

fizjoterapia polska

POLISH JOURNAL OF PHYSIOTHERAPY

OFICJALNE PISMO POLSKIEGO TOWARZYSTWA FIZJOTERAPII

THE OFFICIAL JOURNAL OF THE POLISH SOCIETY OF PHYSIOTHERAPY

NR 2/2017 (17) KWARTALNIK ISSN 1642-0136

**Wpływ terapii z wykorzystaniem
nowoczesnych technologii na aktywność
i wytrzymałość dzieci z mózgowym
porażeniem dziecięcym**

**The impact of technology-
based therapy on activity
level and endurance of
children with cerebral
palsy**

**Wpływ przebytego udaru mózgu na moc i prędkość skracania się mięśni
The impact of stroke on the power and shortening velocity of the muscles**

ZAMÓW PRENUMERATĘ!

SUBSCRIBE!

www.fizjoterapiapolska.pl
prenumerata@redakcja-fp.pl





TROMED TRAINING

program szkoleniowy

REHABILITACJA KARDIOLOGICZNA W PRAKTYCE

Szkolenie skierowane do osób zajmujących się problematyką rehabilitacji kardiologicznej, podzielone na dwa moduły.

Moduł I obejmuje zasady rehabilitacji kardiologicznej, metody diagnostyczne i terapeutyczne oraz rolę fizjoterapeuty w procesie rehabilitacji.

Moduł II omawia zagadnienia Kompleksowej Rehabilitacji Kardiologicznej u chorych po ostrym zespole wieńcowym, po zabiegach kardiochirurgicznych, po wszczepieniach kardiostymulatora oraz u chorych z chorobami współistniejącymi.

SCHORZENIA STAWU BARKOWEGO - REHABILITACJA Z WYKORZYSTANIEM ELEMENTÓW TERAPII MANUALNEJ

Szkolenie skierowane do fizjoterapeutów oraz studentów fizjoterapii, obejmujące zagadnienia z anatomii i fizjologii obręczy barkowej, podstaw artro i osteokinematyki, charakterystyki wybranych urazów i uszkodzeń w obrębie obręczy barkowej, profilaktyki schorzeń barku, diagnostyki pourazowej barku oraz praktycznego zastosowania technik manualnych w rehabilitacji

DIAGNOSTYKA I LECZENIE MANUALNE W DYSFUNKCJACH STAWU KOLANOWEGO

Szkolenie skierowane do fizjoterapeutów oraz studentów fizjoterapii, obejmujące zagadnienia z anatomii stawu kolanowego, biomechaniki struktur wewnątrzstawowych, charakterystyki wybranych uszkodzeń w stawie kolanowym, diagnostyki pourazowej stawu kolanowego oraz praktycznego zastosowania technik manualnych w rehabilitacji.

PODSTAWY NEUROMOBILIZACJI NERWÓW OBWODOWYCH - DIAGNOSTYKA I PRAKTYCZNE ZASTOSOWANIE W FIZJOTERAPII

Szkolenie podzielone na dwie części. Zajęcia teoretyczne obejmują zagadnienia dotyczące budowy komórek nerwowych, anatomii i fizjologii obwodowego układu nerwowego i rdzenia kręgowego, pozycji napięciowych i pozycji początkowych testów napięciowych w kończynach oraz kręgosłupie. Zajęcia praktyczne obejmują wykonanie neuromobilizacji dla nerwów obwodowych i opony twardej oraz przykładowe wykorzystania neuromobilizacji w jednostkach chorobowych.

TERAPIA PACJENTÓW Z OBRZĘKIEM LIMFATYCZNYM

Szkolenie podzielone na zajęcia teoretyczne z zakresu anatomii i fizjologii gruczołu piersiowego oraz układu chłonnego, objawów raka piersi, leczenia chirurgicznego, rehabilitacji przed i pooperacyjnej oraz profilaktyki przeciwobrzękowej. Zajęcia praktyczne mają na celu zapoznanie z metodami stosowanymi w terapii przeciwobrzękowej, praktycznym wykorzystaniem materiałów do kompresjoterapii oraz omówieniem zaopatrzenia ortopedycznego stosowanego u pacjentek po mastektomii.

FIZJOTERAPIA W ONKOLOGII - ZASADY POSTĘPOWANIA W WYBRANYCH PRZYPADKACH KLINICZNYCH

Szkolenie obejmuje zagadnienia dotyczące epidemiologii nowotworów i czynników ryzyka, diagnostyki, leczenia oraz następstw leczenia nowotworów (leczenie układowe, chirurgiczne, chemioterapia, radioterapia), podstaw terapii pacjentów leczonych w chorobach nowotworowych piersi, płuc, przewodu pokarmowego, okolicy głowy i szyi, układu moczowo-płciowego, układu nerwowego. Część praktyczna to ćwiczenia oraz metody fizjoterapeutyczne w jednostkach chorobowych.

LOGOPEDIA W FIZJOTERAPII

Szkolenie obejmuje następujące zagadnienia teoretyczne: założenia, zakres działań i uprawnienia terapii logopedycznej, narzędzia diagnozy logopedycznej, grupy pacjentów objętych terapią logopedyczną (dzieci z opóźnionym rozwojem mowy i dorośli, m.in. pacjenci z afazją, SM, chorobą Parkinsona), zaburzenia mowy a globalne zaburzenia rozwoju psychoruchowego, dysfunkcje układu ruchowego narządu żucia, wspólne obszary działania fizjoterapeuty i logopedy. Część praktyczna obejmuje studium przypadku: ćwiczenia - kształtowanie umiejętności świadomego i prawidłowego operowania oddechem.

