ruchu. Specyfika pracy fizjoterapeuty związana z długotrwałym utrzymaniem statycznej pozycji ciała oraz ruchu z dużym obciążeniem, często także rozbieżność wzrostowo-ciężarowa pomiędzy terapeutą, a pacjentem doprowadza do przejęcia roli bólowego pacjenta.

Cel pracy: Określenie czy fizjoterapeuci zmagają się z dolegliwościami bólowymi kręgosłupa, jaki charakter mają te dolegliwości i jaki wpływ ma na nie staż pracy. Określenie czy obszar dolegliwości ma związek z regularnym uprawianiem sportu lub ciężkimi urazami kręgosłupa oraz ocena wpływu uprawiania sportu na natężenie odczuwanych dolegliwości.

Materiał. W badaniu uczestniczyło 35 osób (21 kobiet i 14 mężczyzn) - fizjoterapeutów, w wieku 25-63 (średnio 38 lat).

Metodyka. W grupie badanej został przeprowadzony kwestionariusz ankiety (pytania dotyczące wieku, płci, wzrostu, wagi, stażu pracy, specyfiki wykonywanego zawodu, dolegliwości bólowych kręgosłupa- skala VAS i zmodyfikowany kwestionariusz Laitinena).

Wyniki: Analiza statystyczna wykazała występowanie dolegliwości bólowych kręgosłupa oraz ich zależność od stażu pracy, określony został obszar najczęściej występujących dolegliwości bólowych oraz ich charakter. Nie wykazano wpływu aktywności fizycznej oraz wcześniej doznanych urazów kręgosłupa na odcinek w jakim aktualnie występował problem bólowy.

Wnioski: Zawód fizjoterapeuty wiąże się z występowaniem przewlekłych bólów kręgosłupa z dominacją odcinka lędźwiowo krzyżowego, co może być związane ze stojącą pozycją pracy, która występowała najczęściej wśród badanej grupy. Nie wykazano związku zarówno pomiędzy regularnym uprawianiem sportu, a wpływem na natężenie odczuwanego bólu, jak również zależnością bolesnego odcinka kręgosłupa, a uprawianiem sportu czy wcześniej doznanymi urazami kręgosłupa.

Słowa kluczowe: dolegliwości bólowe kręgosłupa, uraz kręgosłupa, fizjoterapeuci

Admission

Back pain is one of the most common problems of the musculoskeletal system of modern society. They can appear in different sections of the spine, and their occurrence is influenced by a large number of factors, both external and internal. It is important in the occurrence of back pain is professional work, in particular the position of the body, which takes a few hours a day for a dozen or even several dozen years of his life and the type of work performed at the same movements. [1]

Spine performs several specific functions in the body of each individual, they include [2]:

- maintain proper posture and silhouette,
- protection channels extending in vertebrate tissues of the spinal cord and nerve roots.
- is the point of attachment of many of the surrounding muscles, vascular stance the bloodstream or lymphatic system,

- It corresponds to locomotion.

The peculiar construction of the human spine, namely the shifting of anatomical curvatures called kyphosis and lordosis directly affect the normal depreciation charges. Extremely important is the human ergonomics, which will prevent overload irregularities affecting the musculo-skeletal apparatus ligament, and thus projecting the pain in the spine. The reason for the occurrence of pain can be a variety of structures that belong to the spine or are associated with it only anatomically. The substrate can be a pain, damage to both structural and functional disorders. The pain, which is commonly referred to as back pain may come from the same parts of the spine, and by compressing the structures or teasing nervous system. In addition, damage can occur in around dorsispinal tissues such as muscle or ligament, which also produce painful symptoms. The correct diagnosis because of the presence on the pain is of paramount importance in the subsequent therapy. It becomes extremely important diversification of pain coming from the internal organs, which affect the spine, pain or are closely associated with the same pathology of the spine, and often wrongly interpreted as a symptom of disease in another location. [3-5] The correct diagnosis because of the presence on the pain is of paramount importance in the subsequent therapy. It becomes extremely important diversification of pain coming from the internal organs, which affect the spine, pain or are closely associated with the same pathology of the spine, and often wrongly interpreted as a symptom of disease in another location. [3-5] The correct diagnosis because of the presence on the pain is of paramount importance in the subsequent therapy. It becomes extremely important diversification of pain coming from the internal organs, which affect the spine, pain or are closely associated with the same pathology of the spine, and often wrongly interpreted as a symptom of disease in another location. [3-5]