INFORMACJE I ZAPISY



TROMED Zaopatrzenie Medyczne

93-309 Łódź, ul. Grażyny 2/4 (wejście Rzgowska 169/171)

tel. 42 684 32 02, 501 893 590

e-mail: szkolenia@tromed.pl



TROMED TRAINING

program szkoleniowy

PODSTAWY NEUROREHABILITACJI - UDAR MÓZGU - MODUŁ 1

Szkolenie obejmuje zajęcia teoretyczne omawiające mechanizm udaru mózgu i jego następstwa kliniczne, diagnostyki dla potrzeb fizjoterapii, rokowań, mechanizmów zdrowienia, plastyczności układu nerwowego oraz aktualne zalecenia dotyczące fizjoterapii pacjentów po udarze mózgu. Zajęcia praktyczne to przykłady terapii pacjentów w okresie wczesnej i wtórnej rehabilitacji, propozycje rozwiązywania problemów strukturalnych i funkcjonalnych oraz wykorzystanie metody Bobathów w rehabilitacji pacjentów po udarze mózgu.

PODSTAWY NEUROREHABILITACJI - UDAR MÓZGU - MODUŁ 2

Szkolenie obejmuje warsztaty praktyczne z zakresu diagnostyki funkcjonalnej pacjentów, podstawowych problemów strukturalnych i funkcjonalnych oraz propozycje terapii: reedukacji funkcji kończyny górnej i dolnej oraz wybranych strategii rehabilitacji. Omawiane jest również zagadnienie dysfagii, w tym objawy zaburzeń połykania, testy i ocena zaburzeń, zasady bezpiecznego karmienia, strategie terapeutyczne, ćwiczenia miofunkcyjne oraz specjalne techniki ułatwiające połykanie.

SCHOROZENIA NARZĄDÓW RUCHU U DZIECI I MŁODZIEŻY - ZASADY I KRYTERIA LECZENIA ORTOPEDYCZNEGO

Szkolenie obejmuje zagadnienia wad postawy u dzieci i młodzieży, wad wrodzonych narządów ruchu, wczesnego wykrywania nabytych schorzeń narządów ruchu, naukę badania ortopedycznego oraz zbierania wywiadu oraz praktyczne wskazówki oraz koncepcje w stosowaniu ortez i aparatów ortopedycznych. Szkolenie skierowane do lekarzy ortopedów, pediatrów, lekarzy rodzinnych, lekarzy rehabilitacji medycznej, fizjoterapeutów oraz średniego personelu medycznego.

WSPÓŁCZESNE METODY LECZENIA WYBRANYCH DYSFUNKCJI STAWU SKOKOWEGO I STOPY

Szkolenie obejmuje zagadnienia z anatomii, biomechaniki stawu skokowego i stopy, metodyki badania stopy, postępowania w leczeniu urazów stawu skokowego i stopy, nabytych zniekształceń stopy (przyczyny, objawy, sposoby postępowania) oraz pozostałych dysfunkcjach w obrębie stawu skokowego i stopy (entezopatie, przeciążenia, zapalenia, zespoły uciskowe nerwów, gangliony, zmiany zwyrodnieniowe, stopa cukrzycowa, stopa reumatoidalna).

CHOROBA ZWYRODNIENIOWA STAWÓW - ALGORYTM POSTĘPOWANIA DIAGNOSTYCZNO-TERAPEUTYCZNEGO

Szkolenie obejmuje następujące zagadnienia: choroba zwyrodnieniowa stawów - podstawowe pojęcia, algorytm postępowania diagnostyczno-terapeutycznego, nowoczesne metody leczenia w chorobie zwyrodnieniowej stawów, nauka prawidłowej oceny zaawansowania choroby zwyrodnieniowej w oparciu o wywiad, badania ortopedyczne i badania dodatkowe, zastosowanie ortez i aparatów ortopedycznych w chorobach zwyrodnieniowych. Szkolenie skierowane do lekarzy ortopedów, pediatrów, lekarzy rodzinnych, lekarzy rehabilitacji medycznej, fizjoterapeutów oraz średniego personelu medycznego.

MOBILNOŚĆ I STABILNOŚĆ W SPORCIE I FIZJOTERAPII

Szkolenie obejmuje następujące zagadnienia: znaczenie treningu mobilności i stabilności w sporcie i fizjoterapii, definicja mobilności, przyczyny ograniczeń, strategie postępowania oraz techniki pracy nad zwiększeniem mobilności z użyciem przyborów, definicja stabilności, przyczyny zaburzeń, strategie postępowania oraz trening stabilności w sporcie i fizjoterapii - zajęcia praktyczne.

MÓZGOWE PORAZENIE DZIECIĘCE - ALGORYTM POSTĘPOWANIA DIAGNOSTYCZNO-TERAPEUTYCZNEGO

Szkolenie obejmuje następujące zagadnienia: MPD - zespół symptomów, etapy leczenia, cele i wskazówki terapeutyczne, kwalifikacje pacjenta do danego etapu leczenia, nauka badania ortopedycznego w Mózgowym Porażeniu Dziecięcym, zastosowanie ortez i aparatów ortopedycznych w MPD. Szkolenie skierowane do lekarzy ortopedów, pediatrów, lekarzy rodzinnych, lekarzy rehabilitacji medycznej, fizjoterapeutów oraz średniego personelu medycznego.