A large percentage of patients who come to study physiotherapy complaining of pain perception within the back. Paradoxically, the specifics of the work of a physiotherapist often associated with long-term maintenance of forced static posture, as well as the continuous movement of heavy loads, often growth-weight discrepancy between the therapist and the patient brings pain to take over the role of the patient. It often happens that during operation there is no opportunity to avoid harmful items. Most of the time the work is done in a sitting or standing position. Movements of the spine are multifaceted, complex movements performed by the pelvis or hip joints. The bending pattern of a given person depends, among other things, on the mobility of the entire lumbar and pelvis-hip complex. In addition, the flexibility of polyarticular muscles and their length have a direct impact on its quality. Taking over the wrong positions during work, the so-called "comfortable" positions causes the body to run into positions in which there is no forced muscular work, which in turn leads to the creation of erroneous movement patterns. [6,7]

Objective of the work

The aim of the study was to answer the following questions:

1. Or in a group of professional physiotherapists are back pain?
2. What is the nature of spinal pain dominates among a group of professional physiotherapists?
3. Is seniority physiotherapist has an impact on the severity of the occurrence of back pain?
4. Is the area of the occurrence of back pain is associated with the regular practice of sport or severe spinal injuries?
5. Is regular practice of physical activity among physiotherapists reduces the intensity of the perceived pain of the spine?

Material

The study included 35 physical therapists working in outpatient rehabilitation clinics. The study group comprised 21 women and 14 men. All persons age ranged 25 to 63 years (mean 38 years). Body mass index (BMI) forming the partition coefficient of body weight given in kilograms by the square of height in meters covered specified range of 20.08 to 38.37. According to the international classification of the World Health Organization (WHO), 16 people belonged to the group of normal weight (in the range of 18.5 to 24.99). Index value of the other 19 persons exceeded the upper limit of normal, 12 of which had overweight persons 5 persons and the level of obesity, and 2 persons second degree of obesity. Group 9 patients (26%) included a range of work experience and 5 years, 11 patients (31%) included a range of 5-10 years, while 15 patients (43%) over 10 years. The highest percentage of respondents as many as 57% identified their position as standing work, 29% in constant motion, 11% of respondents marked the kneeling position, only 3% of respondents identified it as its sitting. Among the groups surveyed only 15 people or 43% of the group practicing any physical activity.

Table I. Descriptive Analysis test group

Parameters	**x** Average	**SD** std	**min** Minimum	**Q_1** K. Lower	**Me** Median	**Q_3** Upper K.	**max** Maximum
Age	37.6	10.2	25.0	30.0	35.0	42.0	6363
BMI	26.5	4.6	20.1	23.1	25.7	27.8	38.4
Seniority	12.6	10.0	2.0	4.0	10.0	17.0	38.0

Methodology

In the study group with the consent of the participants was conducted original questionnaire. It included questions about age, gender, height, weight and length of service, and the specifics of their profession as well as questions about the occurrence of back pain. In order to determine the intensity of back pain among a group of physical therapists used the two most commonly used scales determining the subjective evaluation of pain, namely VAS and modified Laitinen questionnaire.

Results

All the results entered into a database STATISTICA 10 and then subjected to statistical analysis using descriptive statistics and using a test of statistical significance. The verification of all the analyzes used the coefficient significance level $\alpha = 0.05$, which allowed for the variables considered statistically significant at $p < 0.05$.

The vast majority (94%) of respondents, ie. 33 people during the study felt the pain of the spine. In the study group definitely it had most of the chronic nature of the complaints (79%). Other people have defined it as a sharp (21%).

Answers on the spine, where the most common pain indicates that it is a stretch lumbosacral (61% of respondents). Twice less pain occurs in the cervical (33% of respondents), and only two people responded that the pain occurs in the thoracic (this represents 6% of respondents).