INFORMACJE I ZAPISY



TROMED Zaopatrzenie Medyczne

93-309 Łódź, ul. Grażyny 2/4 (wejście Rzgowska 169/171)

tel. 42 684 32 02, 501 893 590

e-mail: szkolenia@tromed.pl

HONDA ELECTRONICS

HS-2200



Ultrasonograf jest podstawowym urządzeniem w pracy wielu klinik i gabinetów fizjoterapeutycznych.



W Polsce już ponad dwustu fizjoterapeutów pracuje na ultrasonografie HONDA.



USG umożliwia w ciągu kilku sekund rozpoznanie, czy pacjent może być leczony technikami fizjoterapii, czy też pilnie skierowany do specjalistycznej opieki medycznej.



W połączeniu z odpowiednią metodą, ultrasonograf służy do programowania rehabilitacji schorzeń narządu ruchu w sposób szybszy i bezpieczniejszy.



Zastosowanie m.in.: leczenie zespołu bolesnego karku, niestabilność kolana, stabilizacja odcinka lędźwiowego kręgosłupa, reedukacja postawy.



W cenie ultrasonografu trzydniowy, profesjonalny kurs USG dla fizjoterapeutów i lekarzy.



**Najlepszy przenośny ultrasonograf B/W na świecie.
Idealny do badań ortopedycznych i fizjoterapeutycznych.**

 **polrentgen®**

03-287 Warszawa, ul. Skarba z Gór 67/16
tel. 22/855 52 60. kom. 695 980 190

www.polrentgen.pl

Made in Japan



www.ultrasonografy.pl



NOWY WYMIAR FIZJOTERAPII



od 1993

ECHOSON

 www.echoson.pl

 info@echoson.pl

 81 886 36 13

Występowanie zespołów bólowych i urazów w wyniku przeciążenia narządu ruchu wśród fizjoterapeutów

Occurrence of work-related pain syndromes and injuries due to overload of the musculoskeletal system in physiotherapists

Katarzyna Michalak^{1(A)}, Anna Szwaczko^{2(E,F)}, Agnieszka Cieślak^{1(B)}, Katarzyna Krekora^{3(D)}, Tomasz Miśkiewicz^{1(B)}, Elżbieta Poziomska-Piątkowska^{1(E)}

¹Zakład Metodyki Nauczania Ruchu Uniwersytetu Medycznego w Łodzi, Polska/Department of Teaching Movement, Medical University of Lodz, Poland

²Wojewódzki Zespół Zakładów Opieki Zdrowotnej Centrum Leczenia Chorób Płuc i Rehabilitacji w Łodzi. Oddział Rehabilitacji Ogólnoustrojowej, Łódź, Polska/Provincial Team of Health Care Treatment Center of Lung Diseases and Rehabilitation in Łódź. Department of Rehabilitation. Łódź, Poland.

³Wyższa Szkoła Informatyki i Umiejętności w Łodzi, Polska/The College of Computer Science and Skills in Lodz, Poland

Streszczenie

Cel: Analiza częstości występowania dolegliwości bólowych i urazów układu kostno-stawowo-mięśniowego związanych z wykonywaniem zawodu fizjoterapeuty oraz czynności zawodowych, związanych ze specyfiką pracy fizjoterapeuty, predysponujących do wystąpienia urazu.

Materiał i metody. Badanie przeprowadzono wśród 150 losowo wybranych fizjoterapeutów. Wykorzystano kwestionariusz ankiety własnego autorstwa, obejmujący pytania dotyczące danych socjodemograficznych, specyfiki pracy, częstości występowania dolegliwości bólowych oraz urazów doznanych podczas wykonywania czynności zawodowych i ich lokalizacji, a także czynności, podczas której doszło do urazu.

Wyniki: 99% fizjoterapeutów odczuwa dolegliwości bólowe związane z wykonywaną pracą a 61% doznało urazu układu mięśniowo-szkieletowego, który objawił się bólem i dolegliwościami trwającymi dłużej niż 3 dni i był wyraźnie spowodowany pracą.

Wnioski. 1. Dolegliwości bólowe i urazy układu kostno-mięśniowo-stawowego stanowią istotny problem wśród fizjoterapeutów. 2. Najczęściej dotyczą odcinka lędźwiowo-krzyżowego i szyjnego kręgosłupa oraz stawu nadgarstkowego i ręki. 3. Czynności predysponujące do powstania urazu dotyczą głównie podnoszenia i przenoszenia pacjentów lub sprzętu, a także wykonywania masażu i ćwiczeń biernych. 4. Wysoka częstotliwość występowania dolegliwości bólowych i urazów wynika z niewystarczającego zastosowania zasad ergonomii przez fizjoterapeutów oraz z nieodpowiedniego przystosowania miejsca pracy. 5. Niezbędne jest wprowadzenie działań edukacyjnych skierowanych do fizjoterapeutów w zakresie ergonomii pracy i konsekwentne kontrolowanie przestrzegania zasad ergonomii przez przełożonych.

Słowa kluczowe:

fizjoterapia, fizjoterapeuta, dolegliwości bólowe, urazy, ergonomia, miejsce pracy

Abstract

Introduction. The aim of this study was to analyze the prevalence of musculoskeletal pain and injuries associated with the physiotherapy profession, as well as to analyze work activities related to professional practice predisposing to injury.

Material and methods. The study was conducted among 150 randomly selected physiotherapists. The questionnaire designed by the authors, included questions about sociodemographic data, work characteristics, the incidence of pain and injury which occurred while performing professional activities, location of the injury and the type of activity during which the injury occurred.

Results. 99% of physiotherapists reported to feel pain associated with performing job activities and 61% had suffered an injury of the musculoskeletal system that was clearly caused by their work. Injuries were most often located in the lumbosacral spine, wrist and hand as well as in the cervical spine.

Conclusions. 1. Musculoskeletal pain and injuries are an important issue among physiotherapists. 2. They are most often located in the lumbosacral spine, wrist and hand as well as in the cervical spine. 3. Lifting and moving patients or equipment, performing massage and passive exercises are the most common activities related to pain development and the occurrence of injury. 4. High incidence of work-related pain and injuries results from the insufficient application of ergonomics by physiotherapists, as well as from the inadequate adaptation of the workplace. 5. To maintain and prolong the ability to work in a physiotherapy profession it is necessary to provide an appropriate ergonomics training among physiotherapists and consistent monitoring of compliance with the principles of ergonomics by superiors.

Key words:

Physiotherapy Specialty, Physiotherapist, injuries, pain, ergonomics, workplace

Introduction

Daily work activities associated with the process of improving patient functionality requires intensive dynamic and static effort from the physiotherapist. Physiotherapy practice is often associated with working in a constrained and unnatural posture, which may lead to overloading of the musculoskeletal system. In addition, unergonomic workplace and incorrect movement habits can also have a negative impact. In relation to the type of most frequent treatment techniques the problems concern mainly wrist, shoulder, and above all - the spine. Later on, musculoskeletal disorders may disable the therapist from an active work.

In 2002, Beynon and Reilly [1] noted that while musculoskeletal problems among nurses are widely studied and described, physiotherapists are often overlooked in the research. This was probably due to the misconception that physiotherapists, who know how to prevent, treat and control the occurrence of injuries and musculoskeletal pain, are not the group at risk of the injury [2]. However, according to Glover musculoskeletal injuries are a significant problem among healthcare workers, and physiotherapists are certainly no exception, regardless of their specialist knowledge about body mechanics and injury prevention [3]. Work-related musculoskeletal disorders (WRMD) are considered to be the most common cause of chronic pain and physical disorders among physiotherapists [4]. The prevalence of musculoskeletal disorders related to physiotherapy profession may refer to 55% to 91% physiotherapists in Australia, 85% in Turkey, 74% in Slovenia, and 92% in India [5, 6, 7, 8, 9]. As many as one in six physiotherapists may be forced to change their workplace or even the profession because of the injury [6].

High prevalence of the injury is related to the nature of the physiotherapy profession and high physical work load. Elements of physiotherapy practice considered as ergonomic hazards include: repetitive tasks, prolonged work in a constrained and unnatural posture (mainly forward bending with static loading of upper extremities), lifting or transferring patients, dealing with sudden or unanticipated movement by patient (e.g. fall), performing manual therapy techniques and manual pressure [3, 10, 11]. Intense static and dynamic loads results in the occurrence of acute or cumulative injuries [4]. Additionally, a large number of patients a day [6], to many working hours, inadequate staff levels and unergonomic workplace may be a significant factors leading to musculoskeletal overload and injury [3].

According to Bork et al. [10] the areas most vulnerable to the occurrence of musculoskeletal disorders are low back (45%), wrist and hand (29.6%), upper back (28.7%) and neck (24.7%). Disregard the first symptoms

can result in serious health consequences such as discomfort, pain, injury, or even disability. The effects of work-related musculoskeletal injuries and overload diseases refer to reduced work productivity, risk of work loss and decreased life quality. From the employer's point of view, musculoskeletal injuries are associated with the costs of sick leaves, lack of skilled workers, decrease of the productivity, costs of retraining or training of new employees, costs of compensations and disability pensions [4].

Aim of the study

The aim of this study was to analyze the prevalence of musculoskeletal pain and injuries associated with the physiotherapy profession, as well as to analyze work activities related to professional practice predisposing to injury.

Material and methods

The study was conducted among 150 physiotherapists and physiotherapy students actively working or undergoing clinical practice in 10 randomly selected hospitals in the Łódź Voivodeship. The questionnaire designed by the authors, included questions about sociodemographic data, work characteristics, the incidence of pain and injury which occurred while performing professional activities, location of the injury and the type of activity during which the injury occurred.

The statistical analysis was performed using STATISTICA 9.0 software. The U Mann-Whitney Test was used to analyze the variables. The significance threshold was accepted at the level of $p \leq 0.05$.

Results.

102 (68%) out of 150 questionnaires were classified to analysis. 48 questionnaires were filled incompletely or has not been returned. The study involved 33 men (32.4%) and 69 women (67.7%). The mean age was 39.5 years (women – 41.2 years, men – 35.9 years). The majority of respondents were between 30-35 years old (12%). Only 1% were over 55 years old. The average work experience was 22.5 years (women – 22 years, men – 24 years). The largest group of physiotherapists worked in the profession for 10-30 years (48%). It is worth to highlight that 20% of the surveyed women were working in the profession for over 30 years. 10% of respondents were physiotherapy students, 44% were technicians, 32% had Master's degree, 6% were doctoral students, 4% physiotherapy specialists and 4% had PhD degree.