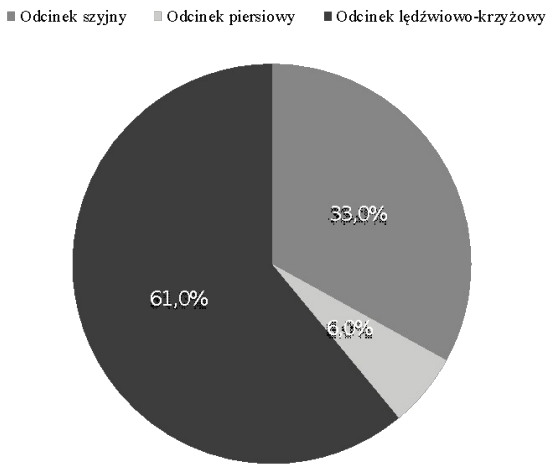

Figure 1. Graphical breakdown of the respondents in terms of spine covered chest pains.

Table 2 and 3 provides data on the level of experience pain VAS scale and a modified Laitinen questionnaire.

Table II. Descriptive analysis of the results described in pain VAS

Parametry	$\bar{x}$	SD	Min	Q_1	Me	Q_3	Maks
Skala VAS	4,4	2,3	0,0	3,0	5,0	6,0	9,0

The results indicate that the level of pain on average level of 4.4 point at dehiscence of 0 to 9. 50% of the subjects pain is in the range of from 3 to 6 points.

Table III. Descriptive analysis of the results of the description of the modified pain questionnaire Laitinen

Parametry	$\bar{x}$	SD	Min	Q_1	Me	Q_3	Maks
Nasilenie bólu	1,5	0,9	0,0	1,0	1,0	2,0	4,0
Częstość występowania bólu	1,5	0,9	0,0	1,0	1,0	2,0	4,0
Częstość zażywania środków p-bólowych	0,7	0,8	0,0	0,0	1,0	1,0	4,0
Ograniczenie sprawności ruchowej	1,0	0,9	0,0	0,0	1,0	2,0	4,0
Zmodyfikowany kwestionariusz Laitinena	4,7	3,1	0,0	2,0	4,0	6,0	16,0

The impact of seniority Physiotherapist on the severity of pain

For each of the analyzed parameters is a statistically significant correlation results. For a description of the frequency of medication, physical limitations stiffness accept the low level of correlation level. Analysis of the level of pain VAS pain intensity, frequency of pain and total points for the modified questionnaire Laitinen take the level of correlation to the average level. In each of the cases analyzed the growth of seniority is accompanied by an increase in complaints.

Table IV. Analysis of the correlation length of service parameters describing the level of pain (Spearman rank correlation test)

Para zmiennych staż pracy vs	Korelacja porządku rang Spearmana			
	N	Poziom R	Wynik testu t(N-2)	Wartość p
Skala VAS	35	0,424	2,689	**0,011**
Nasilenie bólu	35	0,491	3,241	**0,003**
Częstość występowania bólu	35	0,661	5,065	**0,000**
Częstość zażywania środków p-bólowych	35	0,375	2,327	**0,026**
Ograniczenie sprawności ruchowej	35	0,386	2,404	**0,022**
Zmodyfikowany kwestionariusz Laitinena	35	0,571	3,993	**0,000**

Graphical representation of analyzed results is shown in the drawings: the seniority terms of VAS (Fig. 2) and the seniority terms of total points in the questionnaire Laitinen. (Fig. 3).