The majority of respondents (over 80%) worked in the public health sector (health care facilities and hospitals). 20% were employed in non-public health care facilities. 53% of physiotherapists outside working hours practiced private visits. Respondents stated that the average daily working time was 6.7 hours. Daily physiotherapists work with average 30 patients, which give about 13 minutes of the therapy for one patient. Only 14% have less than 15 patients a day. 6% work more than 8 hours a day. 21% of respondents fail to take rests breaks between patients, 53% take breaks rarely.

Physiotherapists worked mainly with orthopedic patients (95%), neurology patients (56%) and patients with chronic pain (50%). 17% of respondents were engaged in sports rehabilitation. Most physical therapists worked with adults (38%) and elderly (over 65 years of age) (29%), 15% with preschool and early-school aged children, 17% with youths, and only 6% with newborns and infants. The respondents worked mainly in kinesiotherapy (25%) and physical therapy (11%). 4% performed massage. 23% of physiotherapists worked in a rotation system and 37% in mixed system. 13% of women worked only in the physical therapy section, none of them performed massage. The most common positions adopted during daily work practices was standing 39%, standing with the loading of upper extremities (28%) and bending forward (29%). 80% of respondents working with patients in serious condition lifted and transferred them on their own. Only 20% used the help of additional staff or equipment.

On a 0-10 scale most respondents assessed the physical fatigue after a working day in the range of 5-8 (65%), almost 12% of the respondents reported their physical fatigue in the range of 9-10 points (Fig. 1).

Mental fatigue was assessed at 5 points by most of the physiotherapist, but up to 27% of physiotherapists rated their mental fatigue after a working day at the maximal level (Fig. 2).

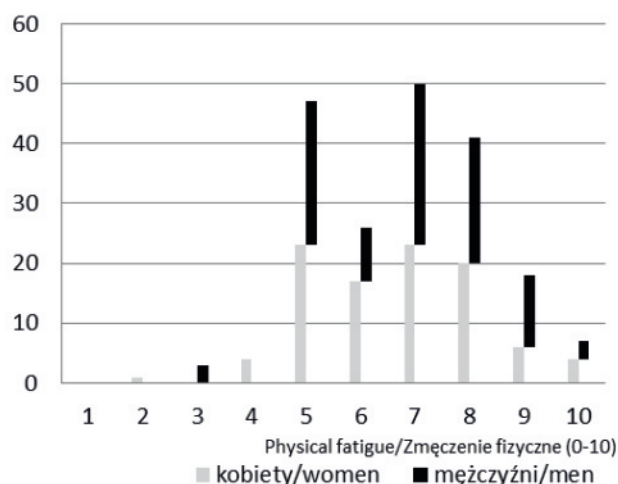


Fig. 1. Physical fatigue after a working day in a 0-10 scale

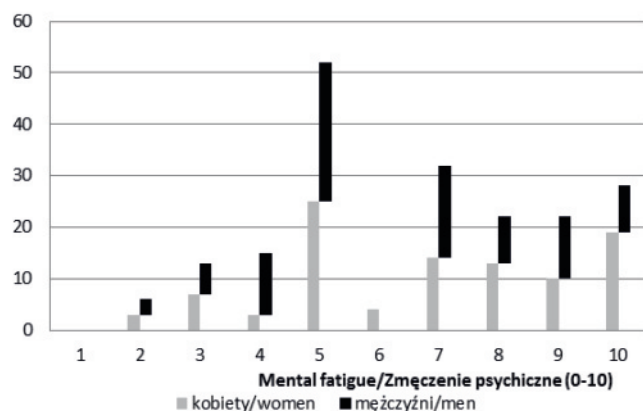


Fig. 2. Mental fatigue after a working day in a 0-10 scale

Table 1. Characteristics of respondents

Variable	Respondents n [%]		
	Women	Men	Total
Total	69 (67.7%)	33 (32.4%)	102 (100%)
Seniority (years)			
0-4	17 (25%)	8 (24%)	25 (24%)
5-10	7 (10%)	7 (21%)	14 (14%)
10-30	31 (45%)	18 (55%)	49 (48%)
>30	14 (20%)	0	14 (14%)
Number of patients a day	0	1 (3%)	1(1%)
5-15	21 (30%)	14 (42%)	35 (35%)
16-30	19 (28%)	5 (15%)	24 (24%)
>30	29 (42)	13 (39%)	42 (42%)
Specialty			
Neurology	40 (58%)	17 (52%)	57 (56%)
Ortopaedics	66 (96%)	31 (94%)	97 (95%)
Kardiopulmonology	6 (9%)	0 (0%)	6 (6%)
Geriatrics	22 (32%)	6 (19%)	28 (27%)
Sports rehabilitation	11 (16%)	6 (19%)	17 (17%)
Chronic pain	31 (45%)	20 (61%)	51 (50%)
Oncology	4 (6%)	0 (0%)	4 (4%)
Laryngology	2 (3%)	2 (6%)	4 (4%)
Others	3 (4%)	0 (0%)	3 (3%)
Place of employment			
Public Health Care Institution	38 (55%)	10 (30%)	48 (47%)
Non-public Health Care Institution	12 (17%)	8 (24%)	20 (20%)
Rehabilitation ward	14 (20%)	12 (36%)	26 (25%)
Other hospital ward	9 (13%)	3 (9%)	12 (12%)
Private practice	1 (1%)	0 (0%)	1 (1%)
	0 (0%)	4 (12%)	4 (4%)
Workplace			
Kinesiotherapy	17 (25%)	9 (27%)	26 (25%)
Physical therapy	9 (13%)	2 (6%)	11 (11%)
Massage	0 (0%)	4 (12%)	4 (4%)
Mixed system	28 (41%)	10 (30%)	38 (37%)
Rotational system	16 (23%)	7 (21%)	23 (23%)

According to the respondents, professional practice activities predisposing to musculoskeletal overload or injury include: work in an uncomfortable, incorrect posture (62%), staying in the same position for a long time (33%), bending and twisting of the trunk (15%), work while physical fatigued (12%).

As many as 22% of respondents report to feel the pain associated with performing job activities every day, 23% several times a week, 34% several times a month and 20% less than once a month. 27% of respondents admit that these problems require professional treatment. Only 1% of physiotherapists did not feel any pain associated with their work. A significantly more men comparing to women experience pain every day ($p < 0.005$) (Tab 1).

To the question 'In your professional career, in the work place while performing professional activities did you ever sustain a musculoskeletal injury which revealed the pain and symptoms lasting longer than 3 days, and was clearly caused by your job?' – 61% of physiotherapists answered 'yes', including 51% that sustained an injury several times. The injuries occurred most often in a public hospital (24%), Public Health Care Institution (13%), Specialist Rehabilitation Centre (11%), Non-public Health Care Institution (9%), patient's home (2%). Statistical analysis showed that the incidence of injury was not dependent on sex ($p = 0.205$). Among both women and men injuries most often concerned lumbar-sacral spine (36% vs. 45%), wrist and arm (29% vs. 30%) and cervical spine (17% vs. 18%). Among women, subsequently the injuries concerned: shoulder joint (16%), elbow (8%), thoracic spine (7%) and joints of the lower limb: ankle (6%), knee (6%) and hip (4%). Among men, slightly more common than injuries of the shoulder joint (6%) were the injuries of the elbow (9%), followed by the injuries of the thoracic spine (6%) and the lower limb: knee (6%) and ankle (3%). None of the men reported hip injury (Fig. 3).

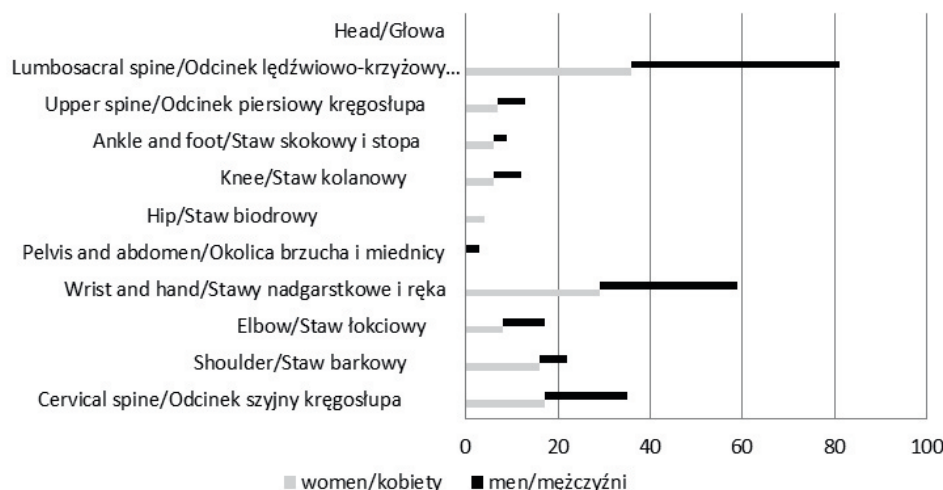


Fig. 3. Localization of injuries

Among 30% of physiotherapists the injury was related to muscle strain, 25% tendon strain, 21% intervertebral disc displacement, 7% irritation of the bursa, 3% fracture, 3% dislocation, 2% twisting, 2% muscle rupture. In 8% of respondents reported other kind of injury.

The injury occurred mainly while lifting and transferring dependent patient or equipment (45%), performing passive exercises (18%), as a result of a sudden and unanticipated movement by patient (16%), while performing massage techniques (12%), as a result of slip, trip or fall (7%), while performing physical therapy treatment (8%), during manual therapy techniques (3%), carrying equipment (3%), assisting patients during gait activities (2%), during other activities (4%) (Figure 4).