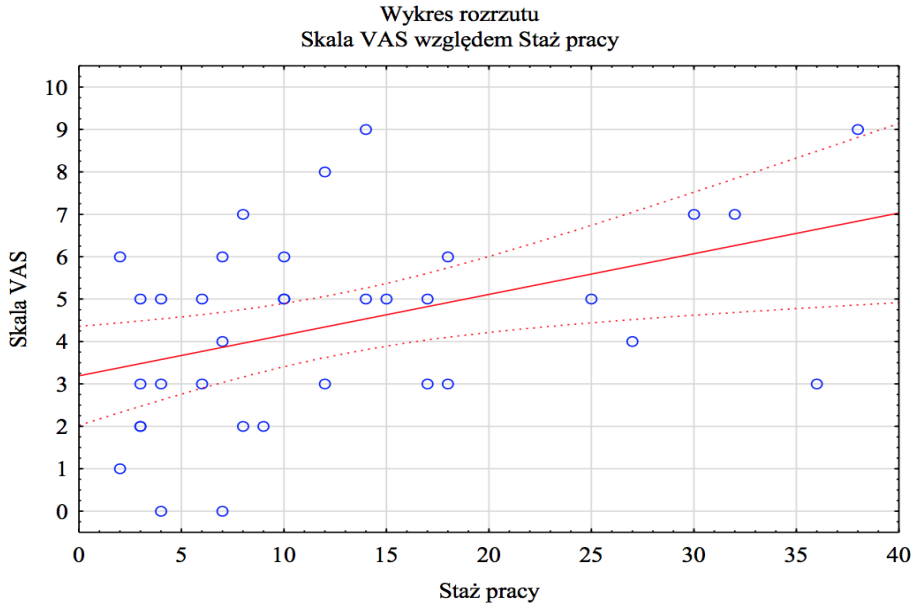

Figure 2. Graphical dispersion of results seniority of the respondents to the level of pain VAS

Figure 3. Graphical dispersion of results seniority surveyed to assess pain for the sum of points from the questionnaire Laitinen

Union area of occurrence of symptoms with regular practice of sport or severe spinal injuries.

An analysis of the link between the occurrence of the most common area of pain terms of regular exercise, and have a history of heavy injuries of the spine. In any of the statistical analyzes showed no statistically significant differences in prevalence between subgroups compared. It does not allow it to conclude analyzed factors significantly alter the incidence of pain in one of the segments of the spine. The results are indicated in Tables V and VI.

Table V. Statistical analysis of regularly practicing sports terms of the most common perception of pain in the spine sections (Pearson Chi2 test)

Uprawianie regularnie dyscyplinę sportową		Odcinek kręgosłupa, w którym najczęściej dochodzi do dolegliwości bólowych			Wynik testu	Wartość p
		szyjny	piersiowy	lędźwiowo-krzyżowy		
Nie	N	6	2	11	1,569	0,456
	%	31,58%	10,53%	57,89%		
Tak	N	5	0	9		
	%	35,71%	0,00%	64,29%		

Table VI. Statistical analysis of the existence of previous severe spinal injuries in relation to the most common perception of pain in the spine sections (Pearson Chi2 test)

Wystąpienie w przeszłości ciężkich urazów kręgosłupa		Odcinek kręgosłupa, w którym najczęściej dochodzi do dolegliwości bólowych			Wynik testu	Wartość p
		szyjny	piersiowy	lędźwiowo-krzyżowy		
Nie	N	10	2	15	1,681	0,432
	%	37,04%	7,41%	55,56%		
Tak	N	1	0	5		
	%	16,67%	0,00%	83,33%		

The impact of regular physical activity for back pain

The following comparison relates to ascertain the differences between compared groups - not cultivating and who practice regular physical exercise (sports). The results in terms of descriptive statistics are presented in Table VII. The values obtained are similar for both groups analyzed, although it can be seen that among those in the results described by the average are lower than the other group.

Table VII. Descriptive statistics in the level of pain and the VAS questionnaire reply modified Laitinen, broken down by the presence of physical activity