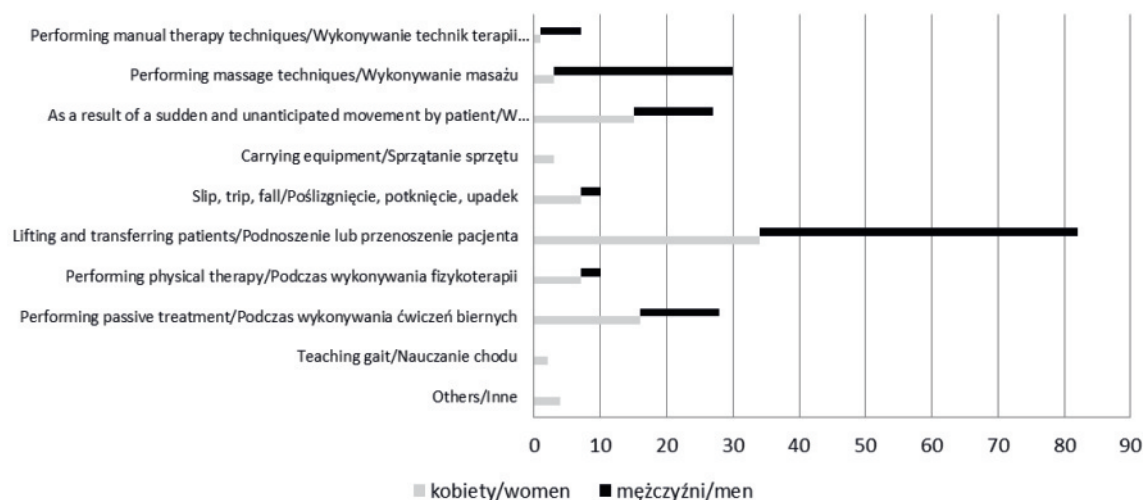


Fig. 4. Activities during which the injury occurred

95% of all respondents declare they know the principles of adopting the correct posture. 41% admit they adhere to these principles occasionally, while 9% does not comply with them at all. 96% know the rules of safe lifting and carrying heavy loads, but 26% does not apply them. 34% of physiotherapists do not adjust the height of the bed, 29% not always.

Working comfort is ensured only according to 41% of respondents. Workplace design did not allow adopting the correct posture of the body in 73%. 30% of physiotherapists report the inability to adjust the height of the equipment. Access to the equipment is not sufficient for 43% of respondents. The arrangement of the equipment in the therapy room in 63% hampers locomotion. Usually there are separate rooms for kinesiotherapy (80%), but more than half of the respondents assessed the size of the room as at least unsatisfactory. More than 50% of the physiotherapists consider the air condition as insufficient. 60% of physiotherapists declare to practice physical activity once a week, but only 12% perform physical exercise more than 3 times a week for more than 30 minutes. The majority of respondents are aware that it is necessary for the physiotherapists to stay physically fit and keep good physical condi-

tion as long as possible, but paradoxically they assess their fitness level as rather low.

Statistical analysis showed no significance, but the authors observed clear trends that should be taken into consideration in the future research. The incidence of injury was associated with the specialty (injuries most often occurred in physiotherapists working in orthopedics and neurology), unergonomic workplaces which prevent to adopt proper posture, type of practice (injuries mostly concerned respondents performing kinesiotherapy, least often occurred in respondents working in rotation and mixed). Definitely more pain and injuries have been reported by physiotherapists working in the profession for less than five years.

Discussion

The results obtained in the study confirm the validity of the assumption that the nature of the physiotherapy profession increases the risk of musculoskeletal injuries among the representatives of this professional group. 61% of physiotherapists reported lifetime prevalence of injury associated with the performance of professional activities. The results obtained are similar to those obtained by Glover et al. (68%), West and Gardner (55%), Salik and Ozcan, and at the same time are considerably lower than in the study by Cromie i wsp. (91%) [5, 7, 12].

Based on the study results, it can be concluded that the highest prevalence of work-related injuries among physiotherapists was to the lumbosacral spine (42%), wrist and hand (32%) and the cervical spine (21%). This is consistent with the results obtained by Bork et al. in the United States. Bork found similar incidence of injuries to the lumbosacral spine (45%), wrist and hand (29,6%) and the cervical spine (24,7%) [10]. The only difference was the higher incidence of injuries of the thoracic spine (28,7%) which in present study was only 8%. The injuries most often occurred when lifting or transferring the patient or equipment (45%), during the performance of passive exercises (18%) or in response to the sudden and unexpected movement by patient (16%).

The results indicate a very high incidence of pain associated with professional practices. 99% of respondents feel the musculoskeletal pain related to work activities and 22% feel the pain every day. The prevalence of pain in the lumbar spine in 42% of physiotherapists is slightly lower than in the study by Glover et al. 48% [13], Mierzejewski and Kumar 49% [14], Bork et al. 45% [10], Holder et al. 62% [11], Igbal and Alghadir 51% [9], but higher than in the research carried out among physical therapists by Salik and Ozean – only 26% [7], and by West and Gardner – 35% [5]. In the light of previous studies it was shown that pain in the lumbar region of the spine is one of the main reasons limiting work ability and resulting in sick leaves and disability pensions [15].

The fact that such a high incidence of injuries and pain is sustained by the professional group specializing in injury prevention is surprising. There is a large discrepancy between theoretical knowledge and its practical application in the workplace. Almost all respondents claimed to know the principles of adopting the correct posture, but more than half admitted that in practice only 41% apply them occasionally and 9% not at all. Similarly, 26% of

physiotherapists do not respect the principles of safe lifting and carrying heavy loads, and more than half did not adjust the height of beds.

The injury most often occurred in a public hospital (23%), Specialist Rehabilitation Centre (15%), Healthcare Centre (13%) and in the patient's home (13%). Similar conclusions were reached by Mierzejewski and Kumar, who stated that injuries most commonly occur in hospitals and private practice [14]. Proper adjustment of the workplace is also an important factor that may have an impact on the incidence of injuries. In the study many therapists reported insufficient work comfort, poor design of the workplace preventing adoption of appropriate position, the inability to adjust the height of the equipment, inadequate air conditioning, inadequate size of rooms for kinesiotherapy hindering locomotion and the access to devices.

High incidence of injuries and pain may also be associated with excessive working hours and too many patients admitted daily. 53% of respondents outside working hours practiced private visits. The average number of admitted patients was 30 daily.

Considering the risk factors predisposing to injury the preventive strategies can be developed. These strategies may involve: minimizing manual handling, obtaining help from other colleagues when lifting or transferring patients, adjusting bed height, introducing regular breaks, changing working position frequently, changing activities to avoid doing the same repetitive tasks all day, limiting number of patients a day. It is also important to propagate physical activity among physiotherapists which may prevent the injury.

Undoubtedly, the negative aspect of this study is the small sample size, but the relevance of the presented results means that they can be a reference point for further research on the prevalence of musculoskeletal injuries at physiotherapists. The more that, according to the literature analysis carried out for the purposes of this study, there are few reports on the prevalence of this problem among physiotherapists working in Poland. It is necessary to consider further education in terms of ergonomics in physiotherapy profession, teach correct, ergonomic motor habits, introduce preventive strategies, adjust workplaces, supervise compliance with the ergonomics and conduct further research in this field. Taken activities will contribute to maintaining and prolonging the working activity of physiotherapists.

Generally, demographic problems, especially the aging trend of the population, currently represent one of the major threats to our country. The number of people in working and pre-production age is decreasing while those in the retirement age - increasing. Changes in the pension system for the later retirement compound the need to increase working ability. This activity, however, is determined by an appropriate health condition. It is assumed that poor health is one of the main reasons for working inactivity [16]. Health problems do not only cause problems with work ability, but also with work productivity. Therefore, it seems very important to conduct further research studying the health of workers and introduction of activities related to preserving or restoring the health of enabling working activity.

Conclusions

1. Musculoskeletal pain and injuries are an important issue among physiotherapists.
2. They are most often located in the lumbosacral spine, wrist and hand as well as in the cervical spine
3. Lifting and moving patients or equipment, performing massage and passive exercises are the most common activities related to pain development and the occurrence of injury.
4. High incidence of work-related musculoskeletal pain and injuries results from the insufficient application of ergonomics by physiotherapists, as well as from the inadequate adaptation of the workplace.
5. To maintain and prolong the ability to work in a physiotherapy profession it is necessary to provide an appropriate ergonomics training, monitor the compliance of ergonomics by physiotherapists and carry on further research in this field.

Corresponding author

dr n med. Katarzyna Michalak

Zakład Metodyki Nauczania Ruchu Uniwersytetu
Medycznego w Łodzi,
pl. Hallera 1, 90-647 Łódź
email: katarzyna.michalak@umed.lodz.pl

References

1. Beynon C, Reilly T. Epidemiology of musculoskeletal disorders in a sample of British nurses and physiotherapists. [book auth.] Reilly T. Musculoskeletal disorders in health related occupations. Amsterdam: IOS Press, 2002.
2. Ellis B. Moving and handling patients. Physiotherapy 1993, 79;5:323-326.
3. Glover W. Work related strain injuries in physiotherapists. Prevalence and prevention of musculoskeletal disorders. Physiotherapy 2002;88,6:364-372.
4. Mikołajewska E. Urazy mięśniowo-szkieletowe związane z pracą u fizjoterapeutów. Med Pr 2013;64;5:681-687.
5. West D, Gardner D. Occupational injuries of physiotherapists in North and Central Queensland. Aust J Physiother. 2001, 47:179-186.
6. Cromie J, Robertson V, Best M. Work-related musculoskeletal disorders in physical therapists : prevalence, severity, risk and responses. Phys Ther. 2000, 80:336-351.
7. Salik Y, Ozcan A. Work-related musculoskeletal disorders: a survey of physical therapists in Izmir-Turkey. BMC Musculoskeletal Dis. 2004, 5:27.
8. Rugelj D. Low back pain and other work related musculoskeletal problems among physiotherapists. Appl Ergonom. 2003, 34:635-639.
9. Igbal Z, Alghagir A. Prevalence of work-related musculoskeletal disorders among physical therapists. Med Pr, 2015, 66:4.
10. Bork B, Cook T, Rosecrance J, Engelhardt K, Thomason M, Wanford I, Worley R. Work-related musculoskeletal disorders among physical therapists. Phys Ther. 1996, 76;8:827-835.
11. Holder N., Clark H., DiBlasio J. et al. Cause, prevalence, and response to occupational musculoskeletal injuries reported by physical therapists and physical therapy assistant. Phys Ther 1999, 79;7:642-652.
12. West D., Gardner D. Occupational injuries of physiotherapists in North and Central Queensland. Aust J Physiother. 2001, 47:179-186.
13. Glover W, McGregor A, Sullivan C, Hague J. Work-related musculoskeletal disorders affecting members of the Chartered Society of Physiotherapy. Physiotherapy 2005, 81:138-147.
14. Mierzejewski M., Kumar S. Prevalence of low back pain among physical therapists in Edmonton, Canada. Disabil Rehabil 1997;19;8:309-317.
15. Gatchel RJ, Polatin BP, Noe C, Gardea M, Pulliam C, Thompson J. Ministry of Health Social Affairs. Public health report. Treatment- and cost-effectiveness of early intervention for acute low-back pain patients: a one-year prospective study. J Occup Rehabil. 2003;13:1-9.
16. Policy paper dla ochrony zdrowia na lata 2014-2020. Krajowe ramy strategiczne, str. 11.