Parametr	N	$\bar{x}$	SD	Min	Q_1	Me	Q_3	Maks
Brak uprawiania dyscyplin sportowych								
Skala VAS	20	4,7	2,3	0,0	3,0	4,5	6,5	9,0
Nasilenie bólu	20	1,6	0,9	0,0	1,0	1,0	2,0	4,0
Częstość występowania bólu	20	1,7	1,0	0,0	1,0	1,5	2,0	4,0
Częstość zażywania środków p-bólowych	20	0,9	0,9	0,0	0,0	1,0	1,0	4,0
Ograniczenie sztywności ruchowej	20	1,2	1,0	0,0	0,5	1,0	2,0	4,0
Zmodyfikowany kwestionariusz Laitinena	20	5,4	3,4	0,0	3,0	5,0	7,0	16,0
Aktywne uprawianie dyscyplin sportowych								
Skala VAS	15	4,1	2,3	0,0	2,0	5,0	5,0	9,0
Nasilenie bólu	15	1,3	0,9	0,0	1,0	1,0	2,0	4,0
Częstość występowania bólu	15	1,2	0,6	0,0	1,0	1,0	2,0	2,0
Częstość zażywania środków p-bólowych	15	0,5	0,6	0,0	0,0	0,0	1,0	2,0
Ograniczenie sprawności ruchowej	15	0,8	0,7	0,0	0,0	1,0	1,0	2,0
Zmodyfikowany kwestionariusz Laitinena	15	3,8	2,3	0,0	2,0	4,0	5,0	9,0

Statistical analysis does not indicate for any of the analyzed cases of statistically significant differences. So it does not indicate the occurrence of the impact of regular sporting disciplines for back pain in the group.

Fitness

Table VIII. The results of the statistical analysis in relation to the parameters analyzed regularly practicing sports (Mann-Whitney)

Porównywany parametr	Test U Manna-Whitneya	
	Wynik testu	Wartość p
Skala VAS	0,767	0,443
Nasilenie bólu	0,917	0,359
Częstość występowania bólu	1,400	0,162
Częstość zażywania środków p-bólowych	1,233	0,217
Ograniczenie sprawności ruchowej	1,100	0,271
Zmodyfikowany kwestionariusz Laitinena	1,533	0,125

Discussion

With the increasing prevalence of back pain problem in society began to carry more and more research related to this subject in order to find the substrate which can be, for example, the specificity of work. There are more recent studies related to the occurrence of this problem is also among a group of physiotherapists.

Research conducted by Lisinski P. and W. Samborski (2006) have shown that the profession of physiotherapist is associated with a very high risk of back pain, among other things, due to the

frequent lifting and twisting of the trunk, which contributes to the formation of static and dynamic disorder translate into later on congestion and back pain [8].

The evaluation of the occurrence of back pains in a group of Polish physical therapists working on different hospital departments (rehabilitation, rheumatology, neurology) show published in 2016 testing Radzimińska A. et al., Aimed at determining the extent of disability directly connected to a sense back pain. Based on the analysis results of the questionnaire NDI (NECK DISABILITY INDEX) and ODI (OSWESTRY DISABILITY INDEX) demonstrated a mild degree of disability among respondents. In addition, it was observed lumbar pain occur frequently in the group while standing, travel, and lifting objects. However, results of the questionnaire indicate NDI headaches as the biggest problem resulting from dysfunction of the cervical spine. The analysis undertaken studies provided the compound of pain severity with age and length of a physiotherapist, but these results were not statistically significant [9].

The study of 2,017 years on the prevalence of back pain were also carried out in other countries. Alghadir A. et al. Conducted a study examining the prevalence of pain, risk factors and effects of their occurrence within the lower part of the spine of physiotherapists from Saudi Arabia. The results obtained on the basis of an online questionnaire filled out alone showed the presence of pain after the start of physiotherapy practice among nearly 90% of respondents. 36% of respondents felt pain in the lower back during this study. Gender, specialization and duration of contact with the patients have an impact on the nature of the perceived problems. The researchers concluded the need for different strategies to prevent the occurrence of lower back pain (science of ergonomics in the course of training of physiotherapists, promoting teamwork). What can positively influence the growth of the effectiveness of patient care [10].

Iqbal Z. Alghadir A. (2015) conducted a study of the phenomenon of musculoskeletal disorders in people working in the medical professions. Research in the use of questionnaires conducted on a group of 100 physical therapists from Delhi. In the group of 92% showed the presence of the above-mentioned irregularities after the start of work in the profession. The problem concerned the study group mainly pain back, shoulders and neck [11].

In studies mane K. et al. (2014) associated with the ergonomics physiotherapists involved in working with children has been shown to negatively influence the operating position on the spine, binding to the occurrence of back pain. Studies were conducted in 84 physiotherapists and used to assess pain 6 point scale Jackson and Moskowitz. The results obtained have observed that in all the patients experienced pain in the spine degrees at 1 to 4 [12].

The review of the literature showed an increased risk of musculoskeletal injuries among a group of professional therapists worldwide. In Poland, it is the third largest professional group associated with healthcare. The incidence of injuries which is associated with the work of physiotherapist

demonstrates the need to increase pressure on the prevention, taking into account the type of work [13].

Conclusions

Based on the statistical analysis of the results obtained from the questionnaire survey carried out among a group of occupational therapists can put the following conclusions:

1. In a group of professional physiotherapists are back pain.
2. Specific work that performs a physical therapist affects the character of pain. In the study group they were dominated in most chronic pain associated with lumbosacral section of the spine. This may be related to the position of standing, which received the most physiotherapists.
3. The analysis shows that seniority physiotherapist has an impact on the severity of the occurrence of back pain. In each of the cases analyzed the growth of seniority is accompanied by an increase in complaints.
4. In any of the statistical analyzes relating to the place of pain, and sports activities, as well as the previously sustained injuries did not show statistically significant changes in incidence, which demonstrate that the analyzed factors do not significantly alter the incidence of pain in one of sections of the spine.
5. Hold study did not indicate the relationship between regular practicing sports and the intensity of perceived pain, frequency of use of analgesics, as well as limited mobility. It should be emphasized that only 15 persons, ie. 43% of the group declared practicing regular physical activity.

References

1. Wicka J. Ból i cierpienie - interdyscyplinarny przegląd stanowisk. Pielęgniarstwo, Zdrowie Publiczne 2012;2(4):301-310.
2. Stodolny J. Jak chronić swój kręgosłup, poradnik dla każdego. Wydawnictwo Natura. Kielce 2010:15-16,50-87.
3. Koszewski A. Bóle kręgosłupa i ich leczenie. Termedia Wydawnictwa Medyczne. Poznań 2010: 22-52.
4. Kiwerski J, Kowalski M, Krasucki M, Szymanik W. Schorzenia urazy kręgosłupa. Wydawnictwo PZWL. Warszawa 2014:137-146.

5. Kapandji A.I. Anatomia funkcjonalna stawów, kręgosłup i głowa. Wydawnictwo Elsevier Urban & Partner. Wrocław 2014:38-45.
6. Gniewek T, Góra T, Hadała M. Profilaktyka dolegliwości bólowych kręgosłupa lędźwiowego u terapeutów. Ocena i terapia według koncepcji Kinetic Control, mity czy fakty poparte dowodami. Praktyczna fizjoterapia i Rehabilitacja 2013;35:4-12.
7. Nowotny-Czupryna O, Nowotny J, Brzęk A. Ergonomiczne aspekty pracy fizjoterapeuty. Fizjoterapia Polska 2003;3(4):387-395.
8. Lisiński P, Samborski W. Bóle kręgosłupa lędźwiowego w grupie zawodowej fizjoterapeutów. Balneologia Polska 2006;3:156-160.
9. Radzimińska A, Weber-Rajek M, Jaworska U, Goch A, Zukow W. Zespoły bólowe kręgosłupa w grupie fizjoterapeutów. Journal of Education , Health & Sport 2016;6(6):553-564.
10. Alghadir A, Zafar H, Iqbal ZA, Al.-Eisa E. Work- Related Low Back Pain Among Physical Therapists in Riyadh, Saudi Arabia. Workplace Health Saf 2017;65(8):337-345.
11. Iqbal Z, Alghadir A. Częstość występowania zaburzeń układu mięśniowo- szkieletowego związanych z pracą wśród fizjoterapeutów. Medycyna Praktyczna 2015;66(4):459-469.
12. Czupryna K, Nowotny- Czupryna O, Nowotny J. Ergonomiczne uwarunkowania zespołów bólowych kręgosłupa u fizjoterapeutów zajmujących się neurorehabilitacją dzieci. Ortopedia Traumatologia Rehabilitacja. 2014;16(4):407-418.
13. Mikołajewska E., Urazy mięśniowo-szkieletowe związane z pracą u fizjoterapeutów. Medycyna Pracy 2013, 64 (5): 681-685